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Home-school cooperation: Analysing its impact on Chinese students' classroom disciplinary behaviour, learning anxiety and engagement

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Abstract | **Introduction:** This study investigates the impact of home-school cooperation on students' classroom disciplinary behaviours, considering the mediating roles of learning anxiety and learning engagement. **Method:** Drawing on a large-scale dataset that includes responses from 5,600 students, 4,917 parents, and 4,732 guardians in China, the research employs validated and contextually adapted instruments from established literature to ensure measurement reliability. Data were collected through the Credamo platform and analysed using SPSS 26.0, the PROCESS macro Model 6, v3.5, and JASP software. **Results:** The findings reveal that home-school cooperation has a direct negative impact on students' classroom disciplinary behaviour and learning anxiety, and a positive effect on learning engagement. Furthermore, while learning engagement reduces disciplinary issues, learning anxiety increases them. The total effect of home-school cooperation on classroom disciplinary behaviour was stronger than both its direct and total indirect effects. **Conclusion:** The study underscores the complex and significant role of parental involvement in shaping students' behaviour, and highlights the importance of emotional and engagement-related pathways in educational outcomes.

Keywords: Home-school cooperation, learning engagement, learning anxiety, classroom disciplinary behaviours, Chinese students

Colaboración familia-escuela: analizando su impacto en la conducta disciplinaria en el aula, la ansiedad ante el aprendizaje y la participación de estudiantes chinos

Resumen | **Introducción:** Este artículo examina el impacto de la colaboración entre la familia y la escuela en la conducta disciplinaria de los estudiantes en el aula, considerando los roles mediadores de la ansiedad ante el aprendizaje y la participación en el proceso educativo. **Método:** A partir de un conjunto de datos a gran escala que incluye respuestas de 5600 estudiantes, 4917 madres y padres, y 4732 tutores en China, la investigación utiliza instrumentos validados y adaptados al contexto, basados en literatura especializada, para garantizar la fiabilidad de las mediciones. Los datos fueron recolectados a través de la plataforma Credamo y analizados con SPSS 26.0, el modelo 6 de la macro PROCESS v3.5, y el software JASP. **Resultados:** Los hallazgos revelan que la colaboración familia-escuela tiene un efecto directo negativo en la conducta disciplinaria en el aula y en la ansiedad ante el aprendizaje, y un efecto positivo en la participación estudiantil. Además, mientras una mayor participación reduce los problemas de disciplina, la ansiedad los incrementa. El efecto total de la co-

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laboración familia-escuela sobre la conducta disciplinaria en el aula fue más fuerte que sus efectos directos e indirectos combinados. **Conclusión:** El estudio resalta el papel complejo y significativo de la participación familiar en la configuración del comportamiento estudiantil, y subraya la relevancia de las vías emocionales y relacionadas con la participación en los resultados educativos.

Palabras clave: Colaboración familia-escuela, participación en el aprendizaje, ansiedad ante el aprendizaje, conducta disciplinaria en el aula, estudiantes chinos

In recent years, the dynamics of home-school cooperation in China have garnered significant scholarly attention, particularly concerning their impact on students' mental health and academic performance. A study examining the influence of home-school collaboration on the mental well-being of Chinese college students revealed that effective partnerships between parents and educational institutions can lead to improved mental health outcomes among students (Liu et al., 2024). This underscores the critical role that cohesive home-school relationships play in supporting students' psychological well-being (Yang & Yutuc, 2024). Further research has delved into the psychological challenges faced by primary school students in China, especially in the context of language learning. Findings suggest that a strong parent-child relationship, facilitated through active home-school cooperation, can help children overcome obstacles in language acquisition and enhance their academic performance (Kim, 2024; Lau & Ng, 2019; Yuen, 2011). This highlights the importance of parental involvement in addressing learning anxieties and promoting student engagement (Lin, 2024). Parental involvement in homework has also been a focal point of study, with research indicating that while such involvement can positively influence academic outcomes, it may also contribute to increased negative emotions among students if not appropriately managed. This suggests that the quality and nature of parental engagement are crucial factors in mitigating learning anxiety and fostering a positive learning environment (Fute et al., 2023; Li et al., 2024).

