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The roles of teacher growth mindset and resilience in predicting burnout among Chinese EFL teachers: a mediation model including teaching motivation

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Understanding the relationship between psychological factors and teacher burnout is essential for supporting EFL educators' well-being. This study examines the direct and indirect effects of teacher growth mindset and resilience on burnout among Chinese English as a Foreign Language (EFL) teachers ($n = 557$). Employing structural equation modeling (SEM), the analysis reveals that both growth mindset and resilience directly contribute to reduced burnout, highlighting their protective roles. Furthermore, teaching motivation emerges as a partial mediator in these relationships. These findings underscore the significance of fostering a growth mindset, resilience, and intrinsic motivation among EFL teachers to mitigate burnout and promote their overall well-being. The study offers valuable insights into the psychological factors influencing teacher burnout within the specific context of Chinese EFL education.

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Introduction

The global education sector faces unprecedented complexity and rapid change, placing significant pressure on educators. Increased workloads, diverse student populations, and limited resources are demonstrably impacting teacher well-being, with burnout a critical concern (Brasfield et al., 2019; Hiver, Dörnyei (2017); Lizano, 2015; Maslach, 1976). Burnout, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach, 1976), is not only a personal issue but also a systemic challenge. It has profound implications for educational quality, teacher retention, and the effectiveness of education systems.

While teacher burnout is a global issue, English as a Foreign Language (EFL) teachers are particularly vulnerable (Swanson & Mason, 2018). This heightened vulnerability stems from specific pedagogical and socio-cultural demands, especially in certain national contexts. EFL teachers often navigate the complexities of second language acquisition and diverse cultural classroom environments (Greenier et al., 2021; Richards, 2022). In China, these challenges are intensified by large classes, pressure for high exam scores, and strong cultural expectations regarding teacher authority (Marshall & DeCapua, 2013). The digital era has compounded these pressures, with the widespread use of social media platforms like WeChat for parent-teacher communication creating an expectation of constant availability that blurs the boundaries between work and personal life (Wu et al., 2025). These combined stressors, along with ongoing educational reforms, create a uniquely demanding context for Chinese EFL teachers. Therefore, understanding and mitigating burnout in this population is highly relevant for teacher development programs and educational policy.

Addressing teacher burnout is a strategic imperative. In this demanding environment, identifying psychological resources that help teachers manage these modern pressures and sustain their commitment is crucial. Recent research highlights growth mindset (the belief in the ability to develop teaching skills) and resilience (the capacity to adapt and thrive through challenges) as key protective factors. A growth mindset (Dweck, 2006) is associated with strong professional development motivation, adaptive problem-solving, and reduced burnout (Dweck, 2014; Haukås & Mercer, 2022). Similarly, teacher resilience (Bobek, 2002) supports emotional well-being, job satisfaction, and long-term professional commitment (Beltman, 2021; Day & Hong, 2016). Although research confirms the independent effects of these factors on burnout (Haukås & Mercer, 2022; Zarrinabadi et al., 2023), understanding the psychological mechanisms that mediate these protective effects remains limited.

To address this gap, this study proposes that teaching motivation—an intrinsic drive based on personal values and professional goals (Mercer & Dörnyei, 2020)—mediates the relationship between teacher mindset, resilience, and burnout. We hypothesize that growth mindset and resilience enhance intrinsic teaching motivation, which in turn buffers against burnout (Haukås & Mercer, 2022; Zeng et al., 2019). By exploring this mediation, we aim to provide a more nuanced understanding of the psychological dynamics influencing teacher well-being in demanding EFL contexts like China.

This research goes beyond describing associations between growth mindset, resilience, and burnout. By emphasizing the mediating role of teaching motivation, we offer actionable insights for designing interventions to cultivate these psychological resources. These insights can inform policy and teacher training, ensuring growth mindset, resilience, and motivation are integrated into teacher support strategies. By developing a more resilient and motivated EFL teaching workforce, educational institutions—in China and globally—can improve teacher well-being, enhance instructional quality, and strengthen education outcomes systemically.

Review of the literature

Resilience. Resilience, the capacity to adapt effectively to adversity (Connor & Davidson, 2003), is a core concept in positive psychology aimed at enhancing well-being (Seligman & Csikszentmihalyi, 2000). Within the demanding field of education, teacher resilience is a critical attribute for sustaining a fulfilling career and preventing burnout (Hiver, 2018; Luthar et al., 2000; Smith & Ulvik, 2017). Acknowledging its multifaceted nature (Gu, 2018), this study defines teacher resilience as the dynamic ability to navigate professional complexities and adapt constructively. Recent work has further highlighted the dynamic nature of this construct by exploring its developmental trajectory in early-career teachers (Duan et al., 2023) and the challenges of sustaining it across different cultural contexts (Wang et al., 2024).

This capacity is often understood as a three-part process involving the use of resources (capacity), strategic coping (process), and achieving positive results like sustained engagement and professional growth (outcome) (Beltman, 2015). Resilient teachers are thus better able to manage obstacles and continuously refine their pedagogical skills (Liu & Chu, 2022; Mansfield et al., 2016). It is important to note, however, that the specific challenges requiring resilience often differ across educational stages. For instance, resilience in primary school teachers may be characterized by the ability to manage the high emotional labor of working with young children and intensive parent communication. In contrast, secondary school teachers often face pressures related to high-stakes examinations and adolescent disengagement, requiring a strong capacity to maintain pedagogical optimism and commitment (Day & Hong, 2016). Indeed, studies focusing specifically on senior high school EFL teachers in China confirm that their resilience is at a moderate-to-high level (Chu & Liu, 2022). At the tertiary level, resilience may involve balancing the distinct demands of research and teaching in a more autonomous environment. While factors like poor organizational support and classroom management difficulties can erode resilience (Xie, 2021), it is bolstered by personal assets including adaptability (Ebersöhn (2014)), professional commitment (Tait, 2008), and crucially, emotional intelligence and emotion regulation (Liu, Liu, & Zhou, 2024), with self-efficacy also playing a key mediating role in promoting well-being (Zhi & Derakhshan, 2024). Supporting this, empirical evidence confirms a strong inverse relationship between resilience and burnout (Hascher et al., 2021; Salmela-Aro et al., 2019) and a positive link to work engagement and overall well-being, which in turn mediates the negative relationship between turnover intention and well-being (Liu, 2024).

