Domain-Specific Perspectives on Language Mindsets, Enjoyment, Anxiety, and Willingness to Communicate in a Chinese EFL Context

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Abstract

The importance of practical language use is increasingly acknowledged by the academic community, yet few studies have adopted a domain-specific perspective to explore influencing factors of learners' willingness to communicate (WTC). This study explores how speaking mindsets influence Chinese EFL (English as a foreign language) students' speaking enjoyment, anxiety, and WTC among students based on Rational-Emotive Behavior Therapy (REBT). To this end, we surveyed 222 Chinese university EFL learners, and a hypothesized model was assessed by partial least squares structural equation modeling (PLS-SEM). Results indicated that a speaking growth mindset was positively correlated with WTC, while a speaking fixed mindset was negatively associated with WTC. Moreover, results showed that a fixed mindset might reduce speaking enjoyment, while a growth mindset does not mitigate speaking anxiety. Furthermore, the relationships between the two speaking mindsets and WTC were fully mediated by speaking enjoyment and speaking anxiety. Theoretically, the findings shed light on the underlying mechanisms of speaking mindsets, speaking emotions, and WTC, and provide practical implications for both EFL learners and instructors.

Keywords: language mindset, foreign language enjoyment, foreign language anxiety, L2 WTC, second language acquisition, PLS-SEM

Contemporary language pedagogy has placed considerable emphasis on communicative interaction, encouraging learners to utilize language to communicate effectively and meaningfully (Henry et al., 2024; Peng & Woodrow, 2010). Indeed, willingness to communicate (WTC) has become an essential individual difference (ID) in second language acquisition (SLA), where the teaching focus has shifted from language structure to language usage (Ahmed & Soleimani, 2024). WTC, as a nonlinguistic result of language acquisition, indicates a learner's intention and desire to launch a conversation (Dewaele, 2019). As L2 (second language) emotion research has taken off, myriad studies have explored emotional antecedents that enhance or hinder WTC in different contexts (Peng & Wang, 2022; Sadoughi & Hejazi, 2023). Among them, enjoyment and anxiety emerge as two frequently examined emotions. While enjoyment is widely recognized as a positive factor of WTC, the relationship between anxiety and WTC remains ambiguous, with conflicting findings being reported (Bensalem, 2021). However, despite the controversial role of anxiety, few studies have dug into the precise factors affecting WTC and emotions.

Rational-Emotive Behavior Therapy (REBT) (Ellis, 1995) provides theoretical insights and inspiration for understanding the underlying factors behind students' varying degrees of willingness to communicate and emotional experience. According to REBT, an individual's beliefs play the most important role in influencing one's emotions and relevant behaviors. In other words, students' emotional and behavioral reactions to academic challenges might be attributed to their implicit beliefs in the essence of human capabilities, which they term "mindsets".

As a part of domain-specific mindsets, language mindsets refer to learners' beliefs that language ability is innate or malleable (Mercer & Ryan, 2010). Students with fixed language mindsets, for example, lean towards arguing that language learning is an immanent and intractable ability, whereas students who bolster growth language mindsets might believe this ability can be cultivated through endeavor and dedicated practice. Research showed that whereas mindsets in intelligence are

relatively stable, beliefs in malleable language ability underpinning learners' interest and effort in language learning can be effectively transformed or enhanced via interventions (Wilang, 2024). Indeed, considerable research has identified the crucial role of language mindsets in shaping motivation (Papi et al., 2021), behavior (Lou & Noels, 2017), and achievement (Eren & Rakıcıoğlu-Söylemez, 2023; Fathi et al., 2024) in both classroom and longer-term learning and emotional well-being (Dong, 2022).

Nevertheless, scarce attention has been given to the potential role of language mindsets in influencing speaking emotions and WTC. Moreover, controversies about the role of mindsets might be attributed to a paucity of domain-specific examination into mindsets (i.e., speaking mindsets) and potential mediating effects. Thirdly, Chinese students, as one of the largest groups of EFL (English as a foreign language) learners, frequently report high anxiety in communicating through English, and they are often stereotyped as passive language learners due to their nonparticipation and reticence (Shao & Gao, 2016). Therefore, their willingness to speak in L2 merits further attention.

Additionally, the exam-oriented nature of China's education system plays a significant role in shaping students' approach to learning. While students invest considerable effort into their studies, they may be skeptical about the effectiveness of engaging in extra efforts (Yao et al., 2021). This skepticism is further exacerbated by the complexities of English speaking, including challenges in pronunciation and intonation, which may lead students to believe in inherent talent rather than sustained effort in improving their oral skills. Therefore, from a domain-specific perspective, the present study investigates how speaking mindsets influence speaking emotions and WTC in a Chinese L2 learning context based on REBT. To this end, a cross-sectional survey design is employed to explore the relationships among the key variables based on a sample of Chinese foreign language learners.