However, the concept is still debatable, as it is prone to numerous subjective interpretations (Lopes & Oliveira, 2017). In the classroom context, students' behaviours of disruptive talking, avoiding work, interfering with the teaching process, bullying classmates, rudeness to teachers, verbal insults and hostility are examples of disciplinary problems (Sun & Shek, 2012). Dealing with students' classroom disciplinary behaviour is one of the main sources of teachers' stress in schools (Hopman et al., 2018), and the attrition rate among teachers who work with students who repeatedly show disciplinary problems (challenging behaviour) is high (Kiel et al., 2016). Generally, students' lack of discipline affects their academic achievement (Hai et al., 2021), but their teachers become vulnerable to developing symptoms of stress and the dysfunctional cognitions of dealing with stress (Hopman et al., 2018).

Moreover, cross-cultural studies comparing parental involvement in the United States and China have found that heightened parental engagement is associated with enhanced student engagement and achievement in both contexts. However, the impact on students' perceptions of competence and emotional well-being appears to be more pronounced in the United States than in China, indicating potential cultural differences in how parental involvement affects student outcomes.

Collectively, these empirical studies underscore the multifaceted role of home-school cooperation in influencing students' mental health, learning anxiety, and engagement within the Chinese educational context. They highlight the necessity for balanced and culturally sensitive approaches to parental involvement that support students' academic and psychological development (Cheung & Pomerantz, 2011; Oubibi et al., 2023). Collectively, these empirical studies underscore the multifaceted role of home-school cooperation in influencing students' mental health, learning anxiety, and engagement within the Chinese educational context. They highlight the necessity for balanced and culturally sensitive approaches to parental involvement that support students' academic and psychological development. Addittionally, prior studies have demonstrated that demographic variables such as parental education, occupation, and income can influence the quality of home-school cooperation and student behavioural outcomes (Brown et al., 2016; Parcel et al., 2010). Therefore, these background variables are considered in this study to control for potential confounding effects and better isolate the relationships among the primary constructs.

Literature review

Home-school cooperation and students' classroom learning discipline

Home-school cooperation plays a crucial role in shaping student behaviour and academic outcomes. Epstein's (1995) framework identifies six key major types of parental involvement, emphasising the shared responsibility of families and schools in supporting student success. Research consistently shows that when parents and schools communicate effectively and coordinate efforts, students demonstrate more positive behavioural and academic outcomes (Jeynes, 2018; Karalis Noel & Finocchio, 2022; Schnell, 2015).

Effective home-school cooperation signals to students that education is valued both at home and in school, which promotes respect for classroom norms and reduces behavioural issues. This effect is especially important in socioeconomically disadvantaged

contexts, where strong parental involvement can help bridge gaps in resources and support (Schnell et al., 2015; Sengonul, 2022; Tazouti & Jarlégan 2019).

Improved student behaviour through home-school cooperation also reduces teacher stress and burnout associated with classroom disciplinary issues (Hopman et al., 2018; Kiel et al., 2016). Prior research supports the idea that consistent communication and problem-solving between parents and educators can reduce disruptive behaviours such as talking out of turn, work avoidance, and hostility (Burke, 2008; Dupper, 2010; Sun & Shek, 2012). These findings provide a clear basis for Hypothesis 1, which posits a negative relationship between HSC and students' classroom disciplinary behaviours.

Students' learning anxiety in the classroom

Learning anxiety refers to feelings of fear, stress, or unease experienced in educational settings, which may result from perceived threats to self-esteem (Adefisayo, 2024; Córdova et al., 2023). This anxiety has been linked to a range of academic and behavioural difficulties. In classroom settings, heightened anxiety can lead students to act out or disengage, contributing to discipline problems (Chen et al., 2023; Li et al., 2020; Macklem, 2015).

Parental involvement, particularly through emotional support and communication, has been shown to reduce learning anxiety (Liu et al., 2023). When parents are actively involved in the learning process and maintain consistent interaction with schools, students feel more supported and less anxious. Based on these findings, we propose Hypothesis 2, suggesting that HSC negatively influences learning anxiety. Furthermore, given that anxiety can lead to avoidance, aggression, or other forms of misbehaviour, we propose Hypothesis 3, which anticipates a positive relationship between learning anxiety and disciplinary problems. This also justifies Hypothesis 4, which tests learning anxiety as a mediator between HSC and classroom discipline.