Grounded in this research, our study explores how resilience connects to teaching motivation. We propose that teachers who effectively navigate professional challenges are more likely to maintain their intrinsic drive, fueled by a sense of efficacy and adaptive capacity. This leads to our first hypothesis:

Hypothesis 1 (H1): *Teacher resilience positively affects teacher motivation.*

Furthermore, we posit that motivation is a key mechanism through which resilience protects against burnout. By fostering motivation, resilience may indirectly mitigate burnout symptoms, as motivated teachers are better equipped to manage stress. This forms our second hypothesis on the topic:

Hypothesis 4 (H4): *Teacher motivation mediates the relationship between resilience and burnout.*

Growth mindset. In educational psychology, mindsets—an individual's core beliefs about attributes like intelligence—are seen as critical determinants of behavior (Mercer & Ryan, 2010).

Dweck's (2006) seminal theory distinguishes between two orientations. A fixed mindset is the belief that abilities are static, which often leads to avoiding challenges to prevent failure (Dweck, 2000). In contrast, a growth mindset is the belief that abilities are malleable and can be developed through effort and perseverance (Haimovitz & Dweck, 2017). This latter perspective fosters persistence and greater achievement (Blackwell et al., 2007; Yeager et al., 2019; Zhang et al., 2022). While a growth mindset emphasizes the potential for development rather than uniform proficiency (Dweck, 2006), it is strongly linked to positive student outcomes, including enhanced engagement and more effective learning strategies (Burnette et al., 2013; Derakhshan et al., 2022; Fathi et al., 2024; Macnamara & Burgoyne, 2022).

While the benefits for students are well-documented, the mindset of the *teacher* is an equally powerful factor, though empirical work in EFL contexts remains limited (Lou & Noels, 2019). Building on mindset theory (Dweck & Leggett, 1988), a teacher's growth mindset is defined as the belief in their own capacity to continuously improve their professional skills (Dweck, 2014; Liu et al., 2023). This orientation often manifests as a commitment to individualized instruction and the promotion of mastery-focused classroom environments (Lin et al., 2022).

A teacher's growth mindset has a profound, if often indirect, impact. It shapes the classroom climate and instructional strategies (Leroy et al., 2007; Rattan et al., 2012), which in turn can positively influence student motivation and achievement (Schmidt et al., 2015). This mindset also fuels a teacher's own professional trajectory. Educators with a growth orientation are more likely to seek out professional development and feedback (Seaton, 2018; Thadani et al., 2010) and demonstrate higher levels of work engagement (Fronozo et al., 2020; Mesler et al., 2021).

Given this evidence, we propose a direct link between a teacher's belief in their capacity for growth and their motivation to pursue it. The belief that one's teaching skills can be developed should naturally fuel the intrinsic motivation required for that development. We therefore hypothesize the following:

Hypothesis 2 (H2): *Teacher growth mindset positively influences teacher motivation.*

Hypothesis 5 (H5): *Teacher motivation mediates the relationship between growth mindset and burnout.*

Burnout. Teacher burnout is a widely studied phenomenon characterized by chronic occupational stress (McCarthy et al., 2016; Nayernia & Babayan, 2019). The modern understanding of burnout centers on three core dimensions: emotional exhaustion, or the feeling of being depleted; depersonalization, a sense of cynical detachment from one's job and students; and a reduced sense of personal accomplishment (Brouwers & Tomic, 2000; Maslach, 1976; Maslach et al., 2001). While numerous factors can contribute to burnout, including high workloads and lack of autonomy (Akbari & Eghtesadi Roudi, 2020; Schwab & Iwanicki, 1982), a growing body of research highlights the importance of internal, psychological resources that can serve as protective buffers (Bing et al., 2022; Schaufeli & Salanova, 2007; Skaalvik & Skaalvik, 2010).

Recent international studies confirm the pivotal role of these psychological resources. Research across diverse contexts, including China (Li, 2023), Turkey (Polat et al., 2023), and Spain (Pagán-Garbin et al., 2024), consistently shows that assets like resilience and self-efficacy are significant negative predictors of burnout. Specifically within EFL contexts, studies have underscored the importance of self-management skills such as emotion regulation, professional identity, and psychological capital in mitigating burnout (An & Tao, 2024; Fathi et al., 2021, 2023; Ghanizadeh & Royaei, 2015; Ma & Liu, 2024). Further, a teacher's

growth mindset has also been identified as a key factor in promoting well-being (He et al., 2023).

While this body of research in China has established links between burnout and individual resources like self-efficacy and resilience (An & Tao, 2024; He et al., 2023; Li, 2023; Ma & Liu, 2024), a specific gap remains. Fewer studies have explored the combined effects of growth mindset and resilience on burnout in this population, and the psychological mechanisms underlying these relationships are not yet well understood. This study aims to address this gap by examining teaching motivation as a key mediator. Given that motivation is consistently identified as a critical buffer against burnout, we formally hypothesize a direct negative relationship:

Hypothesis 3 (H3): *Teacher motivation negatively affects teacher burnout.*

Teaching motivation. Research has identified both key antecedents and important outcomes of teacher motivation. A comprehensive meta-analysis confirmed the significant role of contextual factors (Slemp et al., 2020), with specific studies highlighting the positive influence of supportive principal leadership (Eyal & Roth, 2011) and positive teacher-student relationships (Henry & Thorsen, 2018). Beyond the work environment, motivation is also understood as a dynamic attribute that can be nurtured through professional learning, rather than a fixed trait (Zhang & Liu, 2019). The impact of this motivation extends directly to students, as an educator's motivational practices are strongly linked to their students' academic engagement and success (Moskovsky et al., 2013; Papi & Abdollahzadeh, 2012).

