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School-Family Partnership and Student Learning Experience: A Hierarchical Regression Study with Parents of Chinese Primary School Students

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Abstract

School-family partnership (SFP) is essential in safeguarding students' development. However, the current evidence on its effects has predominantly focused on academic performance rather than student learning experience, using instruments that are either invalid or capture only part of this partnership. Some 2707 Chinese parents rated a comprehensive, validated school-family partnership scale, and their child reported their learning experience, which was operationalized as learning engagement and examination anxiety. Both school- and parental-level collaboration actions significantly predicted student cognitive-affective engagement. Also, school collaboration practice was the only significant, negative predictor of HFP in behavior engagement and academic anxiety, whereas parental-associated HSP domains failed to predict any of the learning experience domains other than cognitive-affective engagement. Individual student grade and academic performance significantly predicted learning engagement. School-level factors, such as school teaching quality and location, and family-level variables, including mothers' educational background, positively predicted behavioral engagement but negatively predicted academic anxiety. Implications and limitations are discussed.

Introduction

From an ecological perspective, it is essential to understand both individual features and proximal contexts, including family and school contexts, to establish a solid foundation for students' development (Ash et al., 2024). Students experience more challenges in transferring between family and school within one incompatible home-school culture entity, whereas those who regularly interact with family tend to perform better (Bossuroy et al., 2024). Home-school partnership (HSP) refers to the mutuality relationship existing between these two stakeholders with the purpose of optimal student development (Ash et al., 2024; Garbacz, Hirano et al., 2018) and is widely understood to influence overall development, including cognition, attitudes towards learning, and learning behaviors (Hepburn et al., 2025). Parental engagement in children's education and support for knowledge autonomy were protective factors against grade retention in secondary education (Allende et al., 2026), and active school-family collaboration significantly predicts student engagement, reduced mental health issues, and better academic outcomes (Freeman et al., 2026).

The evaluation of family-school partnership efforts, however, is often overlooked due to schools' focus on other evaluation priorities in school-based outcomes (Lessard et al., 2025), such as students' academic outcomes (e.g., grade retention; Allende et al., 2026). Its effects on different dimensions of learning experiences remain underexplored. Meanwhile, the current research still lacks a validated measure to capture the bidirectional nature of this partnership (Johnson et al., 2025). The few existing psychometrically sound scales measured only certain facets of HFP focused on academic performance, potentially failing to capture the broader health and well-being dimensions of these partnerships (see Lessard et al., 2025).

Therefore, the current research aims to explore the influences of HSP measured using a comprehensive, validated scale on students' learning experience, operated as a dual-dimensional construct, namely learning engagement and examination anxiety, while controlling potential influential variables at the school-, family-, and individual-level variables using a comprehensive HSP scale covering both school and home involvement.

School-family partnership: definition and mechanism

Few agreements have been reached on its definition, considering the multidimensional and complex nature of the family-school partnership (Badiuzzaman et al., 2025). Various terms, including parental homework involvement, parental engagement, and school-family collaboration, have been interchangeably used (Cecalupo et al., 2026). Also, it has been used to refer to specific activities in which parents are involved, including supervising children's homework and attending school-organized meetings (Ash et al., 2024). However, in general, SFP addresses the mutuality relationship existing between these two stakeholders with the purpose of optimal student development (Ash et al., 2024). Six types of partnership actions were identified, including creating a learning environment at home, mutual communication, parental volunteering in school functions, assistance with school-related activities at home, parental involvement in school decision-making, and school organization with external community collaboration (Epstein, 1992; Johnson et al., 2025). Two additional studies were included: service coordination and classroom observation in children with autism (Goldman & Mello, 2025).

Establishing a productive SFP requires a shared commitment to student learning based on reciprocity, including respect and trust (Epstein, 2018). However, only with shared educational values could parents be involved in the education of school students and in reproducing school expectations (Alcantara & Resende, 2025). Furthermore, establishing HFP encounters challenges such as parental reluctance to be involved ((Deslandes, 2025; Garbacz, 2018), discriminatory risks associated with cultural background among immigrant parents (Woltran et al., 2026), and power imbalances between school and home (Gerdes et al., 2022). The challenges could be further expanded when considering factors such as parental racial diversity and cultural differences (Ash et al., 2024), as well as practical challenges such as time conflicts, reluctance to involve, and poor communication (Garbacz, 2018).