Student's learning engagement

Learning engagement refers to students' active participation and investment in their education—emotionally, cognitively, and behaviourally (Ding et al., 2017; Heilporn & Lakhal, 2021; Tseng, 2021). Emotionally engaged students tend to be more motivated and connected to their academic environment, while cognitive and behavioural engagement reflect their efforts and persistence (Arellanes et al., 2024; Correa-Rojas et al., 2024; Jung & Lee, 2018).

Parental involvement is a strong predictor of learning engagement, as demonstrated in both Chinese and international contexts (Martin & Bolliger, 2018; Xiong et al., 2021). Active HSC enhances student motivation by reinforcing consistent expectations and providing emotional and academic support at home.

Engaged students are more likely to stay on task and less likely to engage in disruptive behaviours (Ben-Eliyahu et al., 2018; Zhu et al., 2023). Therefore, we propose Hypothesis 5, stating that HSC positively affects learning engagement, and Hypothesis 6, anticipating that learning engagement negatively affects classroom discipline. This leads to Hypothesis 7, which positions learning engagement as a mediator in the relationship between HSC and student behaviour.

Study hypothesis

The following study will be based on the following hypotheses:

Hypothesis 1. Home-school cooperation plays a significant role in reducing students' classroom disciplinary problems.

Hypothesis 2. Home-school cooperation negatively influences students' learning anxiety.

Hypothesis 3. Student's learning anxiety positively influences classroom disciplinary behaviour.

Hypothesis 4. Learning anxiety mediates the relationship between home-school cooperation and students' classroom disciplinary behaviour.

Hypothesis 5. Home-school cooperation positively influences students' learning engagement.

Hypothesis 6. Students' learning engagement negatively influences classroom disciplinary behaviour.

Hypothesis 7. Learning engamenet mediates the relationship between home-school cooperation and classroom disciplinary behaviour.

Objective and model of the study

Objective of the study

Students' classroom disciplinary behaviour is one of the main sources of teachers' stress in schools, Often contributing to teacher burnout and high attrition rates, particularly among those working with students who repeatedly exhibit disciplinary issues. Beyong affecting teachers' well-being, students' lack of discipline also has direct consequences on their academic achievement. Teachers experiencing high levels of stress may struggle to implement effective classroom management strategies, further exacerbating disciplinary issues. Moreover, the long-term effects of students' behavioural problems can extend into adolescence and adulthood, impacting both individual development and society at large. This study explores various factors that can mitigate students' classroom disciplinary problems, focusing on the potential suppression role of home-school cooperation and students' learning engagement, as well as the possible positive influence of learning anxiety on classroom discipline. The study aims to examine the impact of these three constructs on students' disciplinary behaviours and their interellations. An additional objective of this study is to examine the potential moderating or background role of key demographic factors specifically, parental education level, occupation, and family income—on home-school cooperation and student behavioural outcomes.

Model of the study

Based on the literature review and the hypotheses of this study, we have formulated the following path model (Figure 1). The model explains the direct effect (suppression effect) of home school cooperation on students' classroom disciplinary behaviours through path line *a*. Home-school cooperation also positively effects on students' learning engagement through path *b* and negative effects on students' learning anxiety through path *d*. Students' learning engagement influences their classroom disciplinary behaviour through path *c*, while their learning anxiety influences them through path *e*. Students' learning engagement mediates the relationship between home-school cooperation and classroom disciplinary behaviour through paths *b & c* and students' learning anxiety through paths *d* & *e*.

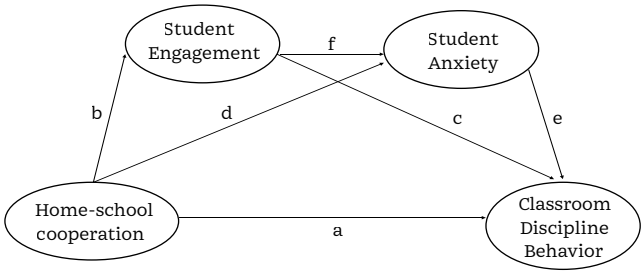

Figure 1. The mediation effects of learning engagement and learning anxiety in the relationship between home-school cooperation and students' disciplinary behaviour

Method

Procedure

This study employed a cross-sectional survey design to examine the relationships among home-school cooperation, learning anxiety, learning engagement, and classroom disciplinary behaviour. Data were collected using non-probability convenience sampling through Credamo, a Chinese online data collection platform that operates similarly to platforms such as Qualtrics. Participants were selected based on their availability and willingness to participate, and the platform facilitated access to a wide range of primary, secondary, and high school students, along with their parents and teachers across multiple regions in China. The survey was distributed online between October and December 2021. Invitations were sent digitally via the Credamo platform, targeting users who met predefined inclusion criteria (i.e., students aged 6-19 and their parents/guardians). Participation was voluntary, and informed consent was obtained digitally from all participants or their legal guardians. No incentives were provided. Ethical approval for the study was obtained from the university's ethics committee, and all procedures adhered to the principles outlined in the Declaration of Helsinki.

