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Differential Predictive Effects of Perceived Teacher Support on Foreign Language Enjoyment among Senior High School Students

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Abstract: Foreign language enjoyment (FLE), which plays an important role in academic emotions, is closely related to senior high school students' engagement and outcomes in English learning. Perceived teacher support is the main resource associated with students' emotional experience. Most previous studies have examined teacher support and FLE at the overall level, while few studies have examined whether different types of teacher support predict different dimensions of FLE among senior high school students. Based on self-determination theory and control-value theory, this study surveyed 305 students in Grade 10 and Grade 11 from one senior high school in Hebei Province. By employing the Perceived Teacher Support Scale and the Foreign Language Enjoyment Scale, descriptive statistics, correlation analysis, regression analysis, and dominance analysis were conducted to examine the differential predictive effects of perceived teacher support on FLE. The results are: (1) emotional and autonomy support significantly predicted overall FLE, whereas cognitive support showed no significant independent effect; (2) the three support dimensions differed in predictive strength; (3) the dominance analysis showed that emotional support completely dominated the other two dimensions across all four models. These findings provide empirical support for targeted teacher support and the promotion of positive emotions in senior high school English classrooms.

1. Introduction

With the development of positive psychology, foreign language enjoyment has received increasing attention in research on second-language emotions [1]. Previous studies suggested that FLE not only helps reduce classroom anxiety and strengthen learning engagement [2], but is positively associated with foreign-language achievement and motivation as well [3-4]. Teacher support is especially relevant because language teachers organize much of classroom learning and

provide an important source of interpersonal support [5]. However, much of the existing research treats teacher support or FLE as an overall construct. Few studies have compared different dimensions of both constructs in the same analysis. Many studies also focus on university students, while senior high school students have received less attention. Therefore, this study focuses on senior high school students in Hebei Province and draws on self-determination theory and control-value theory. It examines whether three dimensions of perceived teacher support (emotional, autonomy, and cognitive support) differentially predict three dimensions of FLE (FLE-Private, FLE-Teacher, and FLE-Atmosphere). It also tests the incremental predictive value of teacher support after gender and grade are controlled, with the aim of providing a more specific basis for fostering positive foreign-language emotions in senior high school classrooms.

2. Literature Review

2.1. Definitions of Perceived Teacher Support and FLE

Teachers organize and guide classroom learning, and the support they provide is closely related to foreign-language learners' emotional experience and the quality of classroom instruction [6]. Perceived teacher support refers to students' subjective perceptions and evaluations of the supportive behaviors, attitudes, and resources teachers provide during the teaching and learning process [7]. Teacher support is generally treated as a multidimensional construct, and its dimensions are interrelated [8], although they have been classified differently across studies. For example, Chai and Gong [9] divided teacher support into emotional, autonomy, and cognitive support; Liu and Guo [10] proposed cognitive, emotional, interactional, and instrumental support; Shao et al. [11] used the categories of universal, targeted, accompanying, and continuous support; and Yang and Du [12] divided teacher support into autonomy support, structure (or competence support), and involvement (or relatedness support). These classifications show that teacher support is a broad construct, but they also reveal substantial variation in how its dimensions are defined across studies.

Self-determination theory identifies relatedness, autonomy, and competence as three basic psychological needs that help sustain intrinsic motivation [13], and this framework has received empirical support in foreign-language classrooms [14]. Chai and Gong [9] accordingly operationalized teacher support as emotional, autonomy, and cognitive support, corresponding broadly to relatedness, autonomy, and competence, respectively. This three-dimensional framework has been used in Chinese basic-education research and is adopted in this study.

FLE was first introduced by Dewaele and MacIntyre [1] and was later described as the positive emotion learners experience when they successfully meet challenges, overcome difficulties, or complete tasks in foreign-language learning [15]. It has since become a major construct in research on second-language emotions [16]. According to Pekrun's [17] control-value theory, enjoyment is more likely when learners feel able to handle a task and consider it worth the effort. As part of the classroom context, teacher support is relevant to these control and value appraisals.

FLE has been conceptualized as a multidimensional construct. Among Chinese learners of English as a foreign language (EFL), Li et al. [3] validated a three-factor structure comprising FLE-Private, FLE-Teacher, and FLE-Atmosphere. These dimensions capture positive feelings arising, respectively, from learners' own progress and engagement, positive teacher behavior, and a supportive classroom environment. Because these dimensions represent different sources of enjoyment, their relationships with emotional, autonomy, and cognitive support need to be examined separately.