An efficient partnership requires parents to translate teachers' views into students' family education and to recognize parents' authority to question teachers' decisions (Gerdes et al., 2022; Kong et al., 2024). However, inequality appears particularly influential, and parents have reported it as one-directional and school-dominated. Equality needs to be ensured to allow resources to be distributed equally by including parents in goal setting and in equal opportunities in meeting organization, and by also acknowledging parents' role in understanding students (Gerdes et al., 2022). Parents experience school-dominated power imbalances, stereotyped perceptions of parental involvement, and discriminatory risks associated with family background, limiting their access to students' learning processes and academic outcomes (Woltran et al., 2026). Also, such shared power could influence parental trust in teachers, which mediates parental reactions to children's academic support; otherwise, parents will withdraw the time they spend on educational involvement and increase their educational anxiety (Liu et al., 2026). Even worse, disadvantaged families like immigrant parents with limited English skills are more likely to experience lower belongingness and engagement (Kong et al., 2024; Hornby & Lafaele, 2011). In addition, the digital technology division within families limits the potential of digital technology to enhance family-school partnerships (Badiuzzaman et al., 2025). In particular, these challenges could be exacerbated when schools fail to engage in shared decision-making and maintain their dominance in this collaboration (Ash et al., 2024; Badiuzzaman et al., 2025). Therefore, it is necessary to involve educators in guiding parents to promote a supportive home environment and to involve parents in the student-teacher connection, in addition to cultivating home-school belongingness (Bachman et al., 2024).

Student Learning Experience: Conceptual Understanding, Measurement, and Status

The current study used learning engagement and academic anxiety to explore students' multidimensional learning experience. Learning engagement operates not as a direct outcome but as a procedural experience of emotion, cognition, and behavioural, as conducted in Fund and colleagues (2026). The three-factorial structure proposed by Fredricks and colleagues (2004) was used to holistically capture their engagement in the learning process. In particular, affective engagement indicates students' psychological involvement with school and enjoyment of learning. Cognitive engagement indicates students' internal knowledge processing and self-regulation. Behaviour engagement contains both school discipline obeying and time input (see Lawson & Lawson, 2013). Cognitive-affective engagement is all about the psychological engagement of students in learning, cognitive act (attention and profound treatment), and affective actions like interest and enjoyment, as per the Wigfield and Eccles's (2000) Expectancy-Value Theory, which focuses on the dependency of the engagement for success, and value for the task as subjectivity.

Cognitive-affective engagement is typically modest in Chinese primary schools; despite higher academic demands, the cultural emphasis on outcomes often undermines students' inherent interests and emotions (Li, 2022; Wang & Berglund, 2023). Behavioral engagement involves actions, efforts, perseverance, engagement, and self-management. Patrick et al. (2007) consider it as an active source of involvement for learning; on the other hand, Duckworth and Seligman (2005) associate it with self-organization. Diligence and obedience are the core cultural values in Chinese primary schools, where behavioral engagement among students is likely to be strong. However, it is teacher-centered rather than student-centered or autonomous (Li, 2022; Gao et al., 2023).

Examination anxiety is a distinctive dimension formed by high-stakes academic anxiety and particularly addresses the unsettling emotional states about the anticipated summative assessment (Lee & Thompson, 2024). Students with higher academic anxiety reported greater concerns about the potential effects of innovative learning strategies, such as AI-assisted learning, on their academic development (Pavone, 2026). Also, examination anxiety is associated with working memory loss and increased risks of burnout and depression, resulting in a cycling nature of underachievement (Putwain et al., 2025). In China, from early primary grades, anxiety of examinations is striking, specifically due to the regular examinations, strong contents, and strong parental and social anticipations, which weaken the life well-being of the students, families, and the societies, and so the behavioral engagements accumulate higher (Zhao et al., 2022; Li & Zhang, 2023). Examination anxiety is manifested by various socio-cultural settings, socio-economic backgrounds, and accessibility of facilities (Yeneneh, 2026). For instance, low SES students are more likely to experience severe exam anxiety due to the limited accessibility to learning resources and higher parental control (Xu et al., 2021).