A teacher's motivation is significantly shaped by their professional environment, a finding confirmed by a comprehensive meta-analysis linking contextual factors to motivation levels (Slemp et al., 2020). The social climate of a school appears particularly important; teachers report higher intrinsic motivation when they perceive their principal's leadership as supportive (Eyal & Roth, 2011; Zhang & Fathi, 2025) and when they foster positive relationships with their students (Henry & Thorsen, 2018). This supportive context not only benefits the educator but also extends to the classroom, as motivated teachers are more likely to employ practices that in turn boost their students' academic motivation (Papi & Abdollahzadeh, 2012). Expanding on the dynamic nature of teacher motivation, Zhang and Liu (2019) rigorously investigated the correlation between teachers' motivational belief systems, self-regulatory capacities, and engagement in professional learning. Through regression analysis of data collected from 520 educators participating in online professional development, they revealed that intrinsic motivation is not a fixed trait but rather a dynamic construct that can be strategically nurtured and enhanced through targeted professional development initiatives. Finally, in a quasi-experimental study, Moskovsky et al. (2013) directly examined the impact of teachers' motivational strategies on their learners. Their findings, derived from sophisticated multivariate statistical analyses of data from experienced English teachers and language learners, demonstrated a statistically significant and practically meaningful increase in learners' overall motivation specifically when their teachers employed more intrinsically motivated instructional practices, thereby underscoring the direct influence of teacher motivation on student learning outcomes. In sum, the extensive body of research unequivocally establishes teacher motivation as a dynamic and profoundly influential factor in shaping not only teachers' professional lives and well-being but also the motivation and learning outcomes of their students.

Table 1 Participant Demographics (n = 557).

Demographic Characteristic	Frequency	Percentage
Educational Setting		
Primary Schools	125	22.4%
Secondary Schools	284	51.0%
Language Training Centers	148	26.6%
School Type		
Public School	401	72.0%
Private School	128	23.0%
International School	28	5.0%
Average Class Size		
Small (1–20 students)	150	26.9%
Medium (21–40 students)	200	35.9%
Large (41+ students)	207	37.2%
Gender		
Male	216	38.8%
Female	341	61.2%
Age (Years)		
Range	23–55	
Mean (SD)	33.67 (6.78)	
Teaching Experience (Years)		
Range	1–20	
Mean (SD)	7.82 (4.56)	
Educational Background		
Bachelor's Degree	259	46.4%
Master's Degree	221	39.8%
Doctoral Degree	77	13.8%

Methods

Participants. Five hundred and fifty-seven Chinese EFL teachers voluntarily participated in this study. To enhance the generalizability of the findings, we recruited participants from a diverse range of educational institutions across China. These included a majority from public schools (72.0%), as well as private (23.0%) and international schools (5.0%). These institutions encompassed primary schools, secondary schools, and language training centers, and were situated in both urban and rural areas (180 participants from urban areas and 377 from rural areas). The student age groups taught by these teachers ranged from young children in primary school (typically ages 6–12) to adolescents in secondary school (ages 13–18), and adults in language training centers (ages 18 and above). Reflecting the varied teaching contexts, the average class size also differed, with a notable portion of teachers managing large classes of over 40 students (37.2%). Table 1 provides a detailed breakdown of participant demographics.

The sample demographics reflect a balanced representation by gender, with 216 male and 341 female teachers participating. Teaching experience varied considerably, ranging from 1 to 20 years with a mean of 7.82 years (SD = 4.56). The participants' ages also spanned a broad range, from 23–55 years old ($M = 33.67$, $SD = 6.78$). Regarding educational background, the majority held bachelor's degrees (46.4%), followed by master's degrees (39.8%) and doctoral degrees (13.8%) in relevant fields. Convenience sampling was employed to recruit participants who volunteered for the study.

This research was conducted with strict adherence to the ethical principles established by the Institutional Review Board (IRB) ethics committee of the corresponding author's university, in accordance with the Declaration of Helsinki (World Medical Association, 2014). Prioritizing participant well-being, the study fully complied with ethical research guidelines to ensure informed consent, confidentiality, and anonymity. All potential participants were provided with a comprehensive informed consent form that clearly explained the study's purpose, data collection procedures, the potential risks and benefits of participation, and their rights as

participants. The form emphasized the voluntary nature of their involvement, ensuring participants could choose to participate or withdraw from the study at any point without penalty. Additionally, the informed consent form assured participants of complete confidentiality and anonymity throughout the research process.

Instrument. To ensure the cultural and linguistic appropriateness of the measures for the Chinese context, a rigorous translation and back-translation procedure was followed for all scales originally developed in English (Brislin, 1970). First, two bilingual experts in applied linguistics independently translated the English items into Mandarin Chinese. The research team then reviewed these versions to create a unified preliminary Chinese version. Next, another bilingual expert, who had not seen the original English scales, translated this Chinese version back into English. Finally, the research team compared the back-translated English items with the original items to identify and resolve any discrepancies in meaning. The finalized Chinese scales were then pilot-tested with a small group of 30 EFL teachers to confirm item clarity and comprehension before the main study.

Growth mindset. Teacher growth mindset was measured using a 6-item scale adapted from the Implicit Theories of Intelligence Scale (Dweck, 2014). A sample item is, "You can always substantially change how intelligent you are." Participants responded on a 6-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*). The Chinese version of the scale used in this study was developed following the back-translation procedure described above. Confirmatory Factor Analysis (CFA) demonstrated acceptable construct validity: $\chi^2/df = 2.10$, CFI = 0.96, TLI = 0.95, RMSEA = 0.05, SRMR = 0.04.

Teaching motivation. We used the 8-item autonomous motivation subscale from the Autonomous Motivations for Teaching Scale (AMTS; Roth et al., 2007) to measure self-determined reasons for teaching. A sample item is, "When I devote time to individual talks with students, I do so because I like being in touch with children and adolescents." Responses were recorded on a 5-point Likert scale (1 = *totally disagree* to 5 = *totally agree*). The Chinese version of the AMTS was prepared for this study using the back-translation method. The scale showed good construct validity: $\chi^2/df = 2.50$, CFI = 0.97, TLI = 0.96, RMSEA = 0.06, SRMR = 0.05.

