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A mixed methods approach to the mediating role of self-efficacy between resilience and academic achievement among EFL students

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Abstract

Resilience and self-efficacy are critical psychological resources shaping EFL academic achievement, yet their interactive mechanisms remain underexplored among Chinese senior high school students. This explanatory sequential mixed-methods study examined the mediating role of self-efficacy in the resilience-achievement relationship. Quantitative data from 432 students and follow-up interviews revealed that students demonstrated moderately high resilience and self-efficacy. Self-efficacy exhibited a stronger correlation with achievement than resilience and significantly mediated the resilience-achievement link, with qualitative insights corroborating these patterns. The findings underscore the importance of fostering both psychological resources to support academic success in EFL contexts.

Keywords: resilience; mediating role of self-efficacy; academic achievement; English learning; senior high school students

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Introduction

English learning is a multifaceted process shaped by a constellation of interacting factors, including learning environment, task characteristics, language proficiency, and individual difference variables such as motivation, beliefs, and emotions (Butler, 2019; Liu & Fan, 2026; Liu et al., 2026; Plonsky et al., 2022; Zhou & Liu, 2026). Among these, emotions exert a particularly significant influence on students ' English learning outcomes (Liu, Liu & Sukying, 2026; Wang, Lou & Liu, 2026). Resilience, defined as the capacity to actively cope with challenging environments, has emerged as a crucial psychological resource in promoting foreign language learning (Chu et al., 2024). It functions by enhancing positive emotions while mitigating negative ones, enabling learners to adapt constructively to adversities such as anxiety (Li, 2022a, 2022b; Sun, 2026). Concurrently, self-efficacy, as a key individual difference variable, exerts a significant positive effect on academic achievement (Hwang et al., 2016), with learners possessing higher self-efficacy consistently outperforming their less confident counterparts (Fathi et al., 2020). In the English-as-a-foreign-language (EFL) context in China, learners often face heavy academic burdens, rigid instructional requirements, examination-oriented curricula, and elevated expectations regarding their English performance (Liu & Zhong, 2022). These demanding conditions underscore the urgency of understanding how psychological resources, particularly resilience and self-efficacy, collaboratively support students in navigating academic pressure and attaining successful outcomes (Huang et al., 2024; Wang et al., 2024).

The present study adopts an explanatory sequential mixed-methods design to investigate the mechanism through which English learning resilience and self-efficacy interact to influence academic achievement among Chinese senior high school students. Quantitative data were first collected using validated questionnaires to measure students' resilience, self-efficacy, and standardized English test scores, followed by in-depth semi-structured interviews designed to explain and enrich the quantitative findings. This sequential integration enables a comprehensive and nuanced understanding of the psychological processes underpinning English academic achievement. This study offers a more integrated and contextually grounded perspective on how students adapt, persist, and succeed in high-pressure EFL environments.

Literature Review

English Learning Resilience

Language learning resilience refers to learners' capacity to overcome linguistic difficulties and sustain motivation in the face of setbacks, integrating internal traits such as self-regulation and empathy with external supports including teacher guidance and peer or family involvement (Chu et al., 2024; Liu et al., 2025). It is conceptualized as a multidimensional and dynamic construct that enables learners to persist and thrive despite obstacles in foreign language learning contexts (Kim & Kim, 2017). Unlike static traits, language learning resilience is shaped through ongoing interaction with socio-environmental factors, positioning it as a personal resource that empowers learners to navigate academic adversities effectively.

A growing corpus of empirical inquiry has established academic resilience as a significant determinant of educational outcomes across diverse learning contexts. Students exhibiting higher levels of academic resilience consistently demonstrate elevated academic confidence, enhanced self-efficacy beliefs, and a more robust self-concept (Strand & Peacock, 2002; Supervía et al., 2022). These dispositional advantages have been shown to translate into superior academic adjustment and measurable performance gains, reinforcing resilience's status as a reliable predictor of scholastic success (Kwek et al., 2013; Yang & Wang, 2022). Cassidy (2015) further contended that delineating resilience-related constructs holds practical utility for intervention design, positing that systematically cultivating resilience can yield tangible improvements in learning outcomes. Collectively, these findings suggest that resilience operates not merely as a defensive mechanism against adversity, but as an active facilitator of academic development, particularly when synergized with supportive social ecologies and adaptive personal coping repertoires.