Participants

We collected the data from students, their parents, and teachers from primary, secondary, and high school teachers from different provincial, municipal, county-level, ordinary and ungraded schools in different provinces inside the People's Republic of China. More than 5,600 students' between 6 to 19 years of age voluntarily agreed to participate in the research, 4,917 parental questionnaires, and 4,732 teachers' questionnaires were collected. Only 3,298 complete matching survey samples of parents and their children were obtained from all data. Missing data were analysed for patterns, and cases with less than 5% missing values were handled using mean imputation for continuous variables and mode imputation for categorical variables. However, cases with substantial missing responses (≥ 20%) were excluded from the final dataset in order to maintain data integrity. These steps ensured that the dataset remained robust, minimising biases and preserving the validity of the statistical findings. More details are in Tables 1 and 2.

Table 1. Students' statistics

	Students	Male	Female	Percent
Primary school	1233	581	652	37.38%
Middle School	1092	573	519	33.11%
High school	973	497	476	29.50%

We collected different data from parents, and we focused more on parents' age education level; we classified them into two categories, the first category with elementary, middle and high school level (E-M-H) and the second category with undergraduate, master or Ph.D. (U-M-P). For parents' occupation, this study categorises participants into two groups based on their levels of social capital and cultural capital: those with high levels, which encompass professionals and technical experts (such as doctors and engineers), individuals associated with party and government organisations or enterprises, heads of academic institutions, university educators, primary and secondary school teachers, journalists, artists, and military personnel; and those with low levels, which include civilian staff and workers (Ding & Wu, 2023). The annual household income was ascertained by querying parents with the question, "What is your family's total income over the past year?" in the provided questionnaire.

Measurement tools

Home-school cooperation. The measurement of the core independent variable "home-school cooperation" in this study refers to Epstein's (2007, 2008) six-dimensional home-school cooperation scale, revised and improved based on China's national conditions (Huang, 2016). The final scale consists of 6 dimensions and 22 items, Parenting (supporting childrens' development and well-being at home), Communicating (effective exchange of information between school and families), Learning at home (parental support and facilitation of learning activities at home), Decision making (involvement of parents in school-related decisions and

Table 2. Parent's information

Item	Type	*N*	Percent
Father's age	20-30	35	1.06%
	31-40	1917	58.12%
	41-50	1260	38.20%
	50 and above	86	2.60%
Mother's age	20-30	98	2.97%
	31-40	2363	71.64%
	41-50	798	24.19%
	50 and above	39	1.18%
Father's education level	E-M-H	2691	81.59%
	U-M-P	607	18.40%
Mother's education level	E-M-H	2800	84.89%
	U-M-P	498	15.10%
Father's job	A job	537	16.28%
	B job	2761	83.71%
Mother's job	A job	278	8.42%
	B job	3020	91.57%
Family Income	Below 50,000	1160	35.17%
	50,000 – 100,000	1528	46.33%
	100,001 – 200,000	510	15.46%
	200,001 – 500,000	79	2.39%
	Over 500,000	21	.63%

Note. Elementary, middle and high school level for (E-M-H); Undergraduate, master or Ph.D. level for (U-M-P); Family income in RMB (Chinese currency).

governance), Volunteering (participation in school events and volunteer opportunities), and Collaboration with the community (engagement with services and resources to support students. To illustrate, sample items include statements such as "Parents contact teachers proactively", "Parents supervise students homework" and "parents attend parent-teacher meetings". Each item is scored on a 5-point Likert scale, and the Cronbach's alpha coefficient of the scale is 0.95, which has a very good construct validity and content validity. The home-school cooperation scale was filled out by parents, and the higher the total score of the scale, the better the home-school cooperation.

