Reciprocal Relationships Among Homeroom Teachers' Consultative Management Behavior, Teacher-Student Relationship, and Externalizing Problem Behaviors in Grades 4-6 Primary School Students: A Cross-Lagged Study

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Abstract

To explore the interplay among head teachers' consultative management behavior, teacher-student relationships, and student externalizing problem behaviors, 1407 students in grades 4-6 were assessed three times longitudinally using questionnaires over one academic year. Cross-lagged analysis results indicated: (1) Head teachers' consultative management behavior initiates a positive interaction process; head teachers' consultative management behavior at T1 significantly reduced students' externalizing problem behaviors at T2, enhanced teacher-student closeness at T2, and decreased teacher-student conflict at T2, which in turn significantly influenced head teachers' consultative management behavior, teacher-student relationships, and student externalizing problem behaviors at T3; (2) Student externalizing problem behaviors drive a negative interaction process; student externalizing problem behaviors at T1 significantly reduced head teachers' consultative management behavior at T2, decreased teacher-student closeness at T2, and increased teacher-student conflict at T2, which in turn significantly influenced student externalizing problem behaviors, teacher-student relationships, and head teachers' consultative management behavior at T3. The findings support the dynamic interaction model, suggesting that while head teachers should be vigilant about the negative driving role of student externalizing problem behaviors, they can consciously leverage the positive driving role of consultative management behavior to intervene in students' externalizing problem behaviors.

Full Text

The Reciprocal Relationships Among Head Teachers' Negotiation Management Behavior, Teacher-Student Relationships, and Externalizing Problem Behaviors in Grades 4-6 Primary School Students: A Cross-Lagged Study

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Abstract

This study examined the reciprocal relationships among head teachers' negotiation management behavior, teacher-student relationships, and students'externalizing problem behaviors. Using a questionnaire method, 1,407 students in grades 4–6 were tracked and measured three times over one academic year. Cross-lagged analysis revealed: (1) Head teachers' negotiation management behavior initiates a positive interaction process. Time 1 (T1) head teacher negotiation management behavior significantly reduced students'externalizing problem behaviors at Time 2 (T2), enhanced T2 teacher-student relationship intimacy, and decreased T2 teacher-student relationship conflict, which in turn significantly influenced head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors at Time 3 (T3). (2) Students' externalizing problem behaviors drive a negative interaction process. T1 student externalizing problem behaviors significantly reduced T2 head teacher negotiation management behavior, decreased T2 teacher-student relationship intimacy, and increased T2 teacher-student relationship conflict, which in turn significantly influenced T3 student externalizing problem behaviors, teacher-student relationships, and head teacher negotiation management behavior. These findings support the transactional model of development and suggest that while head teachers should remain vigilant about the negative driving effect of students' externalizing problem behaviors, they can consciously utilize the positive driving effect of negotiation management behavior to intervene in students' externalizing problem behaviors.

Keywords: head teacher negotiation management behavior, student externalizing problem behaviors, teacher-student relationship, reciprocal relationships,

cross-lagged study

Classification Code: B844

Externalizing behaviors have long been a focus of researchers as one of the most common and persistent forms of school maladjustment among primary and secondary school students (Lansford et al., 2018; Zhang, 2015). As students enter the upper primary grades (grades 4-6), externalizing problem behaviors such as hyperactivity, noncompliance, lying, and fighting increase significantly (Lansford et al., 2018; Petersen et al., 2015). These behaviors harm the current and future development of students themselves, their classmates, and teachers. For instance, student externalizing problem behaviors are closely associated with low academic achievement and psychological problems (Collins et al., 2016; Zhang et al., 2018), negatively affect classmates' learning and daily life (Lanas & Brunila, 2019; Zhang, 2015), and lead to high occupational stress and burnout among teachers (Aloe et al., 2014; Malinen & Savolainen, 2016). Effective management of students' externalizing problem behaviors by teachers is beneficial for the development of both teachers and students.

Among the many methods teachers use to manage student externalizing problem behaviors, negotiation management (Lewis et al., 2005; Wei, 2014) and building positive teacher-student relationships (Lei et al., 2016; Pakarinen et al., 2017) have received widespread attention and application due to their effectiveness. However, recent research findings have cast doubt on these approaches. For example, Williford and Vitiello' s (2020) cross-lagged study found that students' externalizing problem behaviors negatively predicted teachers' management behaviors, but teachers' management behaviors did not predict students' externalizing problem behaviors. Multiple cross-lagged studies have found that student externalizing problem behaviors can predict increased teacher-student relationship conflict and decreased teacher-student relationship intimacy, but that teacher-student relationship intimacy does not predict reduced student externalizing problem behaviors (Mejia & Hoglund, 2016; Roorda & Koomen, 2021). These studies suggest that students' externalizing problem behaviors may negatively affect teachers' negotiation management behavior and teacher-student relationships, driving a negative interaction process.