Notwithstanding the well-documented direct relationship between resilience and academic achievement, the intricate pathways through which resilience exerts its influence, particularly the affective and cognitive mediators, remain insufficiently elucidated. Some investigations have examined mediating processes within English as a foreign language (EFL) settings through negative affective channels. For instance, Liu et al. (2023) found that burnout undermines learner engagement sequentially through diminished resilience and subsequent declines in motivation. Liu et al. (2024) identified resilience as a mediating buffer between English learning burnout and academic achievement, showing that burnout exerts a detrimental effect on performance, yet this relationship is significantly attenuated through the protective influence of resilience. Liu et al. (2025) drawing on control-value theory, demonstrated that resilient learners exhibit more positive perceptions of their setback-countering competencies and greater perceived control over learning processes, which in turn reduce anxiety and facilitate academic achievement. This finding suggests that resilience not only functions as a protective factor against negative emotions but also operates through the enhancement of control appraisals, a core mechanism within the control-value theory framework, to promote successful learning outcomes in EFL contexts.

Crucially, while the aforementioned quantitative studies have advanced our understanding of resilience's mediating roles via negative affective states, such as anxiety and burnout, a conspicuous gap persists regarding the mediating function of positive motivational beliefs, particularly self-efficacy, in the resilience-achievement relationship.

English Learning Self-Efficacy

Self-efficacy refers to "a person's belief, thoughts, and perception of their personal abilities" (Bandura, 1994, p. 72), representing an individual's confidence in handling various life pressures (Wang et al., 2001). In learning contexts, it denotes a learner's belief in their ability to acquire and master academic content (Cotterall, 1999; Zhang et al., 2025), encompassing their perceived competence and persistence (Schunk & Mullen, 2012). According to Bandura (1997), individuals with strong self-efficacy tend to reject negative thoughts and demonstrate resilience in the face of adversity. The construct is multidimensional. Zhang (2004) identified four aspects: ability, effort, frustration, and challenge. In contrast, Schwarzer's General Self-Efficacy

Scale presents a unidimensional view, focusing on general coping abilities. Self-efficacy is believed to better predict performance than actual competence, as it influences how learners apply their skills (Bandura, 1986). As such, understanding its structure and function is crucial in supporting learners' academic development.

Empirical studies have consistently confirmed that self-efficacy serves as a robust predictor of academic achievement. Learners with higher self-efficacy tend to set more ambitious goals, invest greater effort, and sustain persistence when confronted with challenges (Derakhshan & Fathi, 2024; Zimmerman & Bandura, 1994). Beyond its direct influence on performance, self-efficacy shapes both motivational beliefs and learning behaviors, thereby contributing fundamentally to academic success (Cassidy, 2012). In the specific domain of language learning, self-efficacy has been shown to enhance students' willingness to engage with demanding tasks and to foster sustained perseverance (Dörnyei & Ushioda, 2011). Wang and Neihart (2015) further emphasized that self-efficacy drives language learners to exert maximal effort in their pursuit of proficiency. Collectively, these findings position self-efficacy as a central psychological factor underpinning learning outcomes, particularly in the demanding context of EFL education.

Beyond its direct predictive power, self-efficacy has also been found to function as a mediating mechanism through which various antecedent factors influence academic and communicative outcomes. For instance, Zhang et al. (2025), grounded in social cognitive theory, demonstrated that self-efficacy mediates the relationship between AI literacy and EFL learners' willingness to communicate, while also operating alongside anxiety as a parallel mediator. Similarly, Zhang & Jing (2026) identified self-efficacy as a significant mediator between communication quality and learning engagement. These studies collectively illustrate that self-efficacy serves as a crucial intervening variable that transmits the effects of diverse psychological and contextual factors onto learning outcomes, thereby reinforcing its theoretical status as a core motivational mechanism in EFL settings. While the extant literature has established self-efficacy as both a direct predictor of achievement and a mediator of various antecedents, its specific role in mediating the relationship between resilience and academic achievement among EFL learners remains underexplored. Given that resilience has been identified as a precursor to self-efficacy beliefs (Strand & Peacock, 2002; Supervía et al., 2022), and that self-efficacy consistently predicts academic outcomes in language learning, the pathway through which resilience cultivates domain-specific self-efficacy that subsequently translates into enhanced EFL achievement warrants systematic investigation.

Hypothetical Model of the Study

The control-value theory of achievement emotions, developed by Pekrun (2006), offers a comprehensive framework for understanding how emotions arise and function in academic settings. The theory emphasizes the role of two key appraisals, control and value, in shaping achievement emotions, which in turn influence academic outcomes such as engagement and performance (Pekrun & Perry, 2014). Control-value theory also identifies antecedent factors, including personal traits, that influence students' emotional experiences (Pekrun et al., 2007). Control-value theory posits that personal traits serve as distal antecedents that shape learners' appraisals of control and value, which in turn influence achievement emotions and academic outcomes (Pekrun, 2006; Pekrun et al., 2007). Within this theoretical lens, resilience

can be conceptualized as a personal resource (Chu et al., 2024) that may influence how EFL learners perceive their control over academic tasks, thereby affecting their emotional and behavioral responses to English learning challenges. Resilience shapes learners' control appraisals, while self-efficacy reflects perceived control over academic tasks (Bandura, 1997). Together, these variables affect students' emotional and behavioral responses in English learning. The theory thus provides a sound basis for hypothesizing that resilience influences academic achievement indirectly through self-efficacy, helping to frame the structural model tested in this research (Harley et al., 2019; Kim & Kim, 2017).