Overall, in China, the behavioral engagement among primary grades students is strong, but modest for the cognitive-affective engagement for examination anxiety, which has emerged as a primary concern. These trends show that the education system is examination-oriented, highlighting the importance of balanced approaches that could reduce students' and families' anxieties while maintaining motivation (Li, 2022; Zhao et al., 2022; Wang & Berglund, 2023).

The effects of school-family partnership on student learning experience

School-family partnership (HSP) helps improve students' daily routine tasks, such as attendance, task completion, homework compliance, and active involvement in school activities. Group-led initiatives that bring family and school partners closer have brought evident improvements in behavior, such as reduced negligence during high-risk examinations and increased consistency among students (Bharti et al., 2026). Whereas in environments with limited resources, effective communication between the family and school has been associated with student active behavioral engagement (Yeneneh, 2026). Parental involvement in assisting their children's learning mastery goal orientation, whereas their controlling behaviors negatively influence children's mastery goals (Guo, 2026). Cecalupo et al. (2026) also found that students whose parents

are involved in the school's regular activities demonstrate improved academic standards, and this is positively related to students' self-confidence. Similarly, parental involvement in homework tends to increase their children's positive self-image of learning capability (Yap & Baharudin, 2016). The school-family partnership significantly predicted students' academic performance via enhancing student engagement (Zhang et al., 2020) which could be because parental involvement could benefit students' behavioral and cognitive development, achieved by refining children's self-regulatory learning (Yu et al., 2020).

School-family partnership (SFP) plays a vital role in managing students' academic anxiety, especially test anxiety. It enhances the learning environment for students, improving their emotional well-being and academic self-efficacy. The academic performance of students is strongly associated with family expectations and students' socio-economic factors. The lower the socio-economic resources, the higher the test anxiety among students, attributed to greater parental control and reduced access to learning resources (Xu et al., 2021). Strong collaboration between school and family safeguards students from the negative effects of academic anxiety, which is very common in an examination-oriented education system (Zhang et al., 2026; Xu et al., 2021). Then, such challenging situations create a reciprocal cycle in which anxiety disrupts cognitive functioning and academic performance, thereby worsening students' preemptive worry (Zhang et al., 2026). However, sufficient collaboration between school and family helps in disturbing this reciprocal cycle. For instance, guidance and counseling sessions from family and school play a safeguarding role for students, significantly reducing test anxiety (Yeneneh, 2026). Mentoring programs arranged by and among families and schools have shown potential to decrease test anxiety among medical students; later, emotional regulation has also improved, and severe anxiety cases have decreased (Bharti et al., 2026). These programs are beneficial, especially where resources are limited and psychological health support and systems are underdeveloped.

Although limited research has examined the direct influence of parental involvement and student examination anxiety, parental routine homework assistance is negatively associated with the probability of student grade retention (Allende et al., 2026). Liu et al. (2026) reported that parental engagement is inversely related to children's academic anxiety and parent-child interaction. Avci et al. (2026) found that students with higher perceived parental engagement and teacher support show greater positive emotions and fewer negative emotions related to school homework. But in the situations of higher examination anxiety, the cognitive benefits of HSP remain moderate, and in cases when anxiety interferes with the working memory and profound learning (Zhang et al., 2026).

Influential Variables

Individual variables such as gender, grade, academic performance, and students' outputs also play a vital role in home-school collaboration. The age of students could moderate the collaboration effects between school-family, with students in higher grades requiring less collaboration (Józsa & Oo, 2026). Parental involvement is more closely associated with student grade, which declines with grade/class improvement, resulting in greater student autonomy at the end (Hayakawa & Reynolds, 2016; Freeman et al., 2026).

School-level variables, such as the quality of teaching and the school's location (urban or rural), could significantly moderate school-home collaboration. Urban schools, or schools with improved school environments, are more likely to improve collaboration with homes; school climate and geographic location are also likely associated with disparities in engagement (Zhou et al., 2016; Xie, 2020; Zhang et al., 2017). Whereas students from disadvantaged areas could only gain lower cognitive benefits until the HDP addresses socio-economic gaps and parents' psychological involvement (Xu et al., 2021).