Compared to verifying the negative driving effect of students' externalizing problem behaviors, researchers are more concerned with how to terminate and reverse the negative interaction process driven by these behaviors. The transactional model of development in developmental psychology posits that individual development results from continuous, dynamic interactions between individuals and their contexts, wherein individual characteristics and behaviors reciprocally influence the environment while the environment influences the individual (Sameroff, 2009). Based on this theory, head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors may mutually influence one another, and changes in any one factor may alter the interaction process (Sameroff, 2009). Head teachers' negotiation management behavior may terminate the negative interaction process driven

by student externalizing problem behaviors and initiate a positive interaction process, but longitudinal research is needed to verify this.

In China, head teachers are the primary personnel responsible for managing primary and secondary school students' externalizing problem behaviors during school hours (Ministry of Education of the People' s Republic of China, 2009). Head teachers spend considerable time with students and interact with them frequently, so their management behaviors (e.g., negotiation management behavior) may have a greater impact on student externalizing problem behaviors than those of regular subject teachers (Jiang, 2004; Wei, 2014). Examining the reciprocal relationships among head teacher negotiation management behavior, head teacher-student relationships, and student externalizing problem behaviors is more consistent with China' s educational reality. Therefore, this study, grounded in the transactional model, focuses on the reciprocal relationships among head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors.

1.1 The Reciprocal Relationship Between Head Teacher Negotiation Management Behavior and Student Externalizing Problem Behaviors

Head teacher negotiation management behavior can reduce student externalizing problem behaviors (Cheon et al., 2020; Wei, 2014). Negotiation management behavior refers to head teachers/teachers listening to students' voices, involving them in decision-making and implementation processes regarding externalizing problem behavior management, discussing with students how to prevent such behaviors, exploring causes and improvement strategies when they occur, and emphasizing student self-management (Lewis et al., 2005; Wei, 2014). Self-Determination Theory posits that individuals have three basic psychological needs—for autonomy, competence, and relatedness—and that satisfaction of these needs promotes social functioning while frustration leads to social maladjustment (Ryan & Deci, 2017). From this perspective, teacher-student negotiation reduces head teachers' control over students, satisfying their need for autonomy, while student participation in managing externalizing problem behaviors satisfies their need for competence, thereby reducing student externalizing problem behaviors (Cheon et al., 2019).

Conversely, student externalizing problem behaviors may also influence head teacher negotiation management behavior. Examining how student externalizing problem behaviors affect teacher management behaviors can help teachers become aware of and adjust their use of appropriate management strategies (McGrath & Bergen, 2015). Although few empirical studies have directly examined the impact of student externalizing problem behaviors on head teacher/teacher management behaviors (e.g., negotiation management behavior), there is considerable indirect evidence. For example, head teachers/teachers report that the frequency and severity of student externalizing problem behaviors influence their approaches to managing these behaviors (De Ruiter et al., 2020; Wei, 2014). When students exhibit fewer externalizing problem behaviors, head

teachers/teachers tend to use gentle methods (e.g., reminders); when students exhibit more frequent externalizing problem behaviors, they tend to use harsh methods (e.g., criticism) (Dunkake & Schuchart, 2015; Wei, 2014). A recent cross-lagged study also confirmed that student externalizing problem behaviors negatively predicted teachers' classroom management behaviors (Williford & Vitiello, 2020).

1.2 The Reciprocal Relationship Between Teacher-Student Relationships and Student Externalizing Problem Behaviors

Teacher-student relationships significantly influence student externalizing problem behaviors (Lei et al., 2015; Sutherland et al., 2020). Based on Attachment Theory, researchers conceptualize teacher-student relationships as comprising three dimensions: intimacy, characterized by warmth, closeness, and effectiveness; conflict, characterized by negativity, tension, and ineffectiveness; and dependency, wherein students are overly reliant on teachers with unclear boundaries (Bowlby, 1969; Pianta, 2001). Intimate teacher-student relationships function as a secure base, promoting students' free exploration and reducing their externalizing problem behaviors (Pakarinen et al., 2017; Pianta, 2001). From the perspective of Self-Determination Theory, intimate teacher-student relationships satisfy students' need for relatedness, thereby reducing externalizing problem behaviors (Reeve, 2009; Ryan & Deci, 2017). Longitudinal studies have confirmed that intimate teacher-student relationships reduce student externalizing problem behaviors, while conflictual relationships cause or exacerbate them (Crockett et al., 2017; De Laet et al., 2016; Ettekal & Shi, 2020).

As research has progressed, the unidirectional effect of teacher-student relationships on student externalizing problem behaviors has been questioned by some researchers, who argue that student externalizing problem behaviors negatively affect teacher-student relationships (Henricsson & Rydell, 2004; Rudasill, 2011). A series of recent cross-lagged studies have confirmed that while teacher-student relationships influence student externalizing problem behaviors, student externalizing problem behaviors also reduce relationship intimacy and increase relationship conflict (Crockett et al., 2017; Ettekal & Shi, 2020; Ly & Zhou, 2018). For example, Roorda and Koomen's (2021) cross-lagged study found that students' externalizing problem behaviors negatively predicted their perceived teacher-student relationship intimacy and positively predicted their perceived teacher-student relationship conflict.