Empirical studies support this theoretical pathway, showing that self-efficacy significantly predicts academic outcomes (Cassidy, 2012; Masud et al., 2016), while resilience fosters the positive traits that promote academic success (Liu & Han, 2022; Putwain et al., 2013). Moreover, self-efficacy has been found to mediate the relationship between resilience and achievement-related outcomes (Etherton et al., 2020; Supervía et al., 2022). Despite this, limited research has examined how these constructs interact specifically in EFL contexts. Therefore, this study proposes a structural equation model to examine whether English learning self-efficacy mediates the relationship between resilience and academic achievement. As shown in Figure 1, a series of corresponding hypotheses are formulated based on the model for further analysis.

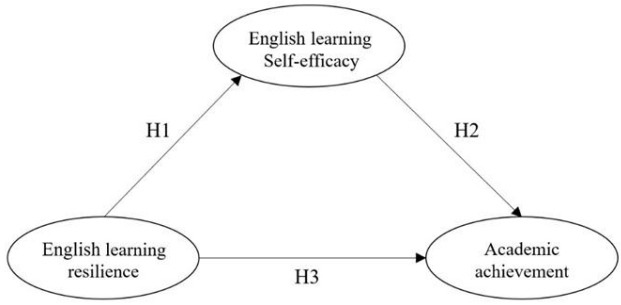


Figure 1. *The hypothesized model*

H1: Students' English learning resilience can predict their level of English learning self-efficacy.

H2: Students' English learning self-efficacy can predict their level of academic achievement.

H3: Students' English learning resilience can predict their level of academic achievement.

H4: Students' English learning self-efficacy mediates the relationship between English learning resilience and academic achievement.

Methodology

Research Design

This study adopted an explanatory sequential mixed-methods design, starting with quantitative analysis followed by qualitative exploration. It aimed to investigate the levels of students' resilience and self-efficacy and examine their potential influence on English academic achievement. Against the backdrop of senior high school English learning in China, the study sets out to explore the following research questions.

> **RQ1:** What are the profiles of students' self-efficacy and resilience in English learning?
>
> **RQ2:** What are the relationships between students' resilience, self-efficacy, and academic achievement in English learning?
>
> **RQ3:** What is the mediating role of self-efficacy between students' resilience and academic achievement in English learning?

Participants

This study relied on a convenience sampling method due to the convenience of access to students (Rose et al., 2019). This method yielded 432 high school students in eastern China as participants to explore their resilience, self-efficacy and academic achievement. All participants spoke Chinese as their first language and studied English as a foreign language. English is a compulsory subject within the curriculum. Within the valid sample, 234 participants (54.1%) were female and 198 (45.8%) were male. The average age of the male participants was 16 years old and that of the women was 15.5 years old. In addition, eight students were selected from the sample for in-depth interviews to provide qualitative insights into the quantitative findings.

Instruments

English learning resilience

Students' English learning resilience was assessed using the Language Learning Resilience Scale, originally developed by Kim and Kim (2017) with adapted items from Liu and Han (2022). The scale consists of 34 items rated on a 6-point Likert scale, ranging from "strongly disagree" to "strongly agree." It has been widely applied in language learning research and has demonstrated strong psychometric properties. In this study, Cronbach's alpha ranged from 0.597 to 0.922 across subscales, with an overall reliability coefficient of 0.931, indicating high internal consistency.

English learning self-efficacy

Students' English learning self-efficacy was measured using the General Self-Efficacy Scale developed by Schwarzer and Jerusalem (1995). The scale contains 10 items, each scored on a 6-point Likert scale, ranging from "strongly disagree" to "strongly agree." It assesses students' general belief in their ability to manage

learning tasks and overcome difficulties. In the current study, the scale demonstrated excellent internal consistency, with a Cronbach's alpha of 0.971.

Academic Achievement

To measure academic achievement, we utilized the latest standardized English test administered by the city's education bureau. Given the standardized nature of the test, raw scores were transformed into z-scores to ensure comparability across participants. The assessment instrument covered five domains: listening comprehension, reading comprehension, cloze tests, gap-filling tasks, and written composition.

Interview Protocol

Semi-structured interviews were conducted to gather qualitative data that would complement and expand upon the quantitative findings. Eight students voluntarily provided contact information and were selected for interviews. The interview protocol was developed based on existing literature and the quantitative phase results, with a focus on understanding how resilience may influence academic achievement through self-efficacy. Open-ended questions allowed participants to freely express their experiences. All interviews were conducted in Chinese to ensure clarity and depth, and were adapted in structure depending on the responses of each interviewee.