Literature Review

Language Mindsets and Language Learning and Communication

Mindsets, also known as implicit or lay theories, refer to individuals' beliefs in whether human competencies are unchangeable or malleable via effort (Dweck, 2006). Previous research has indicated the domain-specific characteristics of the construct, suggesting that mindsets vary across different subjects and disciplines, such as science, mathematics, sports, music, etc. (Burnette et al., 2013).

In this context, Mercer and Ryan (2010) introduced language mindsets, namely fixed versus growth beliefs about language learning and ability. They also suggested that most people are more likely to boast a combination of both growth and fixed mindsets, which means that both these mindsets need to be taken into account when conducting an investigation (Thayati et al., 2024). Given the different linguistic skills involved in language learning, learners' language mindsets may be distinct across different skills. For instance, a language learner might be obsessed with the idea that her/his reading skills can be enhanced through diligent practice over time, but her/his speaking ability (i.e., pronunciation) depends on aptitude and certain environments despite relentless endeavor. In this way, a more subtle evaluation of skill-specific mindsets should be considered in empirical research (Yao & Zhu, 2024).

Learner's mindsets have received considerable attention in SLA in the last decade, and they are seen as playing a key role in feedback-seeking behaviors (Papi et al., 2019), strategy use (Xu & Wang, 2022), emotion regulation (Dong, 2022), and learning engagement (Ebn-Abbasi et al., 2024). However, much uncertainty still exists about the role of mindsets in influencing the language learning process and outcomes. For example, Khajavy et al. (2021a) observed that a growth language mindset was weakly associated with language learning achievement, while a fixed language mindset had no significant relationship with language learning achievement. The different effects of the two mindsets necessitate more domain-specific research into their distinctive roles. More recently, Elahi Shirvan et al. (2024) conducted

multilevel meta-analyses of language mindsets and skill-specific language learning outcomes and found different roles of fixed and growth language mindsets in skill-specific mindsets. This study further highlights the importance of conducting contextualized research to clarify the role of the two mindsets.

From previous empirical research, further research on the domain-specificity of mindsets should be conducted to elucidate their unique roles in affecting language learning processes and outcomes. However, the mechanism underlying mindsets, emotions, and WTC remains largely underexplored. In addition, most current studies only address a single factor, specifically the growth mindset, leaving the fixed mindset largely neglected. Thirdly, the above-mentioned studies failed to consider the skill-specific nature of language mindsets, especially from a speaking skill perspective. Therefore, it is essential to take a skill-specific perspective to explore how both speaking growth and fixed mindsets interact with other affective factors to influence WTC, thus providing pedagogical implications for English speaking, learning, and teaching.

Foreign Language Enjoyment and Anxiety

Driven by the positive psychology movement, which possesses the central tenet of well-being enhancement in SLA and other fields of study, a growing number of studies on emotions have sparked an affective turn in SLA research (Dewaele & Li, 2020), among which anxiety and enjoyment are the two most prevalent and frequently examined emotions (Chen et al., 2024). While enjoyment is considered a positive emotion, which is believed to promote linguistic and non-linguistic outcomes, anxiety is widely considered a negative emotional feeling, instigated when learning a second language (Khajavy & Aghaee, 2024). As Dewaele (2019) noted, anxiety might be the most significant negative predictor of WTC, while enjoyment is often positively correlated with WTC.

Some empirical studies indicate that anxiety could exert an adverse impact on the learning process and communicative willingness

(Lou & Noels, 2020), while enjoyment could promote foreign language use and a desire to communicate via increasing interest in a topic and expectations for desired learning results (Khajavy et al., 2018). However, there is also considerable debate regarding the role of anxiety in EFL learning contexts. Some studies have suggested conflicting findings, which highlight the need for further clarification of the relationship between anxiety and language learning. For instance, Bensalem (2021) found an insignificant role of anxiety in predicting WTC, arguing that enjoyment plays a more crucial role in neutralizing the negative effects of anxiety.

Recent studies have highlighted the important role of mindsets in influencing students' WTC in language learning contexts. For instance, taking 811 Chinese college EFL students as participants, Wang et al. (2021b) identified that students' WTC inside and outside the classroom was indirectly influenced by the interaction of classroom environment and language mindsets via the mediating role of their positive (i.e., pride) and negative emotions (i.e., boredom). This finding empirically corroborates the mediating role of emotion between mindsets and WTC. In a similar vein, Ozdemir and Papi (2021) observed that a growth mindset was positively associated with positive emotions such as enjoyment, while a fixed mindset was linked to negative emotions, including anxiety. This aligns with Dweck's (2006) argument that a growth mindset could mitigate the adverse impact of negative emotions on the learning process and outcomes.