Resilience. Teacher resilience was measured using the 10-item version of the Connor-Davidson Resilience Scale (CD-RISC-10; Campbell-Sills & Stein, 2007). Participants responded on a 5-point scale (0 = *not true at all* to 4 = *true nearly all the time*). The scale was administered in Chinese after undergoing the standard back-translation process. The scale showed excellent construct validity in this sample: $\chi^2/df = 1.85$, CFI = 0.98, TLI = 0.97, RMSEA = 0.04, SRMR = 0.03.

Teacher burnout. For this study, we used the established Chinese version of the Maslach Burnout Inventory-Educators' Survey (MBI-ES), which was adapted and validated for the Chinese context by Li and Wang (2009). This widely recognized version ensured the measure's cultural relevance and psychometric soundness without the need for new translation. The scale consists of 15 items assessing emotional exhaustion, depersonalization, and reduced personal accomplishment. An illustrative item is, "I feel emotionally drained from my work." Responses were given on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The scale's validity in our sample was

confirmed: $\chi^2/df=2.20$, CFI = 0.95, TLI = 0.94, RMSEA = 0.05, SRMR = 0.04.

Procedure. The data collection procedure for this study encompassed multiple steps to ensure efficiency and ethical conduct. The research team utilized *Questionnaire Star*, a specialized platform for online surveys, to construct an electronic questionnaire. This facilitated the distribution and accessibility of the questionnaire among participants. *WeChat*, a widely used messaging app in Mainland China, was employed as the delivery channel, providing a convenient opportunity for participants to engage in the study after their classes.

Maintaining anonymity and confidentiality was of utmost importance in the design of the online questionnaire. To safeguard personal information, *Questionnaire Star* implemented measures such as displaying only participants' IP addresses and abstaining from requesting names or identifiable details. The initial page of the questionnaire served to introduce the study's objectives, clarify participants' roles, emphasize their right to withdraw from the survey without repercussions, and assure the confidentiality of data for research purposes.

Before proceeding with the online questionnaire, participants were required to provide informed consent. They received comprehensive information regarding the study's goals, procedures, and the measures taken to ensure confidentiality. A "Start Button" was included on the first page, allowing participants to indicate their voluntary participation once they had comprehended the provided information.

Upon granting consent, participants proceeded to complete the online questionnaire, which encompassed various measurements pertaining to teacher growth mindset, resilience, teaching motivation, and burnout. Participants were afforded the opportunity to provide responses based on their personal experiences and perspectives. Throughout the entire process, stringent measures were implemented to safeguard data privacy and security. *Questionnaire Star*, with its secure interface, guaranteed the protection of collected data, enabling only authorized access by the research team.

Data analysis. Utilizing a two-stage statistical approach, this study employed IBM SPSS Statistics version 27 for preliminary data exploration and Amos version 26 for structural equation modeling (SEM) analyses. Descriptive statistics (means, standard deviations) were initially computed to characterize the central tendencies and variability of the study variables (resilience, growth mindset, teaching motivation, burnout). Correlation analysis followed to assess the strength and direction of the relationships between these variables.

Following the established two-step approach recommended by Anderson and Gerbing (1988), SEM was then utilized to test the hypothesized relationships in the conceptual model. SEM was selected as the primary data analysis technique due to its inherent strengths in capacity to examine complex relationships among multiple latent variables simultaneously, particularly mediation models. SEM is well-suited to test the hypothesized network of relationships between growth mindset, resilience, teaching motivation, and burnout, going beyond simple bivariate correlations by allowing for the simultaneous estimation of direct and indirect effects, and accounting for measurement error. First, a confirmatory factor analysis (CFA) was conducted to evaluate the adequacy of the measurement model. This step statistically examines whether the measured variables represent the underlying latent constructs (i.e., resilience, growth mindset, motivation, burnout) as theorized in the study, ensuring the measures accurately capture the intended constructs. Subsequently, the

structural model analysis examined the hypothesized relationships between the variables, including the potential mediating role of teaching motivation in the association between growth mindset, resilience, and burnout.

To evaluate the overall fit of the hypothesized model, several fit indices were employed in this study: (a) Chi-square goodness of fit ratio to the degrees of freedom, (b) Goodness of Fit Index (GFI), (c) Comparative Fit Index (CFI), (d) Root-Mean-Square Error of Approximation (RMSEA), and (e) Standardized Root-Mean-Square Residual (SRMR). Good fit is indicated by GFI and CFI values of 0.90 or higher (Hu & Bentler, 1999; Kline, 2016), while RMSEA values should not exceed 0.08 and SRMR values should not exceed 0.10 (Vandenberg & Lance, 2000).

Results

This section presents the key findings from the analysis of the data collected for this study. We begin by examining the descriptive statistics of the study variables, followed by the results of the CFA to assess the measurement model. Next, we explore the relationships between the variables using SEM to test the hypothesized model. Finally, we address potential common method bias concerns.

Assumptions of SEM. Prior to proceeding with the SEM analysis, rigorous checks were performed to ensure the fundamental assumptions of this technique were reasonably met. Specifically, the assumptions of normality and linearity, critical for the valid application of SEM, were carefully evaluated. Normality was assessed both graphically, through visual inspection of histograms for each observed variable to detect substantial deviations from a normal distribution, and statistically, via examination of skewness and kurtosis values. While some individual variables exhibited minor departures from perfect normality, these were deemed acceptable given the inherent robustness of SEM to violations of normality, particularly with the current study's substantial sample size ($N = 557$). The assumption of linearity, indicating a linear relationship between variables, was evaluated through visual inspection of bivariate scatter plots for all pairs of variables in the model. These plots generally revealed linear or approximately linear patterns, providing support for the linearity assumption. Collectively, these preliminary assumption diagnostics provided a strong foundation for confidence in the appropriateness and validity of employing SEM to rigorously test the hypothesized mediation model.

Descriptive statistics and reliability. Descriptive statistics and correlations are presented in Table 2. Participants reported moderate levels of resilience ($M = 3.66$, $SD = 0.67$), growth mindset ($M = 3.72$, $SD = 0.78$), and teaching motivation ($M = 3.53$, $SD = 0.83$). Burnout was moderate ($M = 3.16$, $SD = 0.72$). All scales demonstrated good internal consistency ($\alpha > 0.85$).