2.2. Progress and Limitations in Research on the Differential Relationship between Teacher Support and FLE

Empirical research on teacher support and FLE can be broadly grouped into three analytical approaches: overall-to-overall, overall-to-multidimensional, and single-dimension-to-multidimensional models.

Studies using an overall-to-overall approach examine teacher support and FLE mainly as total scores. For example, Zhang and Wang [18] used structural equation modeling with 642 university students and identified several indirect paths linking teacher support, academic emotions, FLE, and learning engagement. Hejazi and Sadoughi [19] surveyed 339 English learners in Iran and found that stronger overall teacher support was associated with higher FLE and greater second-language grit. Ma et al. [20] also reported positive relationships among perceived teacher support, enjoyment, and academic achievement in reading. These studies show the importance of teacher support. Because they do not separate it into specific dimensions, they cannot show whether emotional, autonomy, and cognitive support differ in predictive strength.

Other studies distinguish dimensions of either FLE or teacher support, but typically not both at the same time. Jiang [4], for instance, found that teachers' encouragement and friendly attitudes were among the strongest predictors of FLE, but teacher support was not systematically divided according to students' basic psychological needs. Liu and Guo [10] distinguished four forms of teacher support in an online teaching context but used only a total FLE score as the outcome. Li [21] examined teacher characteristics related to belonging support, such as friendliness and enthusiasm, but did not compare this form of support directly with autonomy and cognitive support. Zhou et al. [22] reported an indirect relationship between teacher emotional support and interaction engagement through self-efficacy, but emotional support was the only support dimension examined. Yang et al. [23] found that class-level differences in FLE across teachers were related to the frequency and diversity of teachers' classroom metadiscourse, highlighting the role of teacher-related features such as rapport. Their study also did not systematically compare multiple dimensions of teacher support.

Existing research shows a positive relationship between teacher support and FLE, but it has not compared multiple dimensions of teacher support with multiple FLE dimensions in the same analysis. This study uses self-determination theory and control-value theory to examine emotional, autonomy, and cognitive support as predictors of overall FLE and its three dimensions: FLE-Private, FLE-Teacher, and FLE-Atmosphere. Gender and grade are controlled in hierarchical regression. Wald tests and seemingly unrelated regression (SUR) are used to compare coefficients, and dominance analysis is used to compare the relative contributions of the three support dimensions. The study addresses the following questions:

1) After demographic variables such as gender and grade are controlled, do emotional, autonomy, and cognitive support significantly predict overall FLE and its three subdimensions?

2) Do the three dimensions of perceived teacher support differ significantly in their predictive strength across the different dimensions of FLE?

3) Among emotional, autonomy, and cognitive support, which dimension makes the largest predictive contribution to overall FLE and to each FLE subdimension?

3. Methods

3.1. Participants

Cluster sampling was used to recruit students from eight classes in Grade 10 and Grade 11 at a general senior high school in Hebei Province. Students completed an anonymous questionnaire. A

total of 320 questionnaires were distributed and 305 valid responses were obtained, yielding a valid response rate of 95.3%. The final sample included 142 boys (46.6%) and 163 girls (53.4%). In terms of grade, 107 students (35.1%) were in Grade 10 and 198 students (64.9%) were in Grade 11.

3.2. Instruments

3.2.1. Perceived Teacher Support Scale

Perceived teacher support was measured with the scale adapted from Chai and Gong [9]. Its three dimensions (emotional, autonomy, and cognitive support) broadly correspond to the needs for relatedness, autonomy, and competence in self-determination theory [13]. Only subject-specific wording was changed from mathematics to English; the item and dimensional structures were retained. The 17-item scale included seven emotional-support items (e.g., "My English teacher likes me"), five autonomy-support items (e.g., "My English teacher allows us to propose approaches that differ from the standard answer"), and five cognitive-support items (e.g., "My English teacher often extends what we have learned by drawing connections to related ideas"). Cronbach's α was 0.92 for the full scale and 0.89, 0.85, and 0.84 for emotional, autonomy, and cognitive support respectively, indicating good internal consistency.