However, in addition to the contentious role of anxiety (Song, 2024), the specific mediating effects of enjoyment and anxiety between speaking mindsets and WTC have yet to be empirically researched in the EFL context. Moreover, a large body of literature has failed to attend to domain-specific skills (i.e., speaking), thus disregarding the situational specificity of emotions. Thus, it is meaningful to delve into the mediating role of emotions between mindsets and WTC in a speaking context to help establish an integrated theoretical framework and to explore any potential relationships.

Willingness to Communicate

Willingness to communicate (WTC) originated in first language (L1) research and used to be regarded as a stable communicative propensity related to an individual's personality. With attention shifting from trait to state, L2 WTC is described as a preparedness to start a conversation with a particular individual in a second language (Peng & Woodrow, 2010). MacIntyre et al. (1998) put forward a pyramid-shaped model encompassing varied linguistic (e.g., language proficiency), psychological (e.g., intergroup motivation), and social factors (e.g., interpersonal relationships) that could influence L2 WTC. That said, as acknowledged by MacIntyre et al. (1998), the hypothesized and exploratory nature of the model still requires more empirical research to (dis)confirm and extend the model.

As the final stage before overt verbal action, L2 WTC represents one of the most frequently examined topics in the last decade. For example, Peng (2012) conducted a qualitative case study among Chinese EFL learners and found six crucial facets, including learner beliefs and motivation, cognitive, linguistic and affective factors, and classroom environment, influencing L2 WTC. Focusing on three adult students studying English at US universities, Subtirelu (2014) identified two different ideologies that affect L2 WTC. This finding emphasized the crucial role of learners' beliefs in language learning. Then Lee and Taylor's (2022) mixed-methods study explored how a growth mindset influences L2 WTC. They found that this mindset primarily affects WTC outside of classroom settings, emphasizing the role of mindset in students' inclination to engage in conversation.

In terms of the relationships between emotions and L2 WTC, research by Peng and Wang (2022) with 132 Chinese university students revealed that enjoyment, rather than anxiety, was the key predictor of L2 WTC, further reinforcing the connection between emotions and learners' willingness to communicate. More recently, Wang et al. employed a latent profile approach to reveal the positive predictive role of positive emotions, such as enjoyment, but not negative emotions, like anxiety.

The body of research collectively suggests that L2 WTC is closely linked to various individual and contextual factors, with cognitive and affective factors playing particularly significant roles. Therefore, it is crucial to consider these factors when investigating and supporting learners' preparedness to speak in the L2 context.

Theoretical Foundation

REBT is the first theory in psychotherapy to understand the antecedents of an individual's emotions and behaviors with a focus on shifting irrational beliefs to rational beliefs for functional and adaptive reactions (Sari et al., 2022). In practice, REBT proves effective for various domains and conditions. It has been extensively employed and tested in various fields of study, such as sport psychology (Turner, 2016) and counseling (Junaedi et al., 2022). Thus, with previous literature and the theory serving as the theoretical foundation of the study, it is reasonable to hypothesize that growth and fixed mindsets can be considered central factors in emotional experiences and consequent behaviors in EFL speaking contexts.

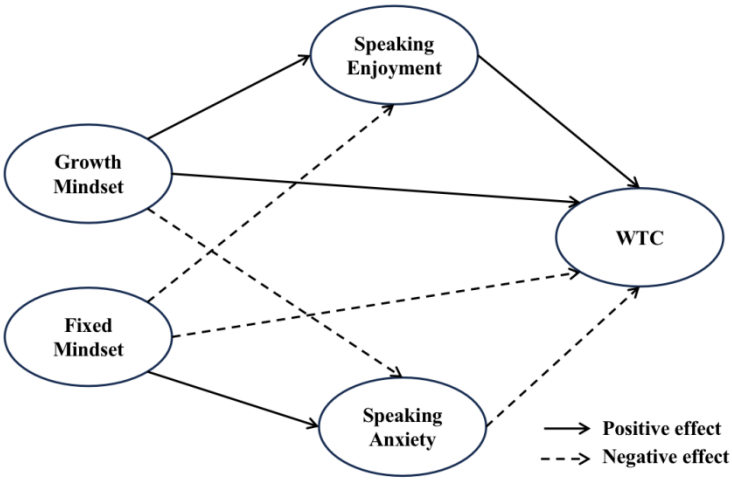
Method

The present study

The present study set out to explore potential relationships among speaking growth mindsets, speaking fixed mindsets, speaking enjoyment, speaking anxiety, and L2 WTC based on the REBT and previous related empirical research. To this end, we propose the following theoretical model, which incorporates ten hypothesized paths.

As seen in Figure 1, solid lines represent positive predictive effects and dashed lines represent negative predictive effects. Using this model as a sensitizing concept, we explore potential relationships among speaking growth mindsets, speaking fixed mindsets, speaking enjoyment, speaking anxiety and L2 WTC.