Family-level variables, such as educational background and parents' income, are more likely to engage with their children's education and, subsequently, witness academic improvements in their children (Liang, 2018, 2020; Strand, 2011). For instance, parents' highest degree significantly reduced their children's grade retention probability (Allende et al., 2026). This influence could operate through the transmission of parental educational expectations and values about their children's learning experience into their children's intrinsic beliefs and academic performance, according to the social cognitive Expectancy-Valu Theory (Wigfield et al., 2015). Parents who hold an intrinsic understanding of educational values tend to have students with positive academic self-concept and higher academic expectations (Cecalupo et al., 2026). Also, in exceptional cases, such as limited resources and cultural barriers, families and schools may underutilize available resources and support, leading to sustained moderate to high levels of anxiety (Yeneneh, 2026; Bharti et al., 2026). However, carrying the authority of teachers at home has been reported to depress children's perceptions of teachers' authority and threaten their self-image and intensify their anxiety (Colla, 2026).

The research gap

Most studies inspect academic outcomes such as retention of grade (Allende et al., 2026), readiness of school (Józsa & Oo, 2026; Gitonga et al., 2026), achievements in mathematics (Guo, 2026; Omoniyi et al., 2026), and academic performance (Edamo, 2026; Warsame et al., 2026). The combined three-dimensional learning experience (cognitive-affective engagement, behavioral engagement, and examination anxiety) remains underexplored. Peng et al. (2026) recognize that parental involvement extends beyond academic achievement, encompassing collective decision-making, vigorous involvement in school governance, and support for students' well-being. The literature lacks a systematic study of how the different dimensions of collaboration can influence students' multiple engagements. Freeman et al. (2026) provide evidence that research

has predominantly investigated a limited aspect of parental involvement, which is insufficient for students' academic outcomes. There are variables influence the home-school collaboration dynamically. The stronger the collaborations, the stronger the protection against disadvantages, but location and socio-economic barriers limit equitable engagement. Therefore, this study utilized a comprehensive HSP scale covering parental collaboration willingness, school involvement in collaboration practice, parents' collaboration behaviors, and parental collaboration, and examined its effects on students' learning experiences while controlling for variables at school-, family-, and individual-levels from an ecological perspective.

Methods

Participants

Some 2707 parents of students from four primary schools in each of three provinces in China, namely Jiangsu, Sichuan, and Shanxi, representing eastern, middle, and western China, were invited to participate. Nearly half of them (n = 1289, 47.6%) have only one child and rated the overall school teaching quality among the first quartile in the local district (n = 1329, 49.1%). The majority of their children were in either grade two or three (n = 2551, 94.3%) and studied in non-rural schools (n = 2254, 83.3%). As for parents' educational background, fathers predominantly had the highest degree below a bachelor's degree, with 1012 (37.4%), 582 (21.5%), and 832 (30.7%) having junior school, middle high school, and a graduating diploma, respectively. Similarly, mothers predominantly had the highest level of education, ranging from junior high school to a high school diploma (n = 2361, 87.2%). Some 541 (20%), 656 (n = 24.2%), 471 (17.4%), 420 (15.5%), 230 (8.5%), and 389 (14.4%) had a family annual income below 30,000, 30,000 to 60,000, 60,000 to 90,000, 90,000 to 120,000, and 120,000 to 150,000 RMB, respectively. Nearly half of the parents rated their child's academic performance as medium in the cohort.