Data Collection

Data collection was carried out in two stages, combining quantitative surveys and qualitative interviews to ensure a comprehensive understanding of the research variables. Data were collected from both key and ordinary high schools located in urban and county areas using an online questionnaire distributed via Wenjuanxing. Participants were informed of the anonymous and confidential nature of the survey. Academic achievement was measured through standardized scores from a city-wide English exam, which were converted into z-scores using SPSS to ensure comparability. In the second stage, interviews were conducted online and offline, each lasting about 10 minutes. Interviewees gave verbal consent, and a semi-structured protocol was used flexibly to elicit responses on resilience and self-efficacy. Recordings were transcribed and analyzed to enrich the interpretation of the quantitative results.

Data Analysis

The data analysis was conducted in four main steps. First, all returned questionnaires were screened, and invalid responses were removed based on criteria such as incomplete answers, apparent patterns (e.g., selecting the same option for all items), or abnormally short completion times. Only valid questionnaires were retained for further analysis. Second, descriptive statistics and Pearson correlation analyses were performed using SPSS 24.0 to examine the overall levels of students' English learning resilience, English learning self-efficacy, and academic achievement, as well as the relationships among them. Third, structural equation modeling was conducted using AMOS 26.0 to test the hypothesized model, particularly the mediating role of English learning self-efficacy between English learning resilience and academic achievement. Model fit indices confirmed that the model had a good fit with the data. Fourth, qualitative interview data were transcribed and thematically analyzed to

further explore how students perceive and experience resilience and self-efficacy in English learning. Representative excerpts were selected to illustrate key themes and contextualize the quantitative findings. This four-step process ensured both statistical accuracy and in-depth interpretation of psychological mechanisms influencing academic outcomes.

Results

Profiles of students' resilience and self-efficacy in English learning

The results showed that high school students demonstrated relatively high levels of both English learning resilience and self-efficacy. Among the four dimensions of resilience, self-regulation had the highest mean (M = 5.07), followed by empathy (M = 4.89) and perceived happiness (M = 4.87), while sociability scored the lowest (M = 4.45). These findings suggest that students are particularly strong in managing their learning behaviors and emotions, whereas their interpersonal adaptability may need further support. In terms of self-efficacy, the mean score was 4.67 (SD = 1.20), indicating that most students hold a strong belief in their ability to succeed in English learning tasks and cope with challenges effectively. Detailed descriptive statistics are presented in Table 1.

Table 1. *Descriptive statistics*

	M	SD	1	2	3	4	5	6
1.Academic Achievement	—	—	——					
2.Perceived Happiness	4.87	1.14	0.228**	——				
3.Sociability	4.45	1.51	0.026	0.201**	——			
4.Self-regulation	5.07	1.06	0.265**	0.630**	0.214**	——		
5.Empathy	4.89	1.12	0.188**	0.635**	0.161*	0.632**	——	
6.Self-efficacy	4.67	1.20	0.349**	0.685**	0.167*	0.758**	0.715**	——

Notes: $^{**}p$ <0.01

The relationships between resilience, self-efficacy, and academic achievement in English learning

Table 1 presents the Pearson correlation coefficients among the four dimensions of English learning resilience, namely Perceived Happiness, Sociability, Self-regulation, and Empathy, along with self-efficacy and academic achievement. According to Cohen's (1988) guidelines, a correlation of 0.10 is considered small, 0.30 moderate, and 0.50 large. The results show that all four resilience dimensions are positively correlated with self-efficacy, with Self-regulation (r = 0.758, p <0.01), Empathy (r = 0.715, p <0.01), and Perceived Happiness (r = 0.685, p <0.01) showing large effect sizes, while Sociability shows a weaker correlation (r = 0.167, p <0.05). In addition, self-efficacy is moderately and positively correlated with academic achievement (r = 0.349, p <0.01), indicating its stronger association with performance. Meanwhile, Perceived Happiness (r = 0.228, p <0.01), Self-regulation (r = 0.265, p <0.01), and Empathy (r = 0.188, p <0.01) show small but significant positive correlations with academic achievement, whereas Sociability is not significantly correlated (r = 0.026, p > 0.05). These findings suggest that while the emotional and behavioral

components of resilience contribute indirectly to performance through self-efficacy, their direct impact on achievement is limited.