Significant positive correlations were found between resilience and growth mindset ($r = 0.31$, $p < 0.01$), resilience and teaching motivation ($r = 0.43$, $p < 0.01$), and growth mindset and teaching motivation ($r = 0.39$, $p < 0.01$). Burnout negatively correlated with all three variables: resilience ($r = -0.38$, $p < 0.01$), growth mindset ($r = -0.26$, $p < 0.01$), and teaching motivation ($r = -0.56$, $p < 0.01$).

Measurement model evaluation. To assess the unidimensionality of the variables in the study, a series of CFA were conducted. This statistical technique evaluates the fit between a proposed theoretical model and the observed data (Hu & Bentler, 1999). Four measurement models, including the hypothesized baseline

Table 2 Descriptive analysis.

	Mean	SD	Croanbach's α	Resilience	Growth mindset	Motivation	Burnout
1. Resilience	3.66	0.67	0.851	1			
2. Growth mindset	3.72	0.78	0.862	0.31**	1		
3. Motivation	3.53	0.83	0.911	0.43**	0.39**	1	
4. Burnout	3.16	0.72	0.886	-0.38**	-0.26**	-0.56**	1

Note. **p-value < 0.01.

Table 3 The results of measurement models.

Measurement Model	χ^2	df	CFI	GFI	RMSEA	SRMR
Single-factor model(a)	1021.48	536	0.93	0.86	0.05	0.26
Two-factor model(b)	987.36	533	0.94	0.87	0.04	0.20
Three-factor model(c)	934.09	531	0.95	0.88	0.04	0.16
Four-factor model(d)	872.33	530	0.97	0.90	0.03	0.04

a All the constructs are considered as single factor.
 b Burnout, motivation, and resilience are considered as one factor and growth mindset considered as separate factor.
 c Burnout and motivation are considered as one factor and resilience and growth mindset considered as separate factors.
 d All the variables are considered as separate factors.

Table 4 Convergent validity and composite reliability.

	AVE	CR
1. Resilience	0.61	0.89
2. Growth mindset	0.55	0.91
3. Motivation	0.52	0.92
4. Burnout	0.53	0.89

Note. AVE Average variance extracted, CR Composite reliability.

Table 5 Discriminant validity.

	1	2	3	4
1. Resilience	0.61			
2. Growth mindset	0.09	0.55		
3. Motivation	0.18	0.15	0.52	
4. Burnout	0.14	0.06	0.31	0.53

Note. Bold-faced values are square roots of the AVE; off diagonals are correlation coefficients.

model, were compared using Table 3. Results from fit statistics indicated that the hypothesized model exhibited superior fit to the data ($\chi^2 = 692.483$, $df = 546$, $p < 0.001$, $\chi^2/df = 1.269$, $CFI = 0.975$, $GFI = 0.880$, $RMSEA = 0.030$, and $SRMR = 0.051$), providing support for its adequacy.

Established criteria were employed to assess the convergent and discriminant validity of the measurement model (Fornell & Larcker, 1981; Straub et al., 2004). Convergent validity, which reflects the degree to which items within a construct measure the same underlying concept, was evaluated using Average Variance Extracted (AVE) and Composite Reliability (CR). All constructs exhibited satisfactory convergent validity, with AVE values exceeding 0.50 (Table 4) and CR values surpassing 0.60. Additionally, standardized factor loadings were >0.5, further supporting convergent validity.

Discriminant validity, which indicates the extent to which constructs are distinct from each other, was examined by comparing the square root of AVE for each construct with the correlations between constructs (Table 5). Results confirmed discriminant validity, as the square root of AVE for each construct was consistently higher than the correlations between constructs. Collectively, these findings provide evidence for the unidimensionality of the variables within their respective constructs and support the overall validity of the measurement model.

Hypothesis testing with SEM. After establishing an acceptable fit for the measurement model, alternative structural models were examined to evaluate the study hypotheses. Specifically, the hypothesized partial mediation model (Model A) was compared to a full mediation model (Model B) and a competing direct

model (Model C). In Model B, all path coefficients from teacher resilience and growth mindset to boredom were constrained to zero, while in Model C, all path coefficients to and from teaching motivation were constrained to zero.

Table 6 presents the fit statistics for the three alternative structural models. Importantly, the fit indices of the hypothesized model demonstrated significantly better fit compared to both Model B ($df = 5$, $\Delta\chi^2 = 150.49$, $p < 0.001$) and Model C ($df = 8$, $\Delta\chi^2 = 450.399$, $p < 0.001$). The absolute values of the fit indices, CFI, GFI, RMSEA, and SRMR, all yielded statistically significant results.

Based on these findings, Model A, representing the partially mediated model, was selected as the most parsimonious and optimal fit for the data. This model provides a robust representation of the relationships among teacher resilience, growth mindset, teaching motivation, and burnout. The observed fit indices support the hypothesized theoretical framework, indicating that both teacher resilience and growth mindset have direct and indirect effects on burnout through the mediating role of teaching motivation. Figure 1 illustrates the estimated paths and parameters for the final partially mediated model (Model A), capturing the interrelationships among the variables of interest. Notably, all path coefficients were statistically significant, with the exception of the path connecting teacher growth mindset and burnout.

As depicted in Fig. 1, the structural model reveals a significant positive relationship between teacher resilience and teacher motivation ($\beta = 0.341$, $p < 0.01$). This implies that higher levels of resilience are linked to increased motivation among teachers. Similarly, teacher growth mindset demonstrated a significant positive impact on teacher motivation ($\beta = 0.283$, $p < 0.01$),

Table 6 Results of fit indices of structural models.