1.3 The Reciprocal Relationship Between Head Teacher Negotiation Management Behavior and Teacher-Student Relationships

Head teacher negotiation management behavior may facilitate the development of positive teacher-student relationships (Rogers & Freiberg, 1994). Teacher-student relationships develop gradually after teachers and students meet (Mejia & Hoglund, 2016), and both parties' behaviors and characteristics influence this development (Sameroff, 2009). However, because teachers hold a dominant po-

sition in teacher-student interactions, their behaviors play a more important role than students' behaviors in shaping these relationships (Kincade et al., 2020; Reeve, 2009). Person-centered theory identifies non-directive behavior, positive regard, warmth, genuineness, and respect as key characteristics that promote positive teacher-student relationships (Cornelius-White, 2007). Negotiation management embodies respect for students and non-directive approaches, and may therefore promote relationship intimacy and reduce relationship conflict (Lewis et al., 2005; Rogers & Freiberg, 1994).

Conversely, teacher-student relationships may influence head teacher negotiation management behavior. The Transactional Model of Stress and Coping in teacher development posits that teacher-student relationships may affect teacher-student interaction behaviors (Lazarus, 1991; Spilt et al., 2011). Intimate teacher-student relationships provide head teachers/teachers with positive emotional cues that trigger positive management behaviors, while conflictual relationships evoke negative emotions that lead to negative management behaviors (Spilt et al., 2011). Longitudinal research has found that teacher-student relationship conflict negatively predicts teachers' self-efficacy in managing student behavior (Zee et al., 2017). When teachers have high management efficacy, they tend to use positive approaches to manage student externalizing problem behaviors, whereas low efficacy leads to negative approaches (Reeve, 2009; Wei, 2014). These findings indirectly suggest that teacher-student relationships may influence head teachers' negotiation management behavior.

1.4 The Interactions Among Head Teacher Negotiation Management Behavior, Teacher-Student Relationships, and Student Externalizing Problem Behaviors

When teacher-student relationships are considered as outcomes of head teacher negotiation management behavior and student externalizing problem behaviors, the following reciprocal relationships may exist among the three variables.

Head teacher negotiation management behavior may influence student externalizing problem behaviors through teacher-student relationships, and student externalizing problem behaviors may influence head teacher negotiation management behavior through teacher-student relationships. On one hand, head teacher negotiation management behavior promotes positive teacher-student relationships (Rogers & Freiberg, 1994), which in turn influence student externalizing problem behaviors (Pakarinen et al., 2017). Therefore, head teacher negotiation management behavior may affect student externalizing problem behaviors indirectly through teacher-student relationships. On the other hand, student externalizing problem behaviors affect teacher-student relationships (Crockett et al., 2017; Roorda & Koomen, 2021), which influence head teacher negotiation management behavior (Spilt et al., 2011). Thus, student externalizing problem behaviors may also affect head teacher negotiation management behavior indirectly through teacher-student relationships.

Head teacher negotiation management behavior may influence teacher-student relationships through student externalizing problem behaviors, and student externalizing problem behaviors may influence teacher-student relationships through head teacher negotiation management behavior. On one hand, head teacher negotiation management behavior may reduce student externalizing problem behaviors (Ryan & Deci, 2017), which affect teacher-student relationships (Ettekal & Shi, 2020; Roorda & Koomen, 2021). Therefore, head teacher negotiation management behavior may affect teacher-student relationships indirectly through student externalizing problem behaviors. On the other hand, student externalizing problem behaviors may influence head teacher negotiation management behavior (Dunkake & Schuchart, 2015), which in turn affects teacher-student relationships (Freiberg et al., 2009; Lewis et al., 2005). Therefore, student externalizing problem behaviors may affect teacher-student relationships indirectly through head teacher negotiation management behavior.

In summary, grounded in the transactional model and using Chinese primary school students in grades 4–6 as participants, this study employs a three-wave longitudinal design to examine the complex reciprocal relationships among head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors. The aims are to deepen understanding of the mutual influence mechanisms among these three factors, provide evidence for both the transactional model of development and the transactional model of stress and coping in teacher development, and offer a basis for intervening in externalizing problem behaviors among primary school students in grades 4–6.

2. Method

2.1 Participants

Using convenience cluster sampling, 1,587 students in grades 4–6 from 39 classes across 7 primary schools in three provinces were selected as participants. The schools included 2 urban primary schools in Wuhan, Hubei Province; 3 rural primary schools in Qiannan Prefecture, Guizhou Province; 1 rural primary school in Zunyi, Guizhou Province; and 1 rural primary school in Panzhihua, Sichuan Province. The first measurement (T1) was conducted in mid-October of the new academic year, the second measurement (T2) in mid-March of the following year, and the third measurement (T3) in mid-June of the following year. At T1, 1,587 students participated in the survey, with 1,407 students completing all three waves of data collection, resulting in 180 dropouts and an attrition rate of 11.34%. Analysis revealed no significant differences between participants who completed all three waves and those who dropped out in terms of gender [$^2(1) = 0.65$, $p = 0.42$], age [$t(1585) = -1.32$, $p = 0.19$], or T1 head teacher negotiation management behavior [$t(1585) = -0.96$, $p = 0.33$], teacher-student relationship intimacy [$t(1585) = -1.16$, $p = 0.25$], teacher-student relationship conflict [$t(1585) = -0.12$, $p = 0.91$], or student externalizing problem behaviors [$t(1585) = 0.90$, $p = 0.37$], indicating that attrition was not systematic. Students who participated in all three waves constituted the final sample. Among them,