Figure 1
The Conceptual Model to be Tested



Participants

222 EFL learners (female = 65.8%) voluntarily participated in this study via a convenience sampling method. The participants were university students, ranging in age from 18 to 24 years old, and included freshmen through master's students. They were enrolled in various academic disciplines at universities in Northern China. All participants had at least 9 years of English learning experience in formal education. In terms of English proficiency, the majority of participants were at a B1 level on the Common European Framework of Reference for Languages (CEFR), which corresponds to an intermediate level of English. This is roughly equivalent to the level of students who have completed the national College English Test (CET) Band 4 in China, a standardized test for university students' English proficiency.

Data Collection

Data were collected in the spring of 2023. An online questionnaire was distributed to potential participants via social media platforms, primarily WeChat and QQ, which are the two most widely used applications in

China. Prior to data collection, participants were explicitly informed about the voluntary nature of their participation. This was done by including a detailed consent statement at the beginning of the survey, which explained that participation was entirely voluntary and that respondents could choose to withdraw at any time without penalty. Additionally, participants were made aware of the study's purpose and the confidentiality of their responses. The consent statement also assured participants that all data collected would remain anonymous. In total, 222 fully completed surveys were collected.

Measures

We used three established scales which included 20 items in total. All items were adapted and translated into Chinese by the researchers and then checked by a professional Chinese-English translator. We also piloted the translated versions with 30 Chinese EFL students, three of whom we interviewed to ensure that the translated items were fully understood. Students responded to the items on a five-point Likert scale, with 1 signifying strong disagreement and 5 suggesting strong agreement. The content of the items can be seen in Table 1.

Table 1

Scales Used in the Study

Construct	Item	English	Chinese
English Speaking Growth Mindset	gm1	No matter how intelligent I am, I can always improve my L2 speaking ability.	无论我的智力水平如何, 我总是可以提高自己的英语口语能力。
	gm2	The more I try to learn L2 speaking skills, the better I can learn them.	我越努力学习英语口语技能, 我的英语口语能力就会越好。
	gm3	I can learn the necessary skills to speak English by doing enough practice.	我可以通过足够的练习, 掌握必要的英语口语技能。

Table 2
Scales Used in the Study (Cont.)

Construct	Item	English	Chinese
English Speaking Fixed Mindset	fm1	As a language learner, I have limited aptitude to speaking English and I cannot do anything to change and improve that.	作为外语学习者,我的英语口语天赋有限,我无法改变这点并提高我的口语能力。
	fm2	Just a few people are capable of learning and improving their speaking skills and these people were born with this capacity and I am not one of them.	只有少数有天赋的人可以学习并提高自己的口语能力,而我不是其中之一。
	fm3	To be honest, I can never improve my speaking ability.	老实说,我的英语口语能力永远无法提高。
English Speaking Enjoyment	enj1	I enjoy speaking English.	我喜欢说英语。
	enj2	Improving my oral English skills makes me so happy.	提高英语口语能力让我非常开心。
	enj3	I'm so eager to speak and practice English.	我非常渴望说英语和练习英语口语。
	enj4	Speaking English is so enjoyable for me that gives me motivation to speak more and more.	说英语对我来说非常愉快,这激励我说得越来越多。
English Speaking Anxiety	anx1	When speaking in English, I often worry that I will make language mistakes.	说英语时,我经常担心自己会犯错误。
	anx2	When speaking in English, I often worry that my speaking performance is worse than others.	说英语时,我经常担心自己的口语比别人差。
	anx3	As soon as I start speaking English, I begin to worry about not being able to express myself.	一开始说英语,我就担心无法表达自己的想法。
	anx4	When speaking in English, I often get so nervous that I tremble.	说英语时,我经常紧张得发抖。

Table 3
Scales Used in the Study (Cont.)

Construct	Item	English	Chinese
L2 Willingness to Communicate	wtc1	I can imagine myself living abroad and having a discussion in English.	我会设想自己在国外生活并用英语进行讨论的情景。
	wtc2	I can imagine myself living abroad and using English effectively for communicating with the locals.	我会设想自己在国外生活，并能有效地使用英语与当地人交流。
	wtc3	I can imagine a situation where I am speaking English with foreigners.	我会设想自己与外国人说英语的情景。
	wtc4	I can imagine myself speaking English with international friends or colleagues.	我会设想自己与国际友人或同事说英语的情景。
	wtc5	I imagine myself as someone who is able to speak English.	我会设想自己是一个有能力说英语的人。
	wtc6	I can imagine myself speaking English as if I were a native speaker of English.	我会设想自己如英语母语者一般说英语。

Speaking Mindsets

To gauge the participants' speaking mindsets in our EFL context, a six-item reading mindset scale, which was developed by Khajavy et al. (2021b), was modified and used. In keeping with Dweck (2006)'s theory of mindset, their scale was the first to investigate language mindsets from a domain-specific perspective of language skills, specifically focusing on reading ability rather than general language mindsets. We adapted the scale to focus on speaking, emphasizing whether students believe that their speaking skills can be improved through effort. The revised scale evaluated both a speaking growth mindset (3 items, Cronbach's alpha = 0.927) and a speaking fixed mindset (3 items, Cronbach's alpha = 0.896) in the EFL learning context demonstrated good internal consistency.