3.2.2. Foreign Language Enjoyment Scale

FLE was measured with the 11-item Chinese Foreign Language Enjoyment Scale developed by Li et al. [3] for Chinese senior high school learners. It contains FLE-Private (five items; e.g., "I enjoy learning English"), FLE-Teacher (three items; e.g., "The teacher always encourages us"), and FLE-Atmosphere (three items; e.g., "There is a good atmosphere for learning English around me"). Cronbach's α was 0.83 for the overall scale and 0.85, 0.89, and 0.81 for the three subscales respectively.

3.3. Data Analysis

Descriptive statistics and Pearson correlations were calculated first. Hierarchical multiple regression analyses entered gender and grade (boy = 0, girl = 1; Grade 10 = 0, Grade 11 = 1) in Step 1 and emotional, autonomy, and cognitive support in Step 2. Wald tests compared coefficients within each outcome, while SUR compared coefficients across outcomes [24]. Dominance analysis assessed the relative importance of the three support dimensions [25], with Johnson's relative weight analysis used as a robustness check [26]. All variance inflation factors (VIFs) were below 2.

4. Results

4.1. Common Method Bias Test

Harman's single-factor test [27-28] extracted six factors with eigenvalues greater than 1, and the first factor accounted for 37.33% of the total variance, below the 40% criterion, suggesting no serious common method bias.

4.2. Descriptive Statistics and Correlations

As shown in Table 1, all variables had moderately high means. All three support dimensions were positively correlated with all FLE dimensions ($r = 0.255$-0.663, all $p < 0.001$), and emotional support correlated most strongly with FLE-Teacher ($r = 0.663$). Although the support dimensions

were intercorrelated (r = 0.465-0.596), all VIFs were below 2, indicating no serious multicollinearity.

Table 1: Descriptive Statistics and Pearson Correlation Matrix (N = 305).

Variable	1	2	3	4	5	6	7
1. Emotional support	—						
2. Autonomy support	0.596***	—					
3. Cognitive support	0.581***	0.465***	—				
4. FLE-Private	0.498***	0.352***	0.337***	—			
5. FLE-Teacher	0.663***	0.552***	0.556***	0.352***	—		
6. FLE-Atmosphere	0.443***	0.381***	0.255***	0.208***	0.377***	—	
7. Overall FLE	0.706***	0.556***	0.496***	0.809***	0.704***	0.664***	—
Mean (M)	3.91	4.19	4.17	3.61	4.30	3.65	3.81
Standard deviation (SD)	0.70	0.52	0.60	0.84	0.78	0.95	0.63

Note: * p < 0.05, ** p < 0.01, *** p < 0.001. VIFs for all predictors were below 2 (maximum VIF = 1.93 for emotional support), indicating no serious multicollinearity.

4.3. Predictive Associations between Perceived Teacher Support and FLE

To address Research Question 1, hierarchical regressions were conducted for overall FLE and the three FLE dimensions. Model 1 included gender and grade; Model 2 added emotional, autonomy, and cognitive support (Table 2).

Table 2: Hierarchical Regression of Perceived Teacher Support on Overall FLE and Its Dimensions (N = 305).

Predictor	FLE	FLE	FLE-P	FLE-P	FLE-T	FLE-T	FLE-A	FLE-A
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender	0.141*	0.028	0.125*	0.045	0.043	-0.068	0.122*	0.056
Grade	-0.063	0.001	-0.048	-0.005	-0.037	0.019	-0.051	-0.005
ES	—	0.533***	—	0.411***	—	0.425***	—	0.343***
AS	—	0.193***	—	0.077	—	0.200***	—	0.191**
CS	—	0.093	—	0.056	—	0.224***	—	-0.040
R^2	0.022	0.533	0.017	0.257	0.003	0.513	0.016	0.221
Adj. R^2	0.016	0.526	0.010	0.244	-0.004	0.505	0.010	0.208
ΔR^2	—	0.511***	—	0.240***	—	0.511***	—	0.205***
F	3.41*	68.37***	2.60	20.65***	0.44	63.11***	2.52	17.00***
ΔF	—	109.24***	—	32.15***	—	104.58***	—	26.24***

Note: * p < 0.05, ** p < 0.01, *** p < 0.001. FLE = overall foreign language enjoyment; FLE-P = FLE-Private; FLE-T = FLE-Teacher; FLE-A = FLE-Atmosphere; ES = emotional support; AS = autonomy support; CS = cognitive support. Model 1 included gender and grade; Model 2 added ES, AS, and CS. Values are standardized regression coefficients (β). All VIFs were below 2 (maximum VIF = 1.93 for emotional support).