Learning engagement. Learning engagement was measured using the UWES-S Student Learning Engagement Scale by Wilmar Schaufeli, translated and adapted by Xiying (2010). The scale includes 17 items covering three dimensions: motivation, energy, and focus. To illustrate, sample items include statements such as "I find my studies full of meaning and purpose", "I think learning is very meaningful" and "My learning purpose is very clear". Responses are given on a 7-point Likert scale (1 = never to 7 = always). Internal consistency was high (Cronbach's α = 0.95).

Learning anxiety. Learning anxiety was assessed using a 13-item scale developed by Han (2014), encompassing four dimensions: academic performance, peer relations, teacher-student relationship, and physical appearance. Items are rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The overall reliability of the scale was high (Cronbach's α = 0.91). Sample items are "I am afraid of being criticised by my teacher", "I am afraid of being bullied by my classmates" and "I am worried that my potential will not be realised at school".

Classroom discipline behaviours. Classroom disciplinary behaviour was measured using a 5-item scale based on Fredricks et al. (2004), which evaluates students' ability to stay on task and complete schoolwork. A sample item is "How often do you have trouble paying attention in classes?". Responses are rated on a 5-point Likert scale (1 = never to 5 = always). The scale showed good reliability (Cronbach's α = 0.83).

Statistical Analysis Strategy

This study employed both descriptive and inferential statistical methods using SPSS 26.0, the PROCESS macro (Model 6), and JASP software.

Pearson correlation was used to examine the relationships among home-school cooperation, learning engagement, learning anxiety, and classroom disciplinary behaviours. While Likert-type data are technically ordinal, they are commonly treated as interval-level data when aggregated across multiple items and when the data approximate normal distribution particularly in large samples (Norman, 2010). Given our large sample size (n = 3,298), the data met the assumptions of normality and linearity, justifying the use of Pearson correlation over Spearman's rho.

Linear regression was applied to assess direct relationships between variables, as this approach is robust and appropriate for modelling associations among continuous variables derived from multi-item Likert scales, especially when residuals show homoscedasticity and approximate normality.

Confirmatory Factor Analysis (CFA) was conducted using maximum likelihood estimation (MLE) in JASP. This method is suitable for analysing data derived from Likert scales, especially in large samples where the normality assumption is reasonably met. CFA was used to assess the construct validity and factor structure of all multi-dimensional scales used in the study.

Mediation analyses were performed using PROCESS Model 6 to test sequential indirect effects through learning anxiety and learning engagement. Bootstrap confidence intervals (5,000 samples) were used to determine the significance of indirect effects.

Result

Confirmatory factor analysis

In preparation for hypothesis testing, we conducted a series of confirmatory factor analysis (CFA) to evaluate the discriminant validity of our measurement model encompassing home-school cooperation, students' learning engagement, learning anxiety, and classroom disciplinary behaviours. This assessment involved several indices including TLI, SRMR, GFI, ECVI, and RMSEA, along with the estimated composite reliability. These analyses were performed using the JASP statistical analysis programme.

Home-school cooperation. The results of the Confirmatory Factor Analysis (CFA) indicated excellent model fit indices: (CFI) = 0.99, (TLI) = 0.99, (SRMR) = 0.04, (GFI) = 0.99, (ECVI) = 0.95, and (RMSEA) = 0.05. Moreover, in the current study, the Cronbach's (α) for home-school cooperation was 0.95. Home-school cooperation is a multi-dimensional construct which included six dimensions in this study; parenting (items 1-2, α = 0.85), communicating (items 3-12, α = 0.91), learning at home (items 13-14, α = 0.85), decision making (items 15-17, α = 0.88), volunteering (items 18-20, α = 0.84), and collaboration with the community (items 21-22, α = 0.83) (Epstein, 2008).

Learning engagement. The outcomes of the Confirmatory Factor Analysis (CFA) revealed highly favourable model fit indicators: (CFI) = 0.99, (TLI) = 0.99, (SRMR) = 0.03, (GFI) = 0.91, (ECVI) = 0.93, and (RMSEA) = 0.02. The Cronbach's (α) for learning engagement in this study was 0.95. Learning engagement is a multi-dimensional construct with three dimensions; Motivation (item 1, 2, 3, 5, 7 and 9, α = 0.89), Energy (item 4, 8, 10, 12 and 15, α = 0.88) and focus (item 6, 11, 13, 14 and 16, α = 0.89).