Speaking Emotions

Two typical emotions experienced by EFL learners, speaking enjoyment and speaking anxiety, were chosen and assessed among the participants in the present study. For speaking anxiety, four items with high reliability and construct validity were chosen from Cheng (2017). In terms of speaking enjoyment, since there was not yet an available scale, four items were selected from Khajavy et al. (2021b). The speaking enjoyment and anxiety scales were evaluated to have good internal consistency, with Cronbach's alpha of 0.915 and 0.903, respectively.

L2 WTC

Participants' L2 WTC was assessed using the scale developed by Dewaele (2019). The scale consists of six items, each of which concerns the probability of initiating a dialogue in a foreign language with both familiar and unfamiliar interlocutors in various hypothetical circumstances. The Cronbach's alpha of the scale was 0.959, which indicated high reliability.

Data Analysis

After collecting the data, the model relationships were estimated employing partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0 software. PLS-SEM is a more suitable approach for the exploratory study compared to covariance-based SEM techniques such as AMOS or LISREL (Hair et al., 2019). It is capable of gauging complex model relationships with many constructs for testing and extending a theoretical framework. The method also demonstrates a high level of robustness and statistical power when it is used with a smaller sample size and nonnormal data (Hair & Alamer, 2022).

The proposed model was evaluated in terms of both the measurement model and the structural model. The measurement model was assessed to ensure the reliability and validity of the instruments, while the structural model was evaluated to reveal potential relationships among speaking mindsets, speaking emotions, and L2 WTC. A bootstrapping method was also employed to determine path coefficients and to test for mediation effects in a more rigorous manner.

Results

Evaluation of the Measurement Model

As suggested by Hair and Alamer (2022), Cronbach' s alpha (α) and composite reliability (CR) were employed to evaluate the reliability of the outer measurement model. As shown in Table 2, for key constructs in this study, α values varied between 0.896 to 0.959, and CR values ranged from 0.932 to 0.967, indicating good internal consistency and, thus, reliability. Additionally, the Standardized Factor Loading (SFL) values of each construct were all higher than 0.70, providing further evidence that all indicator reliability criteria were met.

Table 2

Evaluation of the Reliability of the Measurement Model

Variable	Indicator	SFL	α	CR	AVE
GM	gm1	0.925	0.927	0.953	0.872
	gm2	0.938			
	gm3	0.939			
FM	fm1	0.888	0.896	0.936	0.829
	fm2	0.947			
	fm3	0.895			
ENJ	enj1	0.881	0.915	0.940	0.798
	enj2	0.872			
	enj3	0.916			
	enj4	0.903			
ANX	anx1	0.879	0.903	0.932	0.774
	anx2	0.907			
	anx3	0.895			
	anx4	0.837			

Table 2
Evaluation of the Reliability of the Measurement Model (Cont.)

Variable	Indicator	SFL	α	CR	AVE
WTC	wtc1	0.911	0.959	0.967	0.831
	wtc2	0.919			
	wtc3	0.937			
	wtc4	0.949			
	wtc5	0.896			
	wtc6	0.856			

Convergent validity was ensured by the fact that all AVE (Average Variance Extracted) values (see Table 2) exceeded the recommended threshold of 0.5. As can be seen in Tables 3 and 4, discriminant validity was assessed by cross-loadings and HTMT values (Hair et al., 2019). In the study, all outer loadings of each variable were greater than the cross-loading of other variables and HTMT values were all under reference level, 0.90, which indicated high discriminant validity of the constructs.

Table 3
Factors Cross-Loadings

	GM	FM	ENJ	ANX	WTC
gm1	**0.925**	-0.350	0.549	-0.080	0.434
gm2	**0.938**	-0.328	0.514	-0.005	0.334
gm3	**0.939**	-0.351	0.511	0.000	0.321
fm1	-0.245	**0.888**	-0.377	0.364	-0.237
fm2	-0.339	**0.947**	-0.474	0.295	-0.272
fm3	-0.417	**0.895**	-0.491	0.251	-0.248

Table 3
Factors Cross-Loadings (Cont.)