The hierarchical regression results showed that gender and grade explained little variance (Model 1 R^2 = 0.003-0.022), whereas adding the three support dimensions significantly increased the explained variance in all four models (ΔR^2 = 0.205-0.511, all $p < 0.001$). Emotional support (β = 0.533, $p < 0.001$) and autonomy support (β = 0.193, $p < 0.001$) significantly predicted overall FLE, whereas cognitive support was not a significant independent predictor (β = 0.093, p = 0.061). For FLE-Private, only emotional support was significant (β = 0.411, $p < 0.001$). All three dimensions significantly predicted FLE-Teacher: emotional support (β = 0.425), autonomy support (β = 0.200), and cognitive support (β = 0.224), all $p < 0.001$. Emotional support (β = 0.343, $p < 0.001$) and autonomy support (β = 0.191, $p < 0.01$) significantly predicted FLE-Atmosphere, while cognitive support was not significant (β = -0.040, p = 0.533).

4.4. Differences in Predictive Strength among the Three Perceived Teacher Support Dimensions

For Research Question 2, Wald tests compared the three support dimensions within each outcome, and SUR compared coefficients across outcomes (Table 3).

Table 3: Tests of Differences among Predictive Coefficients of Perceived Teacher Support (N = 305, df = 299).

Panel A. Within-outcome comparisons among the three support dimensions

Outcome	Emotional vs. autonomy	Emotional vs. cognitive	Autonomy vs. cognitive
Overall FLE	0.341 (3.81)***	0.440 (5.00)***	0.100 (1.30)
FLE-Private	0.334 (2.96)**	0.355 (3.19)**	0.021 (0.22)
FLE-Teacher	0.225 (2.47)*	0.201 (2.24)*	-0.024 (-0.30)
FLE-Atmosphere	0.152 (1.32)	0.383 (3.37)***	0.231 (2.33)*

Panel B. Cross-outcome comparisons within each support dimension (SUR)

Predictor	FLE-Private vs. FLE-Teacher	FLE-Private vs. FLE-Atmosphere	FLE-Teacher vs. FLE-Atmosphere	Joint test $\chi^2(2)$
Emotional support	-0.014 (-0.16)	0.068 (0.68)	0.082 (0.96)	0.95
Autonomy support	-0.123 (-1.51)	-0.114 (-1.23)	0.009 (0.12)	2.46
Cognitive support	-0.167 (-2.09)*	0.096 (1.06)	0.264 (3.42)***	12.68**

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. $\Delta\beta$ denotes the difference between two standardized regression coefficients; t values are in parentheses. Panel A uses Wald tests based on the coefficient covariance matrix of Model 2. Panel B uses cross-equation restrictions in the SUR framework. The joint test for the three support dimensions was $\chi^2(6) = 33.91$, $p < 0.001$.

Within each outcome, emotional support had significantly larger coefficients than both autonomy and cognitive support for overall FLE, FLE-Private, and FLE-Teacher ($\Delta\beta$ = 0.201-0.440, all $p < 0.05$). For FLE-Atmosphere, emotional and autonomy support both exceeded cognitive support ($\Delta\beta$ = 0.383, $p < 0.001$; $\Delta\beta$ = 0.231, $p < 0.05$) but did not differ significantly from each other (p = 0.189).

Across outcomes, the coefficient patterns of the three support dimensions differed significantly, $\chi^2(6) = 33.91$, $p < 0.001$. This difference was mainly attributable to cognitive support, $\chi^2(2) = 12.68$, $p < 0.01$, which predicted FLE-Teacher more strongly than FLE-Private ($\Delta\beta$ = -0.167, t = -2.09, $p < 0.05$) and FLE-Atmosphere ($\Delta\beta$ = 0.264, t = 3.42, $p < 0.001$). The coefficients of emotional support ($\chi^2(2) = 0.95$, p = 0.622) and autonomy support ($\chi^2(2) = 2.46$, p = 0.293) remained relatively stable across the three FLE dimensions.