703 (50.00%) were from Hubei Province, 511 (36.30%) from Guizhou Province, and 193 (13.70%) from Sichuan Province. Self-reported family economic status (rated on a 5-point scale) was as follows: 36 (2.56%) reported poverty, 117 (8.32%) relative poverty, 951 (67.59%) average, 257 (18.26%) relative wealth, and 46 (3.27%) wealth. Demographic information including participants' grade, gender, and age is presented in Table 1 .

Table 1 Demographic Information of Participants by Grade, Gender, and Age

Grade	n	Gender (Male/Female)	Age (M ± SD)
4	468	244/224	9.76 ± 0.69
5	468	245/223	10.59 ± 0.64
6	471	247/224	11.55 ± 0.76
Total	1407	736/671	10.84 ± 0.99

2.2 Measures

2.2.1 Head Teacher Negotiation Management Behavior Questionnaire The Discussion and Involvement subscales from Lewis et al.' s (2005) Classroom Discipline Strategies Questionnaire (CDSQ) were used to measure head teachers' negotiation management behavior (i.e., behaviors in which head teachers discuss and consult with students, and involve them in decision-making and implementation processes regarding class and individual externalizing problem behavior management. Example items include: "The head teacher and the whole class discuss and establish class rules for rewarding good behavior together" ; "Through discussion, the head teacher helps us understand how some behaviors can have negative effects on others"). The research team, comprising two doctoral students and two master' s students in psychology, conducted multiple rounds of translation. A university foreign language teacher with a first-level translation certificate then performed back-translation and ensured translation quality. Based on suggestions from practicing head teachers, wording was fine-tuned to specify "teacher" as "head teacher." The questionnaire consists of 7 self-report items rated on a 5-point scale (1 = never, 5 = always), with higher total scores indicating greater perceived head teacher negotiation management behavior. Confirmatory factor analysis using T1 data indicated good structural validity (^{2}/df = 3.26, RMSEA = 0.04, NFI = 0.97, IFI = 0.98, CFI = 0.98). In this study, Cronbach' s α coefficients were 0.77 at T1, 0.85 at T2, and 0.87 at T3.

2.2.2 Teacher-Student Relationship Questionnaire The Intimacy and Conflict dimensions of the Student Perception of Affective Relationship with Teacher Scale (SPARTS) were used to measure students' perceived teacher-student relationships (Koomen & Jellesma, 2015; Zee & de Bree, 2016). Each dimension contains 6 self-report items (with "teacher"specified as "head teacher" in this study), rated on a 7-point scale (1 = completely untrue, 7 = completely

true), with higher total scores indicating greater perceived intimacy/conflict in the teacher-student relationship. The research team, comprising two doctoral students and two master' s students in psychology, conducted multiple rounds of translation. A university foreign language teacher with a first-level translation certificate then performed back-translation and ensured translation quality. Confirmatory factor analysis using T1 data indicated good structural validity (^{2}/df = 3.69, RMSEA = 0.04, NFI = 0.95, IFI = 0.96, CFI = 0.96). In this study, Cronbach' s α coefficients for the intimacy dimension were 0.79 at T1, 0.81 at T2, and 0.87 at T3; for the conflict dimension, they were 0.71 at T1, 0.76 at T2, and 0.73 at T3.

2.2.3 Externalizing Problem Behavior Questionnaire The Conduct Problems and Hyperactivity-Inattention subscales of the Chinese version of Goodman' s (2001) Strengths and Difficulties Questionnaire (SDQ) (Xu et al., 2019) were used to measure students' self-reported externalizing problem behaviors (e.g., hyperactivity, noncompliance, lying, fighting). The questionnaire consists of 10 self-report items rated on a 5-point scale (1 = completely untrue, 5 = completely true), with higher total scores indicating more severe externalizing problem behaviors. Confirmatory factor analysis using T1 data indicated good structural validity (^{2}/df = 5.34, RMSEA = 0.06, NFI = 0.94, IFI = 0.95, CFI = 0.95). In this study, Cronbach' s α coefficients were 0.80 at T1, 0.84 at T2, and 0.82 at T3.

2.3 Procedure

After obtaining informed consent from schools and students, group testing was conducted by class. The survey was organized by school-based psychological counselors who provided uniform instructions, distributed questionnaires collectively, and ensured voluntary anonymous participation. Students completed the questionnaires in approximately 15 minutes, with their head teachers absent from the classroom. Questionnaires were checked and collected on-site.

2.4 Control and Assessment of Common Method Bias

This study controlled for common method bias through procedural measures, including reverse-scored items and anonymous responding. Before formal data analysis, Harman' s single-factor test was used to assess common method bias. Results showed that across the three waves, the number of factors with eigenvalues greater than 1 was 4, 4, and 5 respectively, with the first unrotated factor explaining 21.66%, 27.56%, and 28.53% of the variance—each below the 40% critical threshold. This indicates no significant common method bias in any of the three measurements (Tang & Wen, 2020).