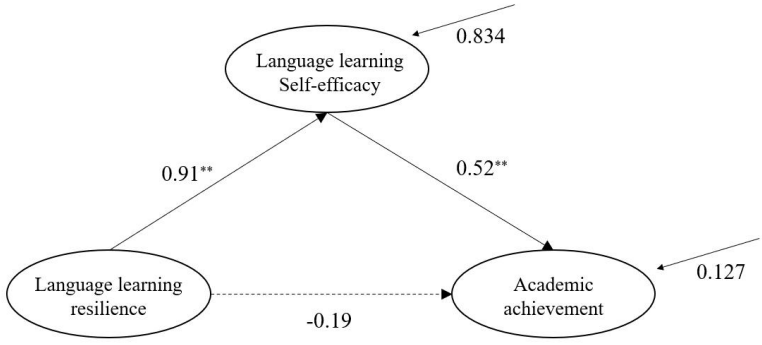
The mediating role of self-efficacy between resilience and academic achievement in English learning

The Quantitative Findings from SEM Model

To delve into the relationships between students' English learning resilience, self-efficacy and academic achievement, a simple model of the three variables was presented. The simple model generated a satisfactory model fit: $X^2/df = 1.926$, CFI = 0.976, NFI = 0.952, TLI = 0.972, RMSEA = 0.064, RMR = 0.041. According to the simple model, the results indicated that English learning resilience can predict English learning self-efficacy directly (β = 0.913, p <0.01); English learning resilience cannot predict academic achievement directly (β = -0.189, p > 0.05) with inclusion of zero in the CI for the direct path from resilience to academic achievement; English learning self-efficacy can directly predict academic achievement (β = 0.521, p <0.01), and English learning resilience can predict academic achievement indirectly via the mediation of English learning self-efficacy with no inclusion of zero in the CI for the indirect path from resilience to academic achievement (see Table 2, Figure 2).

Table 2. *Indirect, direct and total effect*

Pathway	Estimate	Bias-corrected 95% CI			Percentile 95% CI		
		Lower	Upper	*P*	Lower	Upper	*P*
Indirect effect	0.543	0.064	1.351	0.032	0.036	1.311	0.040
Direct effect	-0.215	-1.058	0.395	0.455	-1.041	0.419	0.488
Total effect	0.327	0.146	0.539	0.001	0.149	0.540	0.001



X^2/df = 1.926, CFI=0.976, NFI=0.952, TLI=0.972, RMSEA=0.064, RMR=0.041

** p < 0.01

Figure 2. *The final simple model*

To delve deeper into the predictive roles of specific dimensions of resilience on academic achievement, we tested the complex SEM model involving perceived happiness, sociability, self-regulation and empathy as separate independent variables. The complex SEM model, after modifications, generated a satisfactory model fit: X^2/df = 2.111, CFI = 0.948, NFI = 0.906, TLI = 0.940, RMSEA = 0.07, RMR = 0.087. The results of SEM are shown in Table 5 and Figure 3.

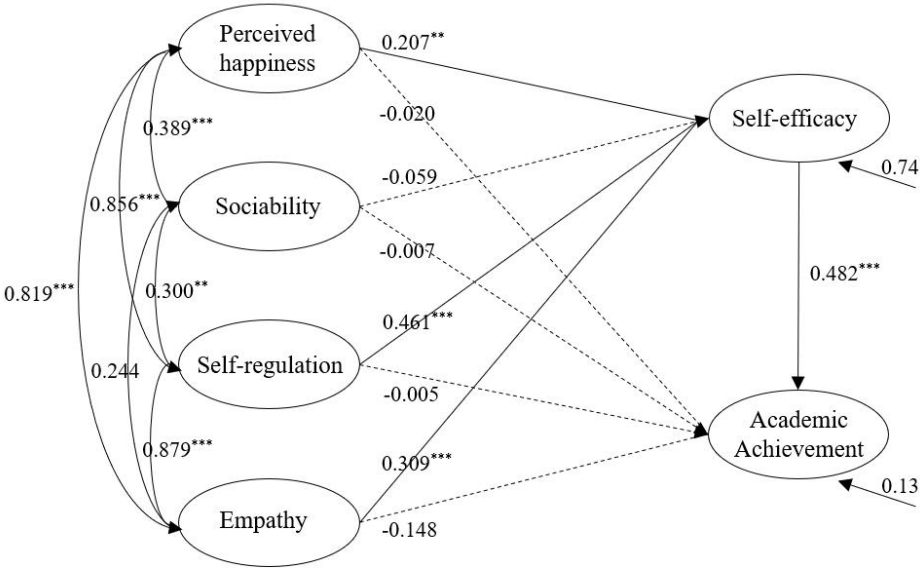


Figure 3. *The final complex model*

Table 5. *Different paths of variables in the structural equation modelling*

Pathway	Estimate	Standardized estimate	S.E.	C.R.	*p*
PH→SE	0.203	0.207	0.064	3.153	0.002
EP→SE	0.309	0.309	0.068	4.524	***
SR→SE	0.437	0.461	0.065	6.685	***
SA→SE	-0.052	-0.059	0.037	-1.429	0.153
SE→AA	0.441	0.482	0.127	3.482	***
PH→AA	-0.018	-0.02	0.099	-0.179	0.858
EP→AA	-0.135	-0.148	0.108	-1.251	0.211
SR→AA	-0.004	-0.005	0.109	-0.037	0.970
SA→AA	-0.006	-0.007	0.056	-0.104	0.917