Learning anxiety. The outcomes of the Confirmatory Factor Analysis (CFA) indicated strong model fit statistics: (CFI) = 0.98, (TLI) = 0.97, (SRMR) = 0.04, (GFI) = 0.95, (ECVI) = 0.96, and (RMSEA) = 0.03. Additionally, RMSEA = 0.02, further confirming the robustness of the model. The Cronbach's (α) for learning anxiety in this study was 0.91. Learning anxiety is a multi-dimensional construct with four dimensions; academic performance (items 1, 6, 12 and 13, α = 0.76), peer relationship (items 2, 4, 8, 10, α = 0.80), teacher-student relationship (items 3, 9, and 11, α = 0.72), and physical appearance (items 5 and 7, α = 0.79).

Classroom discipline behaviours. The outcomes of the Confirmatory Factor Analysis (CFA) demonstrated strong model fit with the following indices: (CFI) = 0.99, (TLI) = 0.99, (SRMR) = 0.03, (GFI) = 0.99, and (RMSEA) = 0.04. However, the RMSEA value of 0.07 suggests a slightly less optimal fit, warranting further consideration. The Cronbach's (α) for students' Classroom discipline behaviours in this study was 0.83

Preliminary analysis

After a confirmatory factor analysis (CFA), linear regression and correlation analyses followed. Several commonly used criteria for determining the mediation effect include ensuring that a significant relationship exists between the independent and dependent variables (Huda et al., 1989). The relationship between home-school cooperation and students' classroom disciplinary behaviour proved to be significant (p < 0.01) at the confidence level of 95% (ULCI = -0.043, LLCI = -0.130). These results were then used as a criterion for running the mediation analyses that involved the third and fourth variables (mediators). Learning anxiety and learning engagement were the variables used as mediators in the relationship between home-school cooperation and students' classroom disciplinary behaviour,

On the other hand, the second preliminary analysis stage involved descriptive statistics and correlation analysis. Table 3 below shows the descriptive (mean & standard deviation) and correlation analysis results for parents' demographic information and the four main variables of our concern in this study (independent, dependent and two mediator variables). Parents' education level negatively correlated (r = -0.70, p < 0.01) with students' disciplinary problems in the classroom. Home-school cooperation negatively correlated (r = -0.116, p < 0.01) with students' classroom disciplinary problems, while learning anxiety had a positive and significant relationship with classroom disciplinary prob-

Table 3. Descriptive statistics and inter-correlations between the main variables (n = 3298)

Variables	1	2	3	4	5	6	7	8
1. Parents' Age	1	--	--	--	--	--	--	--
2. Parents' Education	.009	1	--	--	--	--	--	--
3. Parents' Job	-.062**	-.323**	1	--	--	--	--	--
4. Family Income	-.075	.350**	-.178**	1	--	--	--	--
5. Home-School Cooperation	.036	.110**	-.029	.092**	1	--	--	--
6. Learning Engagement	-.067	.094**	-.042*	.084**	.248	1	--	--
7. Learning Anxiety	.110**	-.084**	.002	-.047**	-.049	-.295	1	--
8. Classroom Discipline	.055**	-.70**	.006	-.027	-.116	-.231	.243	1

Note. M means median. *SD* means standard deviation. *p < 0.05, **p < 0.01

lems. Parents' education positively and significantly correlated with home-school cooperation (r = 0.036, p < 0.01), and students' learning engagement (r = 0.094, p < 0.01). All their correlations were at the confidence level of 95%.

Testing of hypotheses

Data analysis for mediated and unmediated pathways. Table 4 below presents the results of determining the specific indirect effects of home-school cooperation on classroom disciplinary behaviour through learning engagement and anxiety. The specific effects are -0.050 (*SE* = 0.007) through learning engagement, -0.012 (*SE* = 0.004) through learning anxiety, and -0.063 (*SE* = 0.008) through both, learning engagement and learning anxiety. The total effect of home-school engagement on students' classroom disciplinary behaviour was higher than any indirect and direct effects individually. A closer look at the direct and indirect effects indicates that learning anxiety and engagement are mediators of home-school cooperation and students' classroom disciplinary behaviour.