Model	χ^2	df	$\Delta\chi^2$	GFI	CFI	RMSEA	TLI	SRMR
Direct Effect Model (C)	1200.452 **	535	—	0.821	0.907	0.063	0.913	0.171
Full Mediation Model (B)	900.607 **	532	299.84	0.876	0.953	0.048	0.937	0.086
Partial Mediation Model (A)	750.113 **	527	150.49	0.895	0.967	0.037	0.960	0.065

$\Delta\chi^2$ shows differences between model and the subsequent model.
**p-value < 0.001

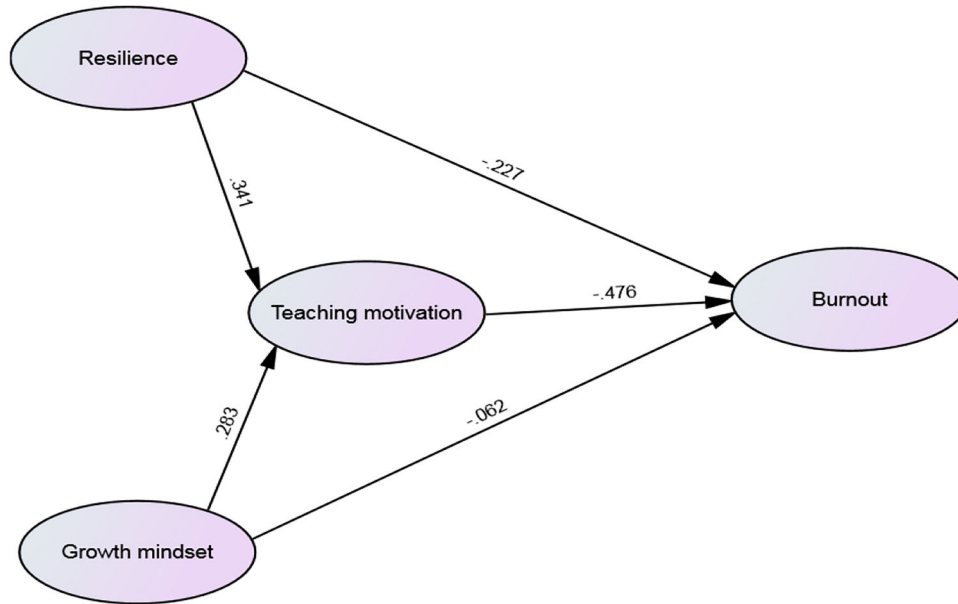


Fig. 1 The Final Model.

Table 7 Path estimates of structural model.

Standardized path coefficients (t-value)	Standardized path coefficients (t-value)		
	Direct effects model	Full mediation model	Partial mediation model
Resilience → burnout	-0.356 (4.81***)		-0.227 (3.82**)
Growth mindset → burnout	-0.187 (2.67*)		-0.062(0.48)
Resilience → motivation		0.326 (4.29***)	0.341 (4.72***)
Growth mindset → motivation		0.261 (3.57**)	0.283 (3.64**)
Motivation → burnout		-0.537 (7.67***)	-0.476 (6.83***)

*p-value < 0.05, **p-value < 0.01, ***p-value < 0.001.

suggesting that teachers with a growth mindset tend to exhibit higher levels of motivation.

Furthermore, the analysis uncovered a significant negative association between teacher motivation and burnout ($\beta = -0.476$, $p < 0.01$). This indicates that higher levels of teacher motivation are associated with lower levels of burnout. The negative path coefficient suggests that as motivation increases, burnout tends to decrease.

Finally, in order to explore the mediating role of teacher motivation in the relationship between the variables, Baron and Kenny’s (1986) method was employed. This established approach involves a series of steps to determine if a variable functions as a mediator between an independent variable and a dependent variable.

The first step of Baron and Kenny’s procedure involves examining the independent variable’s direct effect on the dependent variable in a baseline model. In this study, the baseline model (Table 7) included

direct paths from both teacher resilience and teacher growth mindset to burnout. The results revealed significant path coefficients for both paths. Specifically, teacher resilience was negatively associated with burnout (resilience → burnout: -0.356 , $p < 0.001$), indicating that higher levels of resilience were linked to lower levels of burnout. Similarly, teacher growth mindset demonstrated a significant, albeit weaker, negative association with burnout (growth mindset → burnout: -0.187 , $p < 0.05$). These findings satisfy the initial criterion for mediation, confirming that both teacher resilience and teacher growth mindset have a direct impact on teacher burnout.

The full mediation model further substantiated the second step of the method by demonstrating significant path coefficients between resilience and growth mindset on teacher motivation. Both resilience (resilience → motivation: 0.326 , $p < 0.001$) and growth mindset (growth mindset → motivation: 0.261 , $p < 0.01$) positively influenced teacher motivation.

Moving on to the partial mediation model, it was found that resilience had a negative impact on burnout ($\beta = -0.227$, $p < 0.001$). When considering the indirect influence of teacher motivation, the negative impact of resilience on burnout was estimated to be -0.162 (0.341×-0.476), which was smaller than the direct impact ($0.162 < 0.227$) of resilience on burnout. This indicates that teacher motivation partially mediates the relationship between resilience and burnout. Additionally, the path coefficient between growth mindset and burnout was found to be insignificant. However, teacher motivation was identified as a full mediator between growth mindset and burnout ($0.283 \times -0.476 = 0.134 > 0.062$). Therefore, the influence of growth mindset on teacher motivation enhanced the prediction of burnout.

Common method bias. Potential common method bias, a concern when self-reported measures are used, was addressed by employing Harman's single-factor test (Podsakoff & Organ, 1986). This technique involves conducting an exploratory factor analysis where all measured variables are loaded onto a single factor. If common method bias is a significant concern, a single factor would emerge, accounting for a large proportion of the variance.

In this study, Harman's single-factor test was conducted on all self-reported measures, encompassing resilience, growth mindset, burnout, and teaching motivation. The analysis revealed that the first unrotated factor explained only 28.03% of the total variance. This falls well below the recommended threshold of 50% (Podsakoff & Organ, 1986), suggesting that common method bias is not a substantial threat to the validity of the findings. This result strengthens our confidence in the observed relationships between the study variables.

Discussion

The present study aimed to shed light on the complex interplay between psychological factors and teacher burnout. The findings revealed that both teacher growth mindset and resilience play significant roles in promoting teacher well-being. These psychological strengths directly contribute to reduced burnout by equipping teachers with the necessary resources to navigate the challenges of the profession. Furthermore, the study provided evidence for a partial mediating role of teaching motivation in the relationship between teacher growth mindset, resilience, and burnout.