Note. ***p <0.001, N=226, PH=perceived happiness, EP=empathy, SR=self-regulation, SA=sociability, SE=self-efficacy, AA=academic achievement

Beside the above complex model, the present study also calculated the indirect effects of English learning resilience on academic achievement through the mediating role of English learning self-efficacy (see Table 6).

Table 6. *The mediating role of self-efficacy in the structural equation modelling*

Path	Estimate	Bias-corrected 95% *CI*		Percentile 95% *CI*	
		Lower	Upper	Lower	Upper
PH→SE→AA	0.090	0.020	0.242	0.016	0.228
SA→SE→AA	-0.023	-0.079	0.005	-0.075	0.007
SR→SE→AA	0.193	0.086	0.391	0.075	0.369
EP→SE→AA	0.137	0.035	0.335	0.024	0.303

Note. N=226, PH=perceived happiness, EP=empathy, SR=self-regulation, SA=sociability, SE=self-efficacy, AA=academic achievement

Based on the results of complex model, it can be seen that self-efficacy can significantly and directly predict academic achievement (β = 0.482, p <0.001); Empathy, self-regulation and perceived happiness can significantly and positively directly predict self-efficacy (β = 0.309; 0.461, p <0.001; β = 0.207, p <0.01); and four dimensions of resilience cannot significantly and positively directly predict academic achievement (β = -0.02; -0.148; -0.005; -0.007). When it comes to the mediating role of self-efficacy in the complex model, as shown in Table 4, the 95% CIs for the indirect effects of self-efficacy for each dimension of resilience (perceived happiness, sociability, self-regulation and empathy) were [0.016, 0.228], [-0.075, 0.007], [0.075, 0.369], and [0.024, 0.303], respectively, in which three of them (perceived happiness, self-regulation and empathy) did not include zero (Field, 2013), indicating that self-efficacy played a mediating role between these three dimensions of resilience and academic achievement. The 95% CI for the indirect effect of sociability on academic achievement included zero, indicating that self-efficacy could not play a mediating role between sociability and academic achievement.

The Qualitative Findings from Interviews

Direct effect of resilience on self-efficacy

Interview data confirmed that three dimensions of resilience, namely perceived happiness, empathy, and self-regulation, significantly contributed to enhancing students' self-efficacy in English learning, while sociability did not show a significant effect. These findings align with the quantitative results and further illustrate that emotional and behavioral strengths play a more substantial role in fostering self-efficacy than peer-related social interactions. To provide a deeper understanding of these pathways, the following analysis draws on specific examples from four students' interview responses.

First, Student 1 reported that deriving happiness and satisfaction from learning English fostered strong exam confidence, showing how positive emotions enhance self-efficacy. The sense of enjoyment motivated her to engage more actively and optimistically in learning tasks.

Student 1: "*I can get happiness, a sense of accomplishment and satisfaction from English. These positive and virtuous circles make me extremely confident when having exams, and I always have high expectations.*"

Second, Student 3 described gaining a sense of value and confidence through helping peers, which strengthened his belief in his ability to succeed. This illustrates that empathy fosters self-belief by reinforcing one's perceived competence through positive social interactions.

Student 3: "*I explained a very difficult reading problem to a boy, he suddenly realized it and thanked me very solemnly, and I really felt that I was very valuable at that time. It's also a good way to consolidate my knowledge system, from which I can get great benefit too.*"

Third, Student 5 demonstrated that targeted self-regulation strategies, such as intensive grammar practice, directly strengthened her confidence and improved learning outcomes. Through systematic practice and mastery, self-regulation helped her develop a stronger sense of control over academic tasks.

Student 5: "*I can get happiness, a sense of accomplishment and satisfaction from English. These positive and virtuous circles make me extremely confident when having exams, and I always have high expectations.*"

Fourth, Student 7 illustrated why sociability did not significantly contribute to self-efficacy. While peer interaction provided some temporary learning support, it did not fundamentally strengthen internal beliefs about personal competence.

Student 7: "*In the past, there was one friend, we were at the same level, but he was a little better than me... I studied with him because I can be supervised by him, but the most important thing is to rely on myself. I don't think the influence of peers on English grades is actually very large. For example, you may be able to do it if someone helps you, but in the final analysis, you can't figure it out yourself.*"

Direct effect of self-efficacy on academic achievement

Interview data revealed that self-efficacy had a direct positive impact on students' English academic achievement, supporting the significant quantitative result. Students with stronger self-efficacy were more focused and persistent during exams, leading to better performance. The experience of Student 4 underscores the motivational function of self-efficacy and its capacity to boost performance by increasing cognitive engagement and emotional regulation in learning tasks.