2.5 Data Analysis

SPSS 20.0 and Mplus 7.04 were used for data analysis. First, mean scores for head teacher negotiation management behavior, teacher-student relationship in-

timacy/conflict, and student externalizing problem behaviors were calculated for each time point, and Pearson correlation coefficients were computed among variables across the three time points. Next, cross-lagged models were constructed in two steps. Step 1 built a cross-lagged model examining reciprocal relationships between head teacher negotiation management behavior and student externalizing problem behaviors across the three time points. Step 2 added teacher-student relationship intimacy or conflict to the previous model to analyze reciprocal relationships among head teacher negotiation management behavior, teacher-student relationship intimacy/conflict, and student externalizing problem behaviors across the three time points. All variables were analyzed as manifest variables using total mean scores.

Due to missing data from incomplete responses and data entry errors, Little' s test for missing completely at random was conducted first. Results indicated that missing values were randomly distributed, $^{2}(76) = 74.23$, $p = 0.54$. Therefore, maximum likelihood estimation (ML) was used to handle missing data (Berry & Willoughby, 2017).

3. Results

3.1 Descriptive Statistics for Head Teacher Negotiation Management Behavior, Teacher-Student Relationships, and Student Externalizing Problem Behaviors

Correlation analysis results (Table 2) showed that all pairwise correlations among head teacher negotiation management behavior, teacher-student relationship intimacy, teacher-student relationship conflict, and student externalizing problem behaviors were significant across the three time points. Some demographic variables also showed significant correlations with these variables across the three time points. In subsequent cross-lagged model construction and testing, demographic variables including student age, gender, self-reported family economic status, and geographic origin were included as covariates for statistical control.

Table 2 Correlations Among Head Teacher Negotiation Management Behavior, Teacher-Student Relationships, and Externalizing Problem Behaviors in Grades 4-6 Students

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. T1 Age	1															
2. T1 Gender	0.06*	1														

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3. T1 Family Economic Status	−0.05	−0.05														
4. T1 Geographic Origin	0.07*	0.17***	0.20***													
5. T1 Negotiation Management	−0.06*	0.16***	0.17***	0.43***												
6. T2 Negotiation Management	−0.01	1.11***	0.18***	0.40***	0.53***											
7. T3 Negotiation Management	0.15***	0.26***	0.37***	0.58***	0.50***	0.54***										
8. T1 Relationship Intimacy	0.08**	0.19***	0.29***	0.44***	0.62***	0.43***	0.44***									

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9. T2 Relationship Intimacy	0.11	0.17***	0.27***	0.43***	0.36***	0.62***	0.51***	0.63***	1**							
10. T3 Relationship Intimacy	0.10	0.15***	0.26***	0.34***	0.44***	0.51***	0.63***	0.15***	0.13***	1**						
11. T1 Relationship Conflict	−0.13	−0.19***	−0.34***	−0.30***	−0.30***	−0.39***	−0.32***	−0.32***	−0.08**	−0.17***	1					
12. T2 Relationship Conflict	−0.21	−0.28***	−0.27***	−0.43***	−0.36***	−0.33***	−0.48***	−0.41***	−0.11***	−0.50***	1**					
13. T3 Relationship Conflict	−0.14	−0.21***	−0.22***	−0.34***	−0.31***	−0.30***	−0.37***	−0.35***	−0.24***	−0.39***	0.32***	0.51***	1**			
14. T1 Externalizing Problems	0.11	0.10**	−0.15***	−0.18***	−0.19***	−0.28***	−0.33***	−0.27***	−0.31***	−0.38***	−0.22***	0.29***	0.36***	1**		

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15. T2 Externalizing Problems	0.06	0.12***	0.15***	0.25***	0.21***	0.34***	0.31***	0.30***	0.37***	0.22***	0.29***	0.36***	0.43***	0.59***	1***	
16. T3 Externalizing Problems	0.05*	0.17***	0.14***	0.21***	0.22***	0.22***	0.20***	0.31***	0.25***	0.28***	0.31***	0.26***	0.22***	0.06**	0.12***	1***

Note: Gender is a dummy variable: male = 1, female = 0. Geographic origin is a dummy variable: Hubei Province = 1, outside Hubei = 0 (coded as such because students from Hubei and other regions showed significant differences on key variables across the three time points). $p < 0.05$, **p* < 0.01,** $p < 0.001$.