Instruments

The scale of school-family collaboration

A 22-item scale was validated using the theoretical framework from a prior study (Authors, 2021). Items were carefully screened by experts in the field of family-school collaboration research. The data were suitable for exploratory factor analysis, with KMO = .927 and Bartlett's test of sphericity ($p < .001$), yielding four factors based on eigenvalues > 1 and the scree plot. These four factors were named as parental collaborating willingness (n = 5; e.g., the communications you initiated with teachers are for the development of child(s)'s academic performance), school involvement of collaborating practice (n = 11, e.g., teachers often report your child(ren)'s progress actively), parents' collaboration behaviours (n = 3, e.g., I check teachers' messages in the social media group of my child(ren)'s cohort but only reply to the essential ones), and parental collaborating attitudes (n = 3, e.g., I will attend if the school operate and will not if they do not initiate). A 5-point response scale was applied. They had satisfactory internal consistency, with Cronbach's alphas of .909, .82, .793, and .75, respectively. Confirmatory factor analysis produced satisfactory model fits: $\chi 2/df = 3.74$, CFI = 0.984, TLI = 0.976, GFI = 0.984, RMSEA = 0.032.

The scale of student learning experience

A 13-item scale was validated to measure students' learning experience using the same procedure as above. Three factors were elicited: cognitive-affective engagement (n = 4, e.g., do you think learning is something that everyone has to do?), behavioral engagement (n = 6, e.g., will you do something unrelated to classroom teaching), and academic pressure (n = 3, e.g., how is your emotional state before the examinations). A 4-point response scale was used. The three-factor model was good: $\chi 2/df = 4.33$, CFI = 0.982, TLI = 0.975, GFI = 0.990, RMSEA = 0.031.

Demographic variables

Three types of variables were added following the ecological view (Bronfenbrenner, 1979), namely at school-level, school teaching quality and location, at family-level, highest educational levels of both mother and father and annual family income and at the individual level, students' gender, single child or not, grade and academic performance.

Data collection

Both students and their parents were invited to participate through the head teachers, who introduced the research and shared the survey link in their students' social media groups. Only participants who consented to the use of their data were included.

Data analysis

A three-step data analysis procedure was conducted. First, all descriptive analyses were conducted in SPSS 26, including EFA and reliability checks. Second, a CFA was conducted in Amos to confirm the factorial structure identified in the EFA. Third, a two-step multiple linear regression was conducted to examine the predictive power of family-school collaboration variables. First, all four family-school collaboration variables were added as predictors, and then, relevant background demographic variables were controlled in the second model. Multicollinearity was examined

using both tolerance (TOL) and the Variance Inflation Factor (VIF), which measures the increase in variance explained by the regression when predictors are allowed to correlate. In particular, TOL < 0.1 and VIF > 10 were used as cutoff values for detecting multicollinearity (Kainthura & Sharma, 2022; Putriani et al., 2026).

Results

Sample description and descriptive analysis

The means of collaboration willingness, collaboration practice, collaboration behaviors, and collaboration attitudes ranged from 3.22 to 3.87, and those for cognitive-affective engagement, behavioral engagement, and academic pressure ranged from 1.47 to 1.84. The correlation coefficients among the three family-school collaboration variables, excluding that between collaboration willingness and collaboration practice, range from .233 to .481 (p<.001). That between willingness to collaborate and collaboration practice was .735, p<.001. The correlation coefficients among the three student learning experience variables range from .512 to .775, p<.001. See Table 1.

Table 1
Means, standard deviation and correlation coefficients

Variables	Mean (sd)	Collaboration willingness	School collaboration practice	Parent collaboration behaviour	Collaboration attitudes	Cognition-affective engagement	Behaviour engagement	Examination anxiety
Collaboration willingness	3.87(.57)	1						
School collaboration practice	3.75(.63)	.735**	1					
Parent collaboration behaviour	3.22(.79)	.481**	.267**	1				
Collaboration attitudes	3.48(.75)	.337**	.311**	.233**	1			
Cognition-affective engagement	1.47(.38)	− .149**	− .242**	.022	− .095**	1		
Behaviour engagement	1.54(.41)	− .141**	− .239**	− .009	− .104**	.532**	1	
Examination anxiety	1.83(.61)	− .182**	− .263**	− .041*	− .112**	.512**	.775**	1
Note: ** p<.001; * p<.05.								