Table 4. Mediation and specific direct effect of home-school cooperation on students' classroom disciplinary behaviour

Direct effects	Estimate	*S.E*	95% Confidence Interval	
			Lower	Upper
H.S.C → C.D	-0.086	0.022	-0.130	-0.043
Indirect effects				
H.S.C → L.E → C.D	-0.050	0.007	-0.064	-0.037
H.S.C → L.A → C.D	-0.012	0.004	-0.021	-0.004
Total effects				
H.S.C → C.D	-0.149	0.022	-0.193	-0.106
Total indirect effects				
H.S.C → C.D	-0.063	0.008	-0.079	-0.046

Note. H.S.C means home-school cooperation. CD means classroom disciplinary behaviour. LE means learning engagement. LA means learning anxiety. *p < 0.05, **p < 0.01

Analysis of direct effects through a paths diagram. Figure 2 below shows the impacts of home-school engagement on students' learning engagement and learning anxiety. The direct impact of home-school cooperation and the two mediating variables on students' classroom disciplinary behaviour is indicated. After controlling parents' biographical variables, home-school cooperation had a negative direct impact (β = -0.09) on classroom disciplinary behaviour, and learning anxiety (β = -0.06), but positive impact on learning engagement (β = 0.32). Learning engagement negatively impacted classroom disciplinary behaviour (β = -0.16), while learning anxiety positively impacted classroom disciplinary problems (β = 0.19).

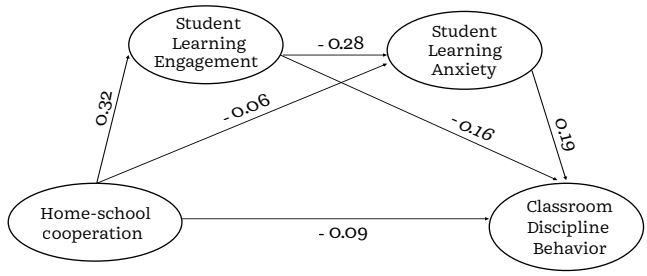

Figure 2. Path diagram and standardised estimate of the model. *p < 0.05, **p < 0.01

Discussion

The specific purpose of this study was to ascertain the direct effect of home-school cooperation and its indirect effect through two mediators on classroom disciplinary behaviours. Concerning hypothesis 1, we predicted a significant influence of home-school cooperation on students' classroom disciplinary behaviour. The findings have supported our hypothesis and indicated the negative and significant influence of home-school cooperation (β = -0.09, p < 0.01) on students' disciplinary behaviours. In addition, from the correlation analysis, home-school cooperation had a higher, negative, and significant correlation (r = -0.70, p < 0.01) with classroom disciplinary behaviour.

Studies by Burke (2008) and Dupper (2010) have shown that consistent communication and joint problem-solving between parents and schools enhance students' respect for school norms, thus improving classroom discipline. Our findings support these conclusions within the Chinese educational context, suggesting that HSC remains an essential factor across cultures. Moreover, this finding is consistent with the work of Chung et al. (2024), who identified improved discipline as a downstream effect of active parental engagement, and the study by Harju-Luukkainen et al. (2020) that identified family variables as very important in determining students.

Regarding our second hypothesis, we predicted that home-school cooperation significantly influences learning anxiety, which further influences classroom disciplinary behaviour. The findings supported our hypothesis, as home-school cooperation has been shown to reduce students' learning anxiety at a point of 0.06 (β = -0.06, p < 0.01). It is also imperative to reduce students' learning anxiety, as the findings have supported our hypothesis that students' learning anxiety contributes to disciplinary behaviours among students in the classroom at a point of 0.19 (β = 0.19).

This aligns with studies from the COVID-19 era, such as Liu et al. (2023), where students with active parental support reported lower anxiety levels during distance learning. In this study, LA was not only reduced through HSC but was also found to increase CDB, consistent with Chen et al. (2022), who argued that anxious students are more likely to engage in disruptive behaviour as a coping mechanism.

In addition, in our hypothesis, the findings supported our prediction. Leaning anxiety played a significant

mediating role in the relationship between home-school cooperation and classroom disciplinary behaviour through an indirect effect of -0.012 (SE = 0.004), as shown in Table 4.

Another hypothesis predicted a significant and positive influence of home-school cooperation on students' learning engagement, further reducing learning anxiety. The findings have supported our hypothesis, as home-school cooperation had a positive and significant influence on students' learning engagement (β = 0.32, $p < 0.01$). On the other hand, students' learning engagement had a negative but significant influence on classroom disciplinary behaviour (β = -0.16, $p < 0.01$). Home-school cooperation positively and significantly correlated with learning engagement (r = 0.248, $p < 0.01$), while learning engagement negatively correlated with classroom disciplinary behaviour (r = -0.231, $p < 0.01$).