3.2 Cross-Lagged Analyses

3.2.1 Cross-Lagged Analysis of Head Teacher Negotiation Management Behavior and Student Externalizing Problem Behaviors Based on correlation analysis, a cross-lagged model was constructed to examine the longitudinal relationship between head teacher negotiation management behavior and student externalizing problem behaviors. The hypothesized model shown in Figure 1 [Figure 1: see original paper] was tested and demonstrated good fit: $^2(2) = 4.66$, p = 0.09, CFI = 0.99, TLI = 0.98, RMSEA = 0.03 (90% CI: 0.001, 0.07), SRMR = 0.01. Model paths showed that, after controlling for covariates (student age, gender, self-reported family economic status, and geographic origin), autoregressive effects, and simultaneous correlations, T1 head teacher negotiation management behavior negatively predicted T2 student externalizing problem behaviors ($\beta = -0.06$, p = 0.01), while T2 student externalizing problem behaviors negatively predicted T3 head teacher negotiation management behavior ($\beta = -0.11$, $p < 0.001$). Additionally, T1 student externalizing problem behaviors negatively predicted T2 head teacher negotiation management behavior ($\beta = -0.10$, $p < 0.001$), and T2 head teacher negotiation management behavior negatively predicted T3 student externalizing problem behaviors ($\beta = -0.10$, $p < 0.001$). These results indicate a reciprocal relationship between head teacher negotiation management behavior and student externalizing problem behaviors.

Figure 1 Cross-Lagged Model of Head Teacher Negotiation Management Behavior and Student Externalizing Problem Behaviors

Note: The cross-lagged model controlled for student age, gender, self-reported family economic status, and geographic origin, but these paths are omitted for clarity. Single-headed arrows represent predictive relationships; double-headed arrows represent correlations. Solid lines indicate significant paths; dashed lines indicate non-significant paths. All coefficients are standardized.

3.2.2 Cross-Lagged Analysis of Head Teacher Negotiation Management Behavior, Teacher-Student Relationship Intimacy, and Student Externalizing Problem Behaviors To examine the reciprocal relationships among head teacher negotiation management behavior, teacher-student relationship intimacy, and student externalizing problem behaviors, relationship intimacy was added to the cross-lagged model (Figure 2 [Figure 2: see original paper]). Model fit was good: $^{2}(6) = 22.78$, $p < 0.001$, CFI = 0.99, TLI = 0.96, RMSEA = 0.05 (90% CI: 0.03, 0.06), SRMR = 0.01.

Model paths showed that, after controlling for covariates, autoregressive effects, and simultaneous correlations, T1 head teacher negotiation management behavior positively predicted T2 teacher-student relationship intimacy ($\beta = 0.08$, $p = 0.002$) but did not predict T2 student externalizing problem behaviors ($\beta = -0.01$, $p = 0.81$). T2 head teacher negotiation management behavior positively predicted T3 teacher-student relationship intimacy ($\beta = 0.06$, $p = 0.01$) and negatively predicted T3 student externalizing problem behaviors ($\beta = -0.06$, $p = 0.02$). T1 teacher-student relationship intimacy negatively predicted T2 student externalizing problem behaviors ($\beta = -0.13$, $p < 0.001$) and positively predicted T2 head teacher negotiation management behavior ($\beta = 0.26$, $p < 0.001$). T2 teacher-student relationship intimacy negatively predicted T3 student externalizing problem behaviors ($\beta = -0.09$, $p = 0.002$) and positively predicted T3 head teacher negotiation management behavior ($\beta = 0.25$, $p < 0.001$). T1 student externalizing problem behaviors negatively predicted T2 head teacher negotiation management behavior ($\beta = -0.05$, $p = 0.04$) and T2 teacher-student relationship intimacy ($\beta = -0.07$, $p = 0.003$). T2 student externalizing problem behaviors negatively predicted T3 head teacher negotiation management behavior ($\beta = -0.06$, $p = 0.01$) and T3 teacher-student relationship intimacy ($\beta = -0.08$, $p < 0.001$). These results indicate reciprocal relationships among head teacher negotiation management behavior, teacher-student relationship intimacy, and student externalizing problem behaviors.

Figure 2 Cross-Lagged Model of Head Teacher Negotiation Management Behavior, Teacher-Student Relationship Intimacy, and Student Externalizing Problem Behaviors

Note: Simultaneous correlations among variables were all significant at the 0.001 level but are omitted for clarity.

3.2.3 Cross-Lagged Analysis of Head Teacher Negotiation Management Behavior, Teacher-Student Relationship Conflict, and Student Externalizing Problem Behaviors To examine the reciprocal relationships among head teacher negotiation management behavior, teacher-student relationship conflict, and student externalizing problem behaviors, relationship conflict was added to the cross-lagged model (Figure 3 [Figure 3: see original paper]). Model fit was good: $^{2}(6) = 16.90$, p = 0.009, CFI = 0.99, TLI = 0.96, RMSEA = 0.04 (90% CI: 0.02, 0.06), SRMR = 0.01.