The predictability of school-family collaboration variables in student learning experience

All TOL values were below 1, and VIF values were not above 3, indicating the non-existence of multicollinearity in all three models. Regarding student cognition and affective engagement, the predictability of both school collaboration practice (β = − .170, p < .01) and parent collaboration behaviors (β = .064, p < .01) was significant, whereas that for either collaboration willingness or attitudes was not significant. Among the demographic variables, only students' grade (β = .173, p < .001) and academic performance level (β = .147, p < .001) significantly predicted variance in cognition-affection engagement. R^2 was .392, indicating 39.2% of the variance in cognition and affective engagement was explained by the full model. See Table 2.

As for behavioral engagement, the predictability of school collaboration practice was significant, β = − .170, p < .001, whereas the other three school-family collaboration variables were not significant. Regarding the demographic variables, student gender (β = − .071, p < .001), grade (β = .095, p < .001), and academic performance level (β = .295, p < .001) significantly predicted variance in student behavioral engagement. Also, that of the school's overall teaching quality, β = .107, p < .001, and location, β = .055, p < .001, were significant. In addition, mother's highest degree significantly predicted variance in student behaviour engagement, β being .079, p<.001. R^2 of the full model was .419, indicating 41.9% of the variance in student behavior engagement was explained by the model. See Table 3.

Regarding academic anxiety, the school collaboration practice was the only significant predictor, β being − .203, p<.001. Also, student grade (β = .133, p < .001) and academic performance (β = .199, p < .001) significantly explained variance in student academic anxiety. Both school-related variables, namely school teaching quality β being .089, p<.001, and school location β being − .044, p<.05. In addition, only mother's highest

degree significantly predicted variance in student academic anxiety, β being .063, $p<.05$. R^2 was .368, indicating 36.8% of the variance in student academic anxiety was explained by the full model. See Table 4.

Table 2
Parameters of multiple linear regression with cognition-affective engagement as the outcome variable

variables	**Model 1**			**Model 2**		
	B	**β**	**SE**	**B**	**β**	**SE**
Constant	1.96**		.052	1.04**		.90
Collaboration willingness	.01	.015	.02	.016	.024	.02
School collaboration practice	− .161**	− .266	.017	− .103**	− .170**	.017
Parent collaboration bhaviours	.046**	.095	.01	.031**	.064**	.01
Collaboration attitudes	− .02	− .039	.01	− .13	− .012	.01
Gender				− .009	− .012	− .014
Single child				− .005	− .007	.014
Grade				.106**	.173	.011
Academic performance level				.058**	.147	.008
School teaching quality				.087**	.175	.008
School location				− .014	− .014	.019
Degree of father				.034**	.096	.01
Degree of mother				.018	.05	.01
Family annual income				.007	.029	.005
R^2	.261			.392		
ΔR^2				.131		
Note: ** p<.001; * p<.05.						

Table 3
Parameters of multiple linear regression with behaviour engagement as the outcome variable

variables	Model 1			Model 2		
	B	β	SE	B	β	SE
Constant	2.076**		.057	1.35		.096
Collaboration willingness	.041	.057	.022	.033	.046	.021
School collaboration practice	− .183**	− .279	.018	− .121**	− .184*	.018
Parent collaboration bhaviours	.026*	.049*	.018	.011	.022	.011
Collaboration attitudes	− .026*	− .047*	.011	− .019	− .035	.010
Gender				− .058**	− .071**	.015
Single child				− .004	− .005	.015
Grade				.063**	.095**	.012
Academic performance level				.126**	.295**	.008
School teaching quality				.058**	.107**	.011
School location				− .061**	− .055**	.011
Degree of father				.004	.01	.01
Degree of mother				.03**	.079**	.011
Family annual income				.006	.023	.005
R^2	.251			.419		
ΔR^2				.168		
Note: ** p<.001; * p<.05.						

Table 4
Parameters of multiple linear regression with academic anxiety as the outcome variable

variables	Model 1			Model 2		
	B	β	SE	B	β	SE
Constant	2.78**		.084	1.70**		.146
Collaboration willingness	.016	.015	.032	.016	.015	.032
School collaboration practice	− .261**	− .27**	.027	− .197**	− .203**	.027
Parent collaboration bhaviours	.025	.033	.016	.009	.012	.016
Collaboration attitudes	− .033*	− .04*	.016	− .023*	− .012*	.016
Gender				− .015	− .012	.022
Single child				.009	.008	.023
Grade				.130**	.133**	.018
Academic performance level				.126**	.199**	.012
School teaching quality				.072**	.089**	.016
School location				− .071*	− .044*	.031
Degree of father				.015	.026	.016
Degree of mother				.035*	.063*	.017
Family annual income				.005	.014	.008
R^2	.267			.368		
ΔR^2				.101		
Note: ** p<.001; * p<.05.						