First, our findings demonstrated that teacher resilience was negatively associated with burnout. This indicates that teachers with higher levels of resilience reported lower levels of burnout. Previous empirical evidence has documented the negative influence of teacher resilience on burnout (e.g., Polat & İskender, 2018; Salmela-Aro et al., 2019). This finding aligns with the conservation of resources theory (Hobfoll, 1989). According to this theory, individuals possess personal resources that can be depleted or preserved in the face of job demands, ultimately affecting their well-being. Resilience can be seen as a personal resource that helps individuals cope with and recover from stressors. Teachers with higher levels of resilience possess psychological and emotional strengths, such as adaptability, optimism, and self-efficacy, which enable them to effectively manage the demands of their profession (Mansfield et al., 2016).

Resilient teachers are better equipped to deal with the challenges and stressors commonly encountered in the teaching profession (Wosnitza et al., 2018). They are more likely to maintain a positive outlook, seek support, and engage in effective coping strategies when faced with difficult situations (Beltman et al., 2011). This ability to effectively manage stress reduces the

likelihood of experiencing burnout, which is characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. Resilient teachers are more likely to maintain their energy levels, sustain their motivation, and experience a sense of fulfillment in their work (Liu & Chu, 2022; Mullen et al., 2021; Smith & Ulvik, 2017), which acts as a protective factor against burnout. Besides, self-efficacy, adaptability (Ebersöhn (2014)), commitment (Tait, 2008), reflection, and determination are several resilient teachers' components that can, directly and indirectly, teacher burnout (Hascher et al., 2021). To illustrate these behaviors, consider a teacher facing a class with significant behavioral challenges. A resilient teacher, while acknowledging the stress, might proactively seek mentorship from a senior colleague and experiment with new classroom management techniques. In contrast, a teacher with lower resilience might become overwhelmed and ruminate on the difficulties, leading more quickly to emotional exhaustion.

Second, it was revealed that teacher motivation had a direct negative effect on burnout. Several studies have reported an inverse association between teaching motivation and burnout (e.g., Fernet et al., 2012; Sato et al., 2022; Skaalvik & Skaalvik, 2020). This outcome can be accounted for in light of self-determination theory (Deci & Ryan, 1985). Self-determination theory posits that individuals are driven by their intrinsic motivation and the fulfillment of their psychological needs for autonomy, competence, and relatedness. When teachers feel motivated, their work is characterized by a sense of purpose, engagement, and satisfaction. This intrinsic motivation acts as a protective factor against burnout by providing a source of energy, enthusiasm, and resilience (Van den Berghe et al., (2014)). On the other hand, when teachers experience a decline in motivation, they may exhibit symptoms of burnout. Decreased motivation can be a consequence of various factors, such as excessive workload, lack of support, or feelings of ineffectiveness. These factors may diminish teachers' sense of autonomy, competence, and relatedness, undermining their motivation and increasing the risk of burnout.

Third, it was revealed that teacher motivation mediates the relationship between teacher resilience and burnout. The mediating role of teacher motivation aligns with the tenets of the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007). This model posits that job resources, such as resilience, serve as a buffer against the negative effects of job demands on employee well-being, including burnout. Psychological resources associated with resilience, like optimism and self-efficacy, equip teachers to effectively manage the challenges inherent in the profession. This fosters sustained motivation, ultimately contributing to reduced burnout (Wang, 2021). The specific mechanism of this mediation can be explored by examining its manifestation across different stages of teaching practice. For instance, during lesson preparation, a resilient teacher's motivation might drive them to find creative solutions for anticipated challenges rather than simply following a script. In the classroom, this motivation translates into the patience needed to handle student confusion or disruptions without becoming cynical. Finally, in post-class reflection, they are driven to analyze setbacks as learning opportunities, which refuels their professional energy instead of draining it.

Finally, teacher motivation mediates the relationship between teacher growth mindset and burnout. This finding is consistent with theoretical perspectives such as social cognitive theory (Bandura, 2001). According to social cognitive theory (Bandura, 2001), individuals' beliefs about their capabilities, such as their growth mindset, can influence their motivation and subsequent behavior. Teachers with a growth mindset believe that their abilities and skills can be developed and improved through effort and learning. This belief fosters a sense of self-efficacy, as teachers

perceive themselves as capable of overcoming challenges and achieving positive outcomes. As a result, they are more likely to exhibit higher levels of motivation and engagement (Liu et al., 2023; Zeng et al., 2019) and they are less likely to experience burnout (Liu, 2023; Zarrinabadi et al., 2023). The extant literature has verified the link between growth mindset and teaching motivation (Lou & Noels, 2019; Nalipay et al., 2021). This process can be seen in a common teaching scenario: a well-planned lesson fails to engage students. A teacher with a fixed mindset might feel inadequate and lose motivation. In contrast, a teacher with a growth mindset sees the failed lesson not as a reflection of their innate ability, but as a problem to be solved. Their motivation drives them to think, “That approach didn’t work; I’ll research and try a new strategy tomorrow,” thus protecting them from the feelings of reduced personal accomplishment associated with burnout.

When placed in a broader international context, our findings show considerable alignment with global research. The protective roles of resilience against burnout (e.g., Polat & İskender, 2018) and the importance of intrinsic motivation (e.g., Fernet et al., 2012) appear to be robust phenomena, observed in teachers across diverse cultural settings. This suggests that these psychological resources are fundamental to teacher well-being, regardless of national context. However, the cultural and systemic landscape of China likely introduces unique nuances. For instance, in a society with strong collectivist values, the components of teacher resilience might be more heavily weighted toward relational factors, such as peer support and maintaining group harmony (Li et al., 2019), compared to more individualistic Western cultures where personal autonomy might be a more central pillar of resilience. Furthermore, the immense pressure of the high-stakes examination system in China may amplify the link between a growth mindset and motivation; in this environment, the belief that effort leads to improvement is not just a personal asset but a crucial coping mechanism against systemic pressure. Therefore, while our model highlights universally important factors, the specific strategies for alleviating burnout—such as whether to emphasize individual coping skills versus building stronger collaborative teams—must be culturally attuned.