The findings have supported our prediction that students' learning engagement mediates the relationship between home-school cooperation and classroom disciplinary behaviour. Home-school cooperation through the mediator path reduced classroom disciplinary behaviour at a point of 0.05 (β = -0.050, SE = 0.007, $p < 0.01$), while the direct effect without the mediator is -0.086 (SE = 0.022). However, while home-school cooperation contributes greatly to students' learning engagement (β = 0.32), learning engagement, on the other hand, had a minimal impact (β = -0.16) in reducing classroom disciplinary behaviours. Supporting prior literature that views engagement as a central mechanism through which parental involvement affects behavioural and academic outcomes (Xiong et al., 2021; Zhao, 2024; Zhu et al., 2023). Our findings extend this perspective by demonstrating that LE is a stronger mediator than LA in reducing CDB. This suggests that the pathway from HSC to LE to better discipline may be more behaviourally anchored and observable compared to the emotion-driven pathway through LA.

The findings also highlight the cultural context in which this study was conducted. In China, where academic success is highly emphasised and family involvement is culturally embedded, the effect of HSC may manifest differently than in Western contexts. In China, it is often more directive, potentially leading to different engagement or anxiety patterns. Future cross-cultural studies could explore these dynamics further.

Implication, recommendation and limitation

Implication

The findings of this study emphasise the importance of emotional and behavioural development in students. Schools should not only focus on academic achievement but also integrate social-emotional learning (SEL) into the curriculum. Programmes designed to enhance students' emotional intelligence, coping skills, and self-regulation can play a key role in reducing classroom misbehaviour. By addressing the root causes of anxiety and fostering engagement, schools can improve classroom environments and student well-being. Schools should prioritise and encourage stronger collaboration between teachers and parents. By fostering positive relationships between these two parties, students are more likely to experience consistency in expectations both at home and in school. Schools can provide parents with tools to support their child's learning at home, including strategies for managing behaviour and academic support. This alignment between home and school is crucial for improving student outcomes in the classroom.

Recommendation

Given the significant role of home-school cooperation in influencing classroom disciplinary behaviours, it is essential for schools and families to collaborate more effectively. Schools should establish more channels for consistent communication with parents, such as regular meetings, email updates, or digital platforms. Encouraging parents to participate in school activities, such as volunteering or attending parent-teacher conferences, can strengthen this partnership. This cooperation helps create a consistent support system for students, addressing both their academic and behavioural needs. To minimise classroom disciplinary issues, schools should prioritise strategies that increase student engagement. The study found that engaged students tend to exhibit better behaviour in the classroom. Teachers can adopt more student-centred teaching techniques, such as interactive lessons, project-based learning, and encouraging students to take an active role in their learning. These approaches make learning more interesting and motivating for students, which can lead to fewer instances of disruptive behaviour and a greater focus on academic success.

Limitation

One limitation of this study is its generalisability. The findings may not apply universally to all educational settings, particularly in different countries or regions with varying educational systems, cultural practices, or levels of parental involvement. Further studies are needed to determine whether the results hold true in diverse contexts or if they are more relevant to specific populations of students.

While this study focused on home-school cooperation, learning anxiety, and student engagement, it did not account for all potential confounding variables. Factors such as socioeconomic status, peer influence, teacher experience, and individual personality traits could also play a role in influencing classroom behaviour. Future research could explore these additional variables to paint a fuller picture of the factors contributing to classroom discipline.

Conclusion

Home-school cooperation assumes a pivotal role, with notable disparities in preparation, knowledge, and concerns among the schools attended by their respective students. Offering effective instruction stands out as the most potent strategy to mitigate classroom mis-

behaviour, bolster students' on-task behaviour, foster their commitment, and ensure productive collaboration with the teacher. For teachers to deliver effective instruction and manage misbehaviour, they must accurately discern the underlying cause(s) of such behaviour, be it individual or collective. It's imperative for teachers to acknowledge that some causes of misbehaviour fall within their sphere of influence and can be addressed in the short term, within the classroom, while others lie beyond their control and necessitate intervention elsewhere. The complete elimination of classroom disciplinary problems may not be feasible, even for the most skilled educators, as occasional incidents may arise. However, in the majority of cases, it is viable to preclude indiscipline or prevent it from becoming the predominant dynamic in the class.

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