	GM	FM	ENJ	ANX	WTC
enj1	0.432	-0.445	**0.881**	-0.240	0.553
enj2	0.591	-0.479	**0.872**	-0.064	0.452
enj3	0.503	-0.448	**0.916**	-0.140	0.550
enj4	0.487	-0.392	**0.903**	-0.194	0.632
anx1	0.051	0.247	-0.065	**0.879**	-0.102
anx2	-0.025	0.312	-0.138	**0.907**	-0.222
anx3	0.023	0.253	-0.142	**0.895**	-0.193
anx4	-0.134	0.336	-0.254	**0.837**	-0.245
wtc1	0.312	-0.278	0.542	-0.220	**0.911**
wtc2	0.325	-0.191	0.519	-0.199	**0.919**
wtc3	0.363	-0.251	0.586	-0.220	**0.937**
wtc4	0.371	-0.236	0.553	-0.277	**0.949**
wtc5	0.447	-0.355	0.621	-0.178	**0.896**
wtc6	0.314	-0.192	0.523	-0.128	**0.856**

Table 4
The Square Root of AVE, and HTMT Results

	Fornell-Larcker Criterion					**HTMT Results**				
	1	2	3	4	5	1	2	3	4	5
1.GM	**0.934**									
2.FM	-0.368	**0.911**				0.401				
3.ENJ	0.564	-0.493	**0.893**			0.610	0.543			
4.ANX	-0.033	0.332	-0.178	**0.880**		0.084	0.364	0.192		
5.WTC	0.392	-0.277	0.613	-0.224	**0.912**	0.409	0.296	0.651	0.231	

Assessment of the Structural Model

The evaluation of the structural model involved the utilization of coefficients of determination (R^2), Q^2 Stone- Geisser index (Q^2), and Goodness of fit (GoF). According to Chin (1998), a minimum R^2 value of 0.10 could guarantee a satisfactory model fit. As indicated in Table 5, all R^2 values were higher than this threshold score, which suggests that the model sufficiently reflects the gathered data. Furthermore, the Q^2 values were all more than zero, signifying a strong predictive power of the model (Henseler et al., 2009). According to Tenenhaus et al. (2004), GoF can serve as global values for testing validity in PLS-SEM models with benchmark scores of 0.36, 0.25, and 0.01 indicating a large, moderate, and small GoF, respectively. In this study, the GoF value was determined to be 0.454, indicating a large model fit.

Table 5

Coefficients of R^2, Q^2 and the GoF

	R^2	Q^2	GoF
Enjoyment	0.412	0.322	
Anxiety	0.119	0.085	0.454
WTC	0.400	0.327	

The PLS-SEM results provided an overview of the direct indirect effects among the constructs via T-values, P values, standardized path coefficients (Beta, β), and f^2 values (Hair & Alamer, 2022). If the T-values between the two constructs surpass the level of 1.96 (or P values $<$ 0.05), the path coefficient can be deemed as significant with 95 percent of confidence. As seen in Table 6, all paths were significant statistically in addition to GM→ANX, GM→WTC, and FM→WTC. That means the path between a speaking growth mindset and speaking anxiety was not statistically significant and WTC was not directly associated with a speaking growth mindset and a speaking fixed mindset.

Effect size indicators, f^2 are commonly used to assess the comparative influence of a construct on another construct with baseline values of 0.02, 0.15, and 0.35, denoting small, moderate, and large effect sizes, respectively (Mohammadi et al., 2023). As displayed in Table 6, all f^2 effect sizes in addition to the above-mentioned three insignificant paths were at an acceptable level. PLS-SEM results showed that speaking enjoyment could directly and positively influence WTC (T = 8.187, β = 0.578), while speaking anxiety could directly and negatively influence WTC (T = 2.417, β = -0.149). Moreover, the effect size of speaking enjoyment was significantly larger than speaking anxiety. In addition, a speaking growth mindset was shown to potentially influence speaking enjoyment in a positive way (T = 6.058, β = 0.442), while a speaking fixed mindset could positively influence speaking anxiety (T = 5.869, β = 0.370). Thirdly, a speaking growth mindset could not significantly influence speaking anxiety (T = 1.271), while a speaking fixed mindset could negatively influence speaking enjoyment (T = 4.753, β = 0.-330). Fourthly, the two indirect effect paths were found to be significant, supporting the full mediating role of speaking enjoyment between speaking growth mindset and WTC (T = 4.707, β = 0.241), and the full mediating role of speaking anxiety between a speaking fixed mindset and WTC (T = 4.620, β = -0.246). The final results are illustrated in Figure 2.