Discussion

This study offers innovative insights into the effects of school-family partnership (SFP) on learning experiences, extending prior studies that mainly focused on its influence on academic performance (e.g., Allende et al., 2026). Also, the current finding is based on a validated HSP scale that reflects the bidirectional nature of this partnership, overcoming the current limitations of focusing on certain aspects of this collaboration, as indicated in Freeman et al. (2026), and addresses the current research gap in the lack of a psychometrically validated scale, as reviewed by Lessard et al. (2025). In particular, only two domains of SFP, namely school collaboration practices and parental collaborating actions, rather than parental collaboration willingness and attitudes, significantly predicted students' cognitive-affective engagement. This finding aligns with the meta-analysis by Erdem and Kaya (2020), which found that parental involvement in children's academic performance is consistent across educational levels. However, the current study reported only positive effects of parental involvement, rather than negative effects of parental controlling behaviors, as Erden and Kaya (2020) indicated. It could be that the current scale of SFP has been measured as supportive behaviors, such as reacting to teachers' notices about homework and student management in the social media group. In contrast, the school collaboration practice negatively predicted student cognitive-affective engagement; it could be due to the excessive involvement of schools, which could burden students and, for instance, have reversed effects on cognitive-affective engagement, especially considering the overall cognitive-affective efforts made by Chinese students have been reported to be modest in studies (e.g., Wang & Berglund, 2023). It is particularly essential, given the cultural emphasis on academic learning reported by Li (2022). In addition, the school collaboration practice was the only SFP significant predictor of behavioral engagement and academic anxiety, with negative effects. This finding is surprising; however, it could be reasonable, given the repeatedly reported school dominance in the school-home partnership, in which parents continue to influence their children as teachers do in the school context, which could have exceeded students' cognitive and affective limits. It could be associated with the high cultural expectations for academic outcomes in the Chinese context, whose effects have been magnified by dual-dimensional efforts, which, in turn, have led to heightened student anxiety and disobedient behaviors (e.g., Zhang et al., 2026). Also, it could come into effect due to parents' distrust of teachers, leading them to withdraw their time and energy from children's education, as Liu et al. (2026) indicate, due to the failure to build mutual trust and shared educational values, without which the effects of SFP have been prohibited, as in Alcantara and Resende (2025).

However, the parent-associated SFP dimensions failed to predict in all learning experience domains except cognitive-affective engagement, which contradicted the reported positive effects of parental involvement on educational outcomes (e.g., grade retention; Allende et al., 2026). However, it could be due to the current research addressing different student-associated outcome variables than prior studies, namely, learning

experience rather than academic performance. The current finding of positive effects on cognitive-affective engagement is consistent with prior findings by Bharti et al. (2026), who found that parental involvement in education reduced student negligence during high-risk exam-taking. Also, this finding aligns with Zhang et al (2020) findings in the positive effects of HSP on students' academic performance by increasing their engagement. It could be because the collaboration between family and school enhanced the students' understanding of the cognitive and affective self-regulation skills, as found by Yu et al. (2020). However, the current study found that parental involvement did not reduce student examination anxiety, as reported by Yeneteh (2026) and Bharti et al. (2026). This could be explained by the higher expectations for student academic outcomes from both teachers and parents; parents' consistent engagement in school's regular activities, as in Cecalupo et al. (2026), did not reduce their expectations but maintained them, which, in turn, heightened students' academic anxiety. In other words, the collaboration could have increased their academic pressure, especially commonly reported in exam-oriented contexts (Xu et al., 2021; Zhang et al., 2026).