Student 4: "*If I am more confident, then I will be more attentive during the exam process and focus on solving difficult problems. When you're confident, you feel like the whole world is opening the way for you, and any problem will be solved. However, this situation is still very rare for me, and I only experienced this feeling in one unit quiz, and that time I ranked third.*"

Direct effect of resilience on academic achievement

Interview data further explained why the four resilience dimensions, namely Perceived Happiness, Empathy, Self-regulation, and Sociability, did not directly predict academic achievement, supporting the non-significant quantitative findings. Although these dimensions foster positive emotions, personal growth, and adaptive learning behaviors, they do not exert a significant direct impact on academic

achievement. To further illustrate these findings, the following analysis draws on specific examples from four students' interview responses.

First, perceived happiness did not directly predict academic achievement. Although Student 2 reported that happiness and satisfaction from learning English enhanced engagement and attentiveness in class, these positive emotions primarily strengthened self-efficacy rather than directly improving grades. The enjoyment of learning supported motivation but did not translate into measurable academic outcomes.

> Student 2: "*Since I was a child, my English grades have been at the top of other subjects, because English is my favorite and best subject. I can get happiness, a sense of accomplishment and satisfaction from English. Therefore, I will listen attentively in class and absorb knowledge quickly.*"

Second, empathy did not show a significant direct effect on academic achievement. Student 4 described gaining a sense of value and reinforcing understanding through helping peers, which enhanced personal growth. However, this empathy-driven support focused more on internal learning experience than on immediate performance improvements.

> Student 4: "*I explained a very difficult reading problem to a boy... I really felt that I was very valuable at that time. It's also a good way to consolidate my knowledge system, from which I can get great benefit, too.*"

Third, self-regulation did not exert a significant direct impact on academic achievement. As Student 6 explained, systematic grammar practice built confidence and strengthened mastery of content. Yet the influence of self-regulation operated through enhanced self-efficacy, rather than through a direct contribution to academic results.

> Student 6: "*Through that intensive training-style exercises, I felt like I had gradually mastered the grammar system. Therefore, when I come across a grammar multiple-choice question again, I read the stem with full confidence.*"

Fourth, sociability was not directly linked to academic achievement. Student 8 noted that while peer interaction provided supervision and emotional support, academic success ultimately depended on personal effort and understanding. Therefore, sociability enriched the learning environment but did not directly foster the competence required for higher academic performance.

> Student 8: "*I studied with a friend because I can be supervised by him, but the most important thing is to rely on myself. I don't think the influence of peers on English grades is actually very large.*"

Discussion

This study investigated how resilience and self-efficacy influence academic achievement in English learning among Chinese senior high school students. It examined three aspects: the overall psychological profiles of students, the relationships among resilience, self-efficacy, and academic achievement, and the mediating role of self-efficacy. A mixed-methods design was employed to gather both quantitative and qualitative data, allowing for a more comprehensive understanding of students' psychological mechanisms. The following discussion presents the key findings in three parts: psychological profiles of learners, the interrelationships among the variables, and the mediating effect of self-efficacy.

This study first identified the overall psychological profile of Chinese senior high school students in English learning, focusing on resilience and self-efficacy. Results showed that students exhibited a generally high level of English learning resilience, with self-regulation scoring the highest, followed by empathy. This aligns with findings from Shin and Kim (2017) and Liu and Han (2022), both of which highlighted self-regulation as a key component of academic resilience in East Asian contexts. Additionally, students' empathy levels were also relatively strong, supporting Kim and Kim's (2017) emphasis on the communicative and emotional dimensions of language learning. In terms of self-efficacy, the overall mean score in this study was moderately high. Compared with Truong and Wang's (2019) findings in Vietnam and Muche et al.'s (2024) research in Ethiopia, where self-efficacy levels were moderate across different language skills, Chinese students in this study appear to have slightly stronger self-beliefs in their English learning abilities. By simultaneously examining both resilience and self-efficacy in the context of English learning, this study offers a more comprehensive view of Chinese learners' psychological strengths. It enriches existing research by highlighting how emotional and behavioral adaptability jointly support success in EFL learning environments.