Implications

This study illuminates the key interplay between teacher growth mindset, resilience, teaching motivation, and burnout, offering practical implications for real-world educational settings. The strong evidence for growth mindset and resilience as protective factors—along with teaching motivation as a mediator—indicates a pressing need for school leaders and policy-makers to embed these psychological constructs into teacher development programs and broader educational policies.

First, educational institutions can implement targeted interventions to cultivate growth mindset and resilience, tailoring them to the specific demands of the teaching environment. Workshops grounded in Dweck’s (2006) growth mindset theory and programs in stress management (Skaalvik & Skaalvik, 2010) form a strong basis. For example, resilience training for primary school teachers might focus on strategies for managing the high emotional labor involved with younger children, while for secondary teachers, it could focus on coping with the pressures of high-stakes examinations. Similarly, mindset activities for teachers in under-resourced rural schools could focus on creative problem-solving with limited materials, whereas in urban schools, it might involve leveraging technology to foster student improvement. These tailored experiences can systematically empower teachers to cope with the specific demands of their profession.

Second, the crucial mediating role of teaching motivation underscores the value of fostering intrinsic motivation at the institutional level. However, the most effective strategies may differ by school type. Approaches like recognizing achievements and promoting autonomy are key (Deci & Ryan, 1985). In large, highly regulated public schools, fostering motivation might best be achieved by creating strong departmental peer-mentoring programs and collaborative teams, which enhance feelings of relatedness and shared purpose. In contrast, smaller private language centers, which often have more curricular flexibility, could boost motivation by granting teachers greater autonomy to design and pilot new, creative courses. Because emotional labor is inherent to all teaching, structured resources—including administrative support and access to mental health services—are universally important for managing stress and preventing the erosion of motivation (Bodenheimer & Shuster, 2020).

Third, ongoing professional development that addresses these psychological factors is paramount for sustainable teacher well-being. Such programs should be differentiated across career stages. While mentoring and peer networks are critical for novice teachers navigating initial challenges (Ingersoll & Strong, 2011), mid-career teachers may benefit more from opportunities to take on leadership roles or specialize in a new area to prevent motivational decline. School administrators and policy-makers should pilot such initiatives and evaluate their impact. Crucially, policy frameworks should be flexible, providing resources that allow individual schools or districts to implement the support that best fits their unique context, rather than imposing a one-size-fits-all solution. By systematically integrating these tailored strategies into school practices and policies, educational communities can proactively reduce burnout and cultivate a more engaged, effective teaching workforce.

Conclusion

This study contributes valuable insights into how teacher growth mindset, resilience, and teaching motivation predict teacher burnout. Growth mindset and resilience emerge as key factors associated with lower burnout, while teaching motivation plays a mediating role—teachers who believe in continuous improvement and effectively handle adversity are less likely to experience burnout if they also maintain intrinsic motivation. These findings underscore the complex interplay of psychological factors shaping teacher well-being and effectiveness.

Beyond theoretical advancements, this research has practical relevance, suggesting that targeted interventions can enhance growth mindset, resilience, and motivation in educational settings. Addressing these psychological resources can help create a more supportive environment, empowering teachers and benefiting student outcomes. Ultimately, this underscores the need for a paradigm shift in teacher development—beyond pedagogical skills—encompassing the psychological underpinnings of teacher well-being.

Limitations

Although this study offers important insights, certain limitations must be acknowledged. Firstly, while the sample of 557 participants is robust, our findings are derived specifically from Chinese EFL teachers. This group faces a unique combination of professional pressures, including large class sizes, a high-stakes examination culture, and specific societal expectations. Therefore, caution is warranted when considering the generalizability of these results. The precise ways in which resilience and growth mindset buffer against burnout might differ for teachers in other subject areas (e.g., STEM, humanities) or in other national and

cultural contexts where educational systems and professional demands vary significantly.

Secondly, the cross-sectional design hinders the ability to infer causality or track temporal changes in the variables. Thirdly, our reliance on self-report measures may introduce common method bias and social desirability bias, potentially affecting the accuracy of the reported data. While the instruments were validated for the Chinese context, subtle cultural nuances could still shape how participants interpret these psychological constructs.

Despite these constraints, the study makes a valuable contribution by highlighting how growth mindset, resilience, and teaching motivation function in a high-demand EFL context. To build upon this work, future research should employ longitudinal designs to establish causality and utilize multi-method approaches (e.g., peer reports, classroom observations) to mitigate self-report bias. Crucially, future studies should also test this model with more diverse samples. Cross-cultural comparative research could explore whether these psychological pathways to burnout are consistent across different countries, while studies focusing on educators in various subject disciplines would help determine the broader applicability of these findings within the teaching profession.

Data availability

The datasets generated and/or analyzed during the current study are not publicly available due to participant privacy and confidentiality agreements but are available from the corresponding author on reasonable request.

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Author contributions

Yumin Shen: Conceptualization, Data Curation, Formal Analysis, Investigation, Writing—Original Draft. Hongyu Guo: Conceptualization, Funding Acquisition, Methodology, Project Administration, Supervision, Writing—Review and Editing. All authors have read and agreed to the published version of the manuscript.

Competing interests

The authors affirm that there are no competing interests associated with this work.

Ethical approval

This research was granted ethical approval by the Institutional Review Board (IRB) of the School of Foreign Languages, Zhejiang Gongshang University (Approval No. ZJGSUSFL-IRB-2023-047) on November 15, 2023. All procedures involving human participants were performed in accordance with the ethical standards of the institutional research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed consent

Written informed consent was obtained from all individual participants included in the study during the data collection period from December 2023 to February 2024. Participants were explicitly informed that their participation was voluntary, that they could withdraw at any time without penalty, and that the study posed no foreseeable physical, emotional, or psychological risks. All participants were provided with a detailed overview of the study's procedures and given the opportunity to ask questions prior to giving consent.

Additional information

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