Both school-teaching quality, however, significantly predicted behavioral engagement and academic anxiety, not cognitive and affective engagement. In other words, students from schools rated lower in teaching quality by parents and rural areas are more likely to have less behavioral engagement and severe academic anxiety than those from urban areas. This aligns with Xu et al. (2021), who reported that students living in disadvantaged circumstances are less likely to improve their cognitive skills, especially without the support of SFP partnerships and parental involvement. Also, this finding appears to confirm prior findings on the need for external assistance, including community and school support, in the education of children of parents with lower educational attainment, as in Pusztai et al. (2025). The increase in students' academic anxiety in rural areas could be due to the transfer of parents who perceived resource constraints and intensified fear of being left out, leading to higher student academic anxiety, as indicated by Bharti et al. (2026).

Among the family variables, only mothers' educational background, rather than fathers' education or family annual income, had significant predictive ability for behavioral engagement and examination anxiety. This finding extended prior studies (e.g., Allende et al., 2026), which reported that students are less likely to retain their grades, and suggested that these effects could differ between their mother's and father's educational backgrounds. However, the increases in mothers' degree failed to decrease their children's anxiety; instead, they tended to lower the intrinsic engagement in the current study. It could align with social cognitive expectancy-value theory (Wigfield et al., 2015), suggesting that parents can influence their children's learning beliefs and academic performance by transferring their own educational expectations and values into their educational involvement. In this sense, mothers are more likely to be involved in parenting and in children's education. This is particularly meaningful given that academic anxiety is more influenced by contextual variables, such as cultural expectations, as noted by Yeneneh (2026). Then, the current reports on the significant predictability of mothers' educational background could be possible because mothers who have more success in their educational pursuits tend to develop higher expectations for their children to carry on the family cultural capital through regulating their children's behavior, such as being disciplined and attending to school on time. However, such an increased expectation might not work with children's internal engagement, namely cognition and affective engagement, and what's worse, the increased mother's involvement could have brought with higher pressure and caused severe academic anxiety instead, which aligns with Liu et al. (2026), that parental engagement is negatively associated with children's academic anxiety. In contrast, this finding conflicted with Cecalupo et al. (2026), who found a positive association between parental regular involvement in education and students' positive self-image of learning capability.

Conclusion

The current study explored the influence of school-home partnership on students' learning experience, as reflected in learning engagement and examination anxiety. It found that two HSP domains, including school collaboration and parental collaboration actions, significantly predicted student cognitive-affective engagement. Also, school collaboration practice was the only significant, negative predictor of HDP in behavior engagement and academic anxiety, whereas parental-associated HSP domains failed to predict any of the learning experience domains other than cognitive-affective engagement. Individual variables, including student grade and academic performance, significantly predicted both domains of learning engagement. School-level factors, such as school teaching quality and location, positively predicted behavioral engagement and negatively predicted academic anxiety. In addition, family-level variables, including mothers' educational background, significantly influence behavioral engagement and academic anxiety, respectively.

Certain implications could be drawn from the current study. First, caution should be taken when schools initiate school-home partnerships, as excessive school involvement can negatively affect cognitive-affective engagement. Specifically, the school should avoid worsening students' academic anxiety and intensifying parental higher educational expectations, which could limit the enhancement of students' intrinsic engagement. Second, necessary measures should be taken to maximize parental involvement in the HSP decision-making process, especially in less developed areas, considering the severe academic anxiety and lower behavior engagement. Third, it is necessary to ensure that mothers with higher education levels are aware of the negative effects of transferring their higher education expectations to students. Certain limitations exist. First, the generalizability of the current finding may be limited, as the study was conducted in the Chinese context. Second, no causal relationship could be drawn considering the cross-sectional nature of the current design. Third, although various dimensions of HSP were measured in the current study, more dimensions of this partnership and domain-specific measures could be developed. Fourth, the variable-

based method could have limited the exploration of the variations in interactions among these variables. Future research could be conducted across other cultural contexts, longitudinal designs, and using domain-specific scales and person-centered methods.

Declarations

Author Contribution

Y.J. collected research data, finished statistical analysis and wrote the first draft of the manuscript. H.B. supervised this research, revised the manuscript and took charge of the communication work during publication. N.H.B. and G.N.N.H. supplemented literature review and modified the article wording. All authors reviewed and agreed on the final manuscript.

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