Building upon these profiles, the study then examined the relationships among resilience, self-efficacy, and academic achievement, highlighting distinct patterns of correlation. The current study found that English learning resilience was positively but weakly correlated with academic achievement, echoing Liu and Han (2022), who suggested that such a low correlation may result from the emotional instability of resilience and the influence of other individual differences. In contrast, self-efficacy showed a stronger correlation with academic achievement, consistent with Honick and Broadbent's (2015) meta-analysis, which highlighted self-efficacy as a reliable predictor of academic success. Moreover, resilience was strongly correlated with self-efficacy, suggesting that students with higher resilience tend to possess stronger self-beliefs. This aligns with prior studies (e.g., Gordon, 1995), indicating that resilience contributes to students' confidence, which in turn impacts their learning performance. By examining the triadic relationship among these constructs in a Chinese high school context, this study provides nuanced insights into the mechanisms of psychological functioning in language learning. It expands the theoretical framework of academic resilience by situating self-efficacy as a key mediating factor.

To further unpack these relationships, the study investigated the mediating role of self-efficacy, confirming its central function in linking resilience to academic outcomes. This study found that while resilience alone had limited predictive power for academic achievement, its impact became more evident when mediated by self-efficacy. This aligns with Wang et al. (2023), who demonstrated that English learning self-efficacy mediates the relationship between adaptability and academic engagement. Similarly, Hardy et al. (2004) emphasized that resilience influences outcomes primarily through self-efficacy. Moreover, students who report higher perceived happiness, a dimension of resilience, tend to show stronger self-concept (Wang, 2024), supporting the indirect influence of resilience on motivation. As found by Chen et al. (2021), students with higher self-efficacy experience more positive emotions and stronger motivation, contributing to better academic outcomes. These findings suggest that resilience affects achievement more through internal psychological mechanisms, making self-efficacy a critical mediator worth

educational attention. This study contributes by validating the mediating mechanism through both quantitative and qualitative methods. It highlights the practical significance of fostering self-efficacy to bridge students' resilience and academic success.

This study contributes to Control-Value Theory in three meaningful ways. First, it enriches the emotional dimension of the theory by integrating resilience as a key psychological trait that influences academic achievement indirectly through self-efficacy, clarifying how emotional adaptability affects perceived control. Second, it highlights the mediating role of English learning self-efficacy as a control-related belief that links resilience to academic outcomes, providing empirical support for the theory's proposed mechanisms. Third, by applying the theory in the context of English as a Foreign Language learning among Chinese high school students, the study extends the cross-cultural applicability of Control-Value Theory and demonstrates its relevance in language learning domains, where both cognitive and emotional regulation are essential for success.

Based on the findings of this study, three practical implications can be proposed to support English learning among senior high school students. First, teachers should integrate resilience-building strategies into daily instruction, such as emotional regulation training and reflective exercises, to enhance students' adaptability and perseverance when facing learning setbacks. Second, efforts should be made to foster students' self-efficacy through goal-setting, encouraging self-monitoring, providing timely and constructive feedback, and celebrating progress, thereby reinforcing their belief in their ability to succeed. Third, peer interaction should be facilitated in meaningful ways, such as through group tasks and peer mentoring, to promote a sense of support and shared growth, which can strengthen learners' motivation and emotional stability. These insights are particularly valuable for designing psychologically informed classroom interventions that enhance both emotional well-being and academic outcomes in English learning.

Conclusion and implications

This study aimed to explore the profiles of Chinese senior high school students' English learning resilience and self-efficacy, examine the relationships among these psychological traits and academic achievement, and investigate the mediating role of self-efficacy. Employing an explanatory sequential mixed-methods design, the research first collected and analyzed quantitative data, followed by qualitative interviews for deeper interpretation. The findings revealed three major insights: first, students exhibited a generally high level of resilience, especially in self-regulation and empathy, alongside moderately strong self-efficacy; second, resilience and self-efficacy were both positively related to academic achievement, with self-efficacy showing a stronger association; and third, self-efficacy played a significant mediating role between resilience and academic outcomes. These results contribute to a better understanding of psychological functioning in English as a foreign language learning, extending the theoretical scope of academic resilience and Control-Value Theory while offering practical strategies for promoting motivation and achievement in language education.

Despite its contributions, this study has two main limitations. First, the sample was limited to students from a single province in China, which may constrain the

generalizability of the findings to broader educational or cultural contexts. Future studies should include more diverse regions and educational settings. Second, the study relied primarily on self-report measures, which may be influenced by social desirability bias. Future research could incorporate teacher reports, classroom observations, or performance-based assessments to triangulate the data. Additionally, longitudinal or intervention-based research could explore how resilience and self-efficacy evolve over time and how targeted support may improve students' long-term academic outcomes.

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In addition, this study does not involve intervention and it is low risk.

Informed Consent Statement:

Written informed consents were obtained from all subjects involved in this study.

Data Availability Statement:

The data presented in this study are available on request from the corresponding author due to restrictions (privacy, legal or ethical reasons).

Conflicts of Interest:

The authors declare no conflicts of interest.

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