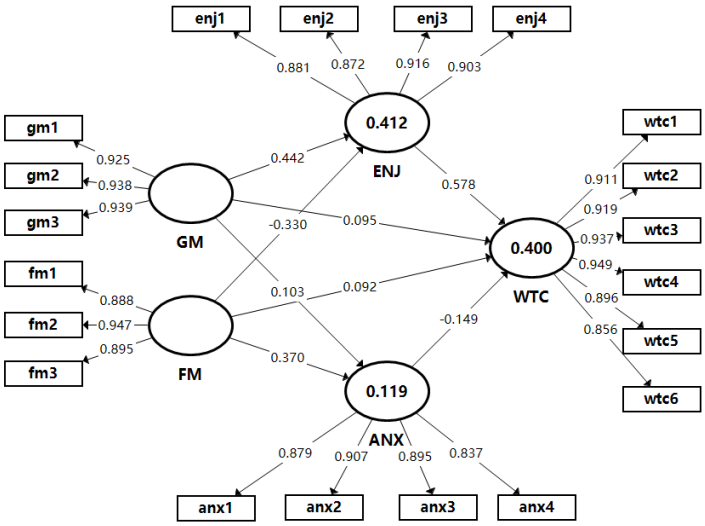
Table 6

Direct and Indirect Path Significance and Coefficients

	Path	T values	P values	Beta (β)	f^2 values	Results
Direct	**GM → ENJ**	6.058	0.000	0.442	0.288	**Accepted**
	GM → ANX	1.271	0.204	0.103	0.010	Rejected
	FM → ENJ	4.753	0.000	-0.330	0.160	**Accepted**
	FM → ANX	5.869	0.000	0.370	0.134	**Accepted**
	ENJ → WTC	8.187	0.000	0.578	0.326	**Accepted**
	ANX → WTC	2.417	0.016	-0.149	0.032	**Accepted**
	GM → WTC	1.418	0.156	0.095	0.010	Rejected
	FM → WTC	1.413	0.158	0.092	0.010	Rejected
Indirect	**GM → ENJ → WTC**	4.707	0.000	0.241	/	**Accepted**
	FM → ANX → WTC	4.620	0.000	-0.246	/	**Accepted**

Figure 2

R^2 values, Loadings, and Path Coefficients of the Structural Model



Discussion

From a domain-specific perspective, the present study examined the relationships among speaking mindsets, speaking emotions, and L2 WTC among Chinese EFL learners using the REBT as its theoretical basis. First, we found that two typical emotions in English learning could exert a significant impact on L2 WTC. Specifically, students who experience greater speaking enjoyment are more likely to be inspired to speak more English. However, students who are anxious about oral speaking would reduce their willingness to initiate a conversation in English. This finding aligns with earlier studies conducted in the United States and Iran (Ozdemir & Papi, 2021; Zarrinabadi et al., 2021). Nevertheless, our findings were partly inconsistent with those of Peng and Woodrow (2010), which identified enjoyment, rather than anxiety, as the sole significant predictor of L2 WTC. This discrepancy may be attributed to several factors, including their relatively small sample size of 132 participants, the use of regression analysis as the analytic method, and the reliance on domain-general measures such as general L2 emotion scales.

Furthermore, the larger effect size of enjoyment than anxiety found in our study indicates that positive emotions might serve as a stronger predictor than negative emotions in influencing students' desires and tendencies to communicate in English. It also supports the perspective of positive psychology, which calls for bolstering positive thinking and seeking values from negativity for a flourishing life (Dewaele et al., 2019). Interestingly, the association between speaking anxiety and L2 WTC was significantly negative but the effect size was relatively small, which suggests that the negative effects of anxiety should be viewed dialectically. According to the Control-Value Theory proposed by Pekrun (2006), in contrast to enjoyment, anxiety—as a kind of negative high-arousal emotion—is believed to have two-sides and multiple effects on learning. As English speaking is inherently challenging, moderate anxiety might also benefit learning, wherein it is more advisable to recognize and embrace negative feelings and adopt

a strengths-based approach when encountering difficulties (Alrabai, 2022; Dewaele et al., 2019).

Considering the relationships between mindsets and emotions, we discovered that a speaking growth mindset contributed to more speaking enjoyment, while a speaking fixed mindset led to more speaking anxiety. This finding concurs with Khajavy et al.'s (2021a) research conducted on reading skills. It suggests that learners who believe that English-speaking ability is malleable might invest more effort in practicing oral English and experience more enjoyment of speaking English despite failure and challenges. In contrast, learners' whose beliefs hold that their level of English-speaking ability (e.g., pronunciation) is innate and cannot be cultivated through persistent exercises could make them more susceptible to speaking anxiety. Unexpectedly, we found that while speaking anxiety could significantly lower speaking enjoyment, a growth speaking mindset could not help reduce speaking anxiety. This probably can be explained by the fact that speaking in a foreign language can be challenging, and it is inevitable that many learners will experience anxious feelings, strong or weak (Alrabai, 2022). Subsequently, learners may experience anxiety in language learning despite maintaining a sound language mindset (Dewaele et al., 2024).