4.5. Dominance Analysis of the Relative Contributions of the Three Support Dimensions

For Research Question 3, dominance analysis compared the relative importance of the three support dimensions, with Johnson's relative weights used as a robustness check (Table 4).

Table 4: Dominance Analysis of the Three Perceived Teacher Support Dimensions for Overall FLE and Its Dimensions (N = 305).

Outcome (R^2)	Predictor	K = 0	K = 1	K = 2	General dominance weight	Rescaled dominance weight (%)	Relative weight (ε)	Complete dominance
Overall FLE (0.533)	Emotional support	0.499	0.241	0.152	0.297	55.8	0.292	Emotional > Autonomy > Cognitive
	Autonomy support	0.309	0.081	0.023	0.138	25.8	0.141	
	Cognitive support	0.246	0.041	0.006	0.098	18.3	0.100	
FLE-Private (0.255)	Emotional support	0.248	0.133	0.093	0.158	62.0	0.155	Emotional > Autonomy > Cognitive
	Autonomy support	0.124	0.027	0.004	0.051	20.2	0.053	
	Cognitive support	0.113	0.021	0.002	0.045	17.8	0.047	
FLE-Teacher (0.509)	Emotional support	0.439	0.173	0.090	0.234	46.0	0.229	Emotional > Cognitive > Autonomy
	Autonomy support	0.305	0.074	0.025	0.135	26.5	0.137	
	Cognitive support	0.309	0.079	0.032	0.140	27.5	0.143	
FLE-Atmosphere (0.218)	Emotional support	0.196	0.102	0.065	0.121	55.5	0.119	Emotional > Autonomy > Cognitive
	Autonomy support	0.145	0.055	0.022	0.074	33.9	0.076	
	Cognitive support	0.065	0.004	0.001	0.023	10.6	0.023	

Note: K is the number of other predictors included in a submodel. Entries under each K are the predictor's average incremental contribution (ΔR^2) across the corresponding submodels. The general dominance weight is the mean of the average contributions across the three K levels, and the three weights sum to the model R^2. The rescaled dominance weight (%) is the general dominance weight divided by the model R^2 and multiplied by 100. The symbol > indicates complete dominance [25]. ε denotes Johnson's [26] relative weight and is reported as a robustness check. Gender and grade are not included in these dominance models, so R^2 values differ slightly from Table 2. Minor discrepancies are due to rounding.

The dominance analysis showed that emotional support completely dominated both autonomy and cognitive support in all four models. Its general dominance weight accounted for 46.0% of the explained variance in FLE-Teacher and 62.0% in FLE-Private. The corresponding proportions were 55.8% for overall FLE and 55.5% for FLE-Atmosphere. Autonomy support accounted for 25.8%, 20.2%, and 33.9% of the explained variance in overall FLE, FLE-Private, and FLE-Atmosphere, respectively, and exceeded cognitive support in all three models. Cognitive support exceeded autonomy support only in the FLE-Teacher model, with a difference of 1.0 percentage point.

In terms of complete dominance relationships, the ranking in the FLE-Teacher model was emotional support > cognitive support > autonomy support, while the ranking in the overall FLE, FLE-Private, and FLE-Atmosphere models was emotional support > autonomy support > cognitive support (the symbol ">" means "greater than"). Johnson's relative weights produced the same rankings.

5. Discussion

5.1. Predictive Associations between Perceived Teacher Support and Senior High School Students' FLE

All three dimensions of perceived teacher support and the three FLE dimensions showed

moderately high mean levels, and each support dimension was positively correlated with overall FLE and its subdimensions. After gender and grade were controlled, the three forms of teacher support jointly explained an additional 51.1% of the variance in overall FLE, highlighting teacher support as an important external source of enjoyment in the high school English classroom. This pattern is consistent with both self-determination theory and control-value theory. Self-determination theory holds that when students' needs for autonomy, competence and belonging are met, they are more likely to have positive emotional experiences; teachers' supportive behaviors can satisfy these basic psychological needs, thus stimulating foreign language enjoyment [13]. The control-value theory further points out that academic emotions depend on an individual's sense of control over learning tasks and value evaluation, and teacher support can improve students' sense of control and value recognition, thereby promoting the formation of positive academic emotions [17]. However, the three support dimensions did not contribute to this association equally. Emotional and autonomy support were significant positive predictors of overall FLE, whereas cognitive support was not significant after the other two dimensions were entered. At the subdimension level, emotional support was the only dimension that significantly predicted all three FLE dimensions. Autonomy support significantly predicted FLE-Teacher and FLE-Atmosphere, while cognitive support significantly predicted only FLE-Teacher. These results show that total teacher-support or total FLE scores can obscure dimension-specific relationships. In classroom practice, emotional support can serve as a basic form of support, with autonomy opportunities and cognitive guidance adjusted to the learning task and students' needs.