Model paths showed that, after controlling for covariates, autoregressive effects, and simultaneous correlations, T1 head teacher negotiation management behavior negatively predicted T2 teacher-student relationship conflict ($\beta = -0.10$, $p < 0.001$) and T2 student externalizing problem behaviors ($\beta = -0.07$, p = 0.01). T2 head teacher negotiation management behavior negatively predicted T3 teacher-student relationship conflict ($\beta = -0.10$, $p < 0.001$) and T3 student externalizing problem behaviors ($\beta = -0.09$, $p < 0.001$). T1 teacher-student relationship conflict did not predict T2 student externalizing problem behaviors ($\beta = 0.042$, p = 0.11) but negatively predicted T2 head teacher negotiation management behavior ($\beta = -0.16$, $p < 0.001$). T2 teacher-student relationship conflict did not predict T3 student externalizing problem behaviors ($\beta = 0.04$, p = 0.10) but negatively predicted T3 head teacher negotiation management behavior ($\beta = -0.14$, $p < 0.001$). T1 student externalizing problem behaviors negatively predicted T2 head teacher negotiation management behavior ($\beta = -0.07$, p = 0.001) and positively predicted T2 teacher-student relationship conflict ($\beta = 0.11$, $p < 0.001$). T2 student externalizing problem behaviors negatively predicted T3 head teacher negotiation management behavior ($\beta = -0.08$, p = 0.001) and positively predicted T3 teacher-student relationship conflict ($\beta = 0.12$, $p < 0.001$). These results indicate reciprocal relationships between head teacher negotiation management behavior and teacher-student relationship conflict, reciprocal relationships between head teacher negotiation management behavior and student externalizing problem behaviors, and that student externalizing problem behaviors positively predict teacher-student relationship conflict while relationship conflict does not predict student externalizing problem behaviors.

Figure 3 Cross-Lagged Model of Head Teacher Negotiation Management Behavior, Teacher-Student Relationship Conflict, and Student Externalizing Problem Behaviors

4. Discussion

4.1 Head Teacher Negotiation Management Behavior Initiates a Positive Interaction Process

Head teacher negotiation management behavior negatively predicted student externalizing problem behaviors, consistent with international research and summaries of experienced Chinese head teachers (Cheon et al., 2020; Wei, 2014). This finding indicates that when head teachers listen to students' voices and

involve them in decision-making and implementation processes for managing externalizing problem behaviors, students' externalizing problem behaviors can be effectively reduced. However, this result differs from cross-lagged studies suggesting that teacher management behaviors cannot predict student externalizing problem behaviors (Williford & Vitiello, 2020). The discrepancy may be because positive teacher management behaviors require time to take effect (Evertson & Weinstein, 2013), whereas Williford and Vitiello' s (2020) study used daily classroom observations as time units, which may not have captured the effects of positive management behaviors. This study also found that head teacher negotiation management behavior reduced student externalizing problem behaviors, which in turn increased teacher-student relationship intimacy and decreased relationship conflict, suggesting that head teacher negotiation management behavior indirectly influences teacher-student relationships through student externalizing problem behaviors. This provides a possible mechanism explaining how teacher management behaviors affect teacher-student relationships (Roorda & Koomen, 2021).

Consistent with previous cross-sectional research (Freiberg et al., 2009), this study found that head teacher negotiation management behavior increased teacher-student relationship intimacy and decreased relationship conflict, further confirming that head teacher/teacher negotiation management behavior facilitates positive teacher-student relationships (Cornelius-White, 2007; Rogers & Freiberg, 1994). Moreover, teacher-student relationship intimacy positively predicted head teacher negotiation management behavior, while relationship conflict negatively predicted it, providing important evidence for the Transactional Model of Stress and Coping in teacher development (Spilt et al., 2011). From the head teacher' s perspective, intimate relationships provide positive emotional cues that increase negotiation management behavior, while conflictual relationships may trigger negative emotions that reduce such behavior (Spilt et al., 2011; Zee et al., 2017). From the student' s perspective, in the context of intimate relationships, students interpret head teachers' management behaviors more positively, whereas in conflictual relationships, they may interpret them more negatively (McGrath & Bergen, 2015).

This study also found that head teacher negotiation management behavior enhanced teacher-student relationship intimacy and reduced conflict, which in turn indirectly decreased student externalizing problem behaviors. From the perspective of Self-Determination Theory, this occurs because head teacher negotiation management behavior promotes positive teacher-student relationships that satisfy students' need for relatedness, thereby reducing externalizing problem behaviors (Ryan & Deci, 2017). This finding helps explain the mechanism through which head teacher negotiation management behavior influences student externalizing problem behaviors. Furthermore, teacher-student relationship intimacy negatively predicted student externalizing problem behaviors, differing from cross-lagged studies suggesting that the positive effect of relationship intimacy has disappeared (Mejia & Hoglund, 2016; Roorda & Koomen, 2021). The reason may be that in primary school, intimate teacher-student

relationships play an important role in reducing student externalizing problem behaviors (Ettekal & Shi, 2020), and head teachers interact with students more frequently than other subject teachers, exerting greater influence (Jiang, 2004).

In summary, head teacher negotiation management behavior initiates a positive interaction process: it enhances positive teacher-student relationships, effectively reduces student externalizing problem behaviors, and further influences head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors.