Lastly, the model showed that both fixed and growth speaking mindsets did not directly influence L2 WTC, whereas indirect effects were found between both speaking mindsets, and speaking enjoyment and anxiety. This result implies that an EFL learner who believes in the malleable nature of English-speaking ability is more likely to enjoy English speaking and experience less anxiety, which could then contribute to their willingness and tendency to speak English. However, if students stick to the irrational belief that speaking ability relies heavily on talent, and that it is difficult for the untalented to improve their speaking ability through hard practice, they would be prone to feel more anxiety and less enjoyment during English speaking, which could then reduce their desire to speak English. This interpretation is in accordance with Zhang et al. (2022), which reported that a growth

mindset indirectly affected WTC and empirically supported REBT, which underscores the key role of beliefs in individual emotional experiences and potential behaviors. According to REBT, rational beliefs lead to self-acceptance, adaptive resilience, and persistence in achieving goals, whereas irrational beliefs, such as negative self-assessment cause unhealthy emotions and behaviors, which hinder goals realization (Sari et al., 2022). The study also offers a speaking-skill-specific perspective to the existing research on the speaking fixed mindset functioning as the antecedent of emotions. Addressing the domain-specific and two-factor nature of language mindset and emotions can help explain the unexpected result found in Wang et al. (2021a), whereby anxiety failed to act as a mediator between language mindsets and L2 WTC.

Conclusion

This study probed the potential relationships among speaking mindsets, speaking emotions, and L2 WTC among Chinese EFL students based on the REBT. Findings unveiled that, first, a speaking growth mindset was positively associated with speaking enjoyment, while a speaking fixed mindset was positively tied to speaking anxiety, with speaking enjoyment playing a stronger role. Second, a speaking fixed mindset might significantly reduce speaking enjoyment, while a speaking growth mindset might not significantly mitigate speaking anxiety. Third, L2 WTC was indirectly influenced by both growth and fixed mindsets via speaking enjoyment and speaking anxiety. These findings could be used by EFL learners and teachers in a number of ways. First, as fixed and growth mindsets are considered to be deeply cognitive in nature, this makes them difficult to consciously access (Mercer & Ryan, 2010); hence, it is crucial for EFL learners to recognize irrational beliefs resulting in losing interest or becoming fearful of challenges, and turn to fostering rational beliefs instead. If learners believe that their speaking ability can be enhanced by putting in more effort, regardless of their age or intelligence, they might find more pleasure

in conversing in English with others and be motivated to speak more English due to their progress.

Second, teachers should be aware of the emotional shifts in students. For instance, teachers can consciously pay attention to students who are anxious about public speaking. They can give students positive comments on improvement to increase enjoyable feelings and reduce negative feelings. More importantly, language instructors could help students foster a growth mindset through interventions (Bernardo, 2023). For instance, teachers can emphasize the role of effort instead of intelligence to enhance students' growth mindset and confidence. Notably, teachers' mindsets and practices have been shown to influence students' mindsets and learning outcomes (Mesler et al., 2021). To be more specific, teachers who endorse growth mindsets tend to observe students' improvement over time, while teachers with fixed mindsets might just simply judge students based on their previous performance. In this way, teachers should convey messages about the malleable nature of language, provide feedback to identify students' advancement and encourage students to take initiative in investing more effort and modifying learning strategies accordingly to shape both teachers' and students' mindsets.

It should be acknowledged that the study does have certain limitations. First, the study was a cross-sectional survey using self-reported questionnaires, so causal relationships cannot be inferred. Meanwhile, data collected by questionnaires might make it hard to reflect on the dynamic nature of learners' mindsets and emotions in different situations. Future research can be conducted via varied methods and instruments, such as experimental design, longitudinal surveys, interviews, and fieldwork to provide in-depth insights on the relationships of the three variables. Second, we focused on the most prevalent emotions in EFL learning, namely enjoyment and anxiety. Nevertheless, numerous other pertinent, yet underexplored emotions, such as hope, were not encompassed in this research and have not been investigated in the existing literature on language mindsets and L2 WTC in a broader sense. Hence, future research is recommended to

delve deeper into the impact of diverse emotions and their correlations with language mindsets and L2 WTC in diverse language contexts, taking cultural background and other factors (e.g., online learning context) into account.

Regardless of these limitations, our findings contribute to the existing literature in several ways. Theoretically, by taking a domain-specific perspective, the identification of the complex relations among language mindsets, emotions, and L2 WTC in the EFL speaking context sheds light on the underlying mechanism of these factors and broadening the application of the REBT to SLA research. Practically, this research provides pedagogical implications and suggestions for EFL learners, teachers, and SLA researchers by placing great emphasis on the role of mindsets and emotions in English speaking learning. Specifically, the study can enhance students' awareness of improving their subjective experience and guiding behavioral acts by embracing positive beliefs. In addition, several approaches were provided for EFL teachers to ultimately improve learners' language learning experiences and EFL teaching effectiveness.

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