5.2. Differences in Predictive Strength across the Three Perceived Teacher Support Dimensions

Earlier studies mainly used overall-to-overall, overall-to-multidimensional, or single-dimension-to-multidimensional designs. This study directly compared coefficients within and across FLE outcomes. First, within each outcome, emotional support had significantly larger coefficients than autonomy and cognitive support for overall FLE, FLE-Private, and FLE-Teacher. This pattern indicates that perceived care, acceptance, and encouragement from the teacher are closely related to several aspects of FLE. In self-determination theory, emotional support corresponds to the need for relatedness. In control-value theory, teacher recognition of students' effort and progress is relevant to the value attached to classroom learning, which echoes with Jiang's [4] finding that teacher encouragement and friendliness are important predictors of FLE. FLE-Atmosphere showed a different pattern. Second, cross-equation comparisons showed that emotional and autonomy support had relatively stable coefficients across the three FLE dimensions, whereas the predictive effect of cognitive support was concentrated in FLE-Teacher. This pattern is consistent with the way the constructs are defined. Cognitive support concerns explanation, learning strategies, and problem solving, all of which directly involve the teacher. FLE-Private focuses more on learners' own progress and interest, while FLE-Atmosphere reflects the broader classroom environment. This difference helps explain why cognitive support had less independent predictive value for these two dimensions. For classroom practice, cognitive guidance should be combined with encouragement, understanding, and patience rather than delivered only as technical instruction.

5.3. The Prominent Role of Emotional Support

Among the three support dimensions, emotional support made the largest relative contribution to FLE. It completely dominated autonomy and cognitive support in all four dominance models, and its general dominance weight accounted for 46.0%-62.0% of the explained variance. This result is consistent with Yang et al. [23], who emphasized teacher-student rapport in explaining class-level

differences in FLE. The current analysis extends that finding by comparing emotional support with autonomy and cognitive support in the same models. Autonomy and cognitive support showed more specific patterns. Autonomy support completely dominated cognitive support for overall FLE, FLE-Private, and FLE-Atmosphere; cognitive support completely dominated autonomy support only for FLE-Teacher. Although autonomy support did not have a significant independent coefficient for FLE-Private, dominance analysis still assigned it relative importance because it shared explained variance with the other support dimensions. Autonomy support accounted for 33.9% of the explained variance in FLE-Atmosphere, indicating that allowing the expression of different views, providing opportunities for choice and time for independent thinking can directly enhance the sense of openness and participation in the classroom. The practical implication is to coordinate the three support dimensions. Emotional support can be maintained in daily interaction, cognitive and strategic guidance can be provided clearly and patiently, and autonomy can be offered in structured ways, such as choice of oral-presentation topics, alternative problem-solving approaches, or options in reading and writing tasks.

6. Conclusion

This study used a multidimensional-to-multidimensional approach to examine how emotional, autonomy, and cognitive support predict senior high school students' FLE. Emotional support was the most consistent predictor and made the largest relative contribution in all four dominance models; autonomy support significantly predicted overall FLE, FLE-Teacher, and FLE-Atmosphere; and cognitive support independently predicted only FLE-Teacher. These results support differentiated use of teacher support in senior high school English classrooms. The study also has limitations. First, the cross-sectional design precludes causal inference. Second, the sample included only students in Grade 10 and Grade 11 from one senior high school in Hebei Province. The small number of participating classes also prevented a multilevel analysis of class-level effects. Future studies should use longitudinal or cross-lagged designs, combine student reports with teacher ratings and classroom observations, and recruit larger and more diverse samples. They should also examine potential mediators and whether the relationships differ across student groups and classroom contexts.

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