4.2 Student Externalizing Problem Behaviors Drive a Negative Interaction Process

Student externalizing problem behaviors reduced head teacher negotiation management behavior, which in turn increased student externalizing problem behaviors, confirming that student externalizing problem behaviors negatively affect teacher management behaviors (McGrath & Bergen, 2015; Williford & Vitiello, 2020). Several mechanisms may explain how student externalizing problem behaviors influence head teacher negotiation management behavior. First, these behaviors trigger reactive management responses from head teachers, leading to reduced negotiation management behavior (Evertson & Weinstein, 2013; Wei, 2014). Second, they evoke negative emotions or lower management efficacy in head teachers, subsequently reducing negotiation management behavior (De Ruiter et al., 2020; Zee et al., 2017). Third, students with more frequent or severe externalizing problem behaviors may have developed negative internal working models through interactions with early primary caregivers, and these models may transfer to teacher-student interactions, negatively affecting head teacher negotiation management behavior (Bowlby, 1969; Pianta, 2001).

Moreover, student externalizing problem behaviors decreased teacher-student relationship intimacy and increased relationship conflict, which further influenced student externalizing problem behaviors through relationship intimacy. This result is consistent with previous research, demonstrating the stable negative effect of student externalizing problem behaviors on teacher-student relationships (De Laet et al., 2016; Ly & Zhou, 2018). While previous research has confirmed this negative effect, few studies have examined the mechanisms. This study found that student externalizing problem behaviors reduce head teacher negotiation management behavior, which in turn negatively affects teacher-student relationships. This suggests that student externalizing problem behaviors may indirectly influence teacher-student relationships by negatively affecting teacher management behaviors (e.g., negotiation management behavior), helping to explain the mechanisms through which student externalizing problem behaviors affect teacher-student relationships (Dunkake & Schuchart, 2015; Ly & Zhou, 2018).

Student externalizing problem behaviors also decreased teacher-student relationship intimacy and increased conflict, which in turn negatively affected head

teacher negotiation management behavior. This reveals one mechanism through which student externalizing problem behaviors influence head teacher/teacher negotiation management behavior—namely, through teacher-student relationships. Previous longitudinal research has shown that student externalizing problem behaviors negatively affect teacher-student relationships (Crockett et al., 2017; Roorda & Koomen, 2021), while theoretical work (Spilt et al., 2011) and this study's findings suggest that positive teacher-student relationships promote head teacher negotiation management behavior, whereas negative relationships reduce it. Therefore, it is plausible that student externalizing problem behaviors affect head teacher management behavior through teacher-student relationships.

In summary, student externalizing problem behaviors drive a negative interaction process: they negatively affect head teacher negotiation management behavior and teacher-student relationship quality, which further influence student externalizing problem behaviors, teacher-student relationships, and head teacher negotiation management behavior.

4.3 Theoretical and Practical Implications

This longitudinal study examined the reciprocal relationships among head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors. While verifying the negative interaction process driven by student externalizing problem behaviors, it found that head teachers' negotiation management behavior can initiate a positive interaction process.

The theoretical implications are fourfold. First, it reveals the reciprocal relationships among head teacher negotiation management behavior, teacher-student relationships, and student externalizing problem behaviors, providing evidence for the transactional model of development. Second, it demonstrates that head teacher negotiation management behavior influences student externalizing problem behaviors indirectly through teacher-student relationship intimacy, helping to explain the mechanism from the perspective of Self-Determination Theory. Third, it confirms that teacher-student relationships influence head teacher negotiation management behavior, providing important evidence for the Transactional Model of Stress and Coping in teacher development. Fourth, it reveals that student externalizing problem behaviors influence head teacher negotiation management behavior indirectly through teacher-student relationships, helping to explain the mechanisms through which student externalizing problem behaviors affect teacher management behaviors, and shows that student externalizing problem behaviors influence teacher-student relationships indirectly through head teacher negotiation management behavior, extending previous research.

The findings also have practical implications for preventing and intervening in student externalizing problem behaviors. First, when managing these behaviors, head teachers who become aware of the negative "driving" effect of student externalizing problem behaviors on their own negotiation management behavior

can adjust their responses to terminate the negative interaction cycle. More importantly, head teachers can consciously utilize the positive "driving" effect of negotiation management behavior to initiate a positive interaction process and effectively intervene in student externalizing problem behaviors. Second, when designing professional development interventions for head teachers, programs can recommend negotiation-based approaches to managing student externalizing problem behaviors. Additionally, acknowledging that student externalizing problem behaviors negatively affect head teacher negotiation management behavior and teacher-student relationships can help empathize with head teachers, making them feel understood rather than criticized, which may enhance their acceptance of and engagement with intervention programs.

4.4 Limitations and Future Directions

This study has several limitations. First, self-report questionnaires were used, making it difficult to completely avoid social desirability effects and common method bias. Future research could employ third-party ratings through live observation or video coding to assess head teacher negotiation management behavior and student externalizing problem behaviors. Second, the follow-up duration was relatively short, with few waves and inconsistent time intervals between measurements. Future studies could increase follow-up duration and number of waves with fixed intervals, using latent growth curve models to examine the effects of head teacher negotiation management behavior on teacher-student relationships and student externalizing problem behaviors. Third, data in classroom settings have a nested structure (in this study, students were nested within head teachers). Future research could use multilevel models to examine these effects. Finally, the sample consisted of grade 4–6 students from three provinces in central and western China, limiting representativeness. Caution should be exercised when generalizing findings to other regions and grade levels.

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Note: Figure translations are in progress. See original paper for figures.