Exploring the Relationship of Social Class Climate, Language Mindsets and Achievement Emotions in Chinese University Context

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Abstract

Since the emergence of positive psychology, there has been a growing interest among researchers in understanding the importance of emotions. Concurrently, the control-value theory has emphasized the connection between one's environment, beliefs, and emotions. In the realm of educational research, the significance of factors such as social class climate, language mindsets, and achievement emotions has been acknowledged, though studies exploring their interrelations have been limited. This study contributed to the field of positive psychology by delving into the intricate relationship between social class climate, language mindsets, and achievement emotions. A total of 551 college students, all of whom were studying English as a foreign language at two universities in China, participated in this research. Data collection was carried out through a comprehensive questionnaire, which yielded the following noteworthy findings: (1) Participants reported medium levels of FLCA (foreign language classroom anxiety), FLE (foreign language enjoyment), language mindsets, and high level of class social climate, which indicated that their learning environment was harmonious overall. (2) Significant correlations were found between social class climate, language mindsets and achievement emotions. (3) Significant mediating effects of language mindsets and FLCA were found between both achievement emotions and class social climate. The results revealed an intricate interplay between one's environment, personal beliefs, and the range of emotions associated with academic achievement. As a result, this study offered valuable insights for future research endeavors and provided meaningful implications for the field of foreign language education.

Keywords: social class climate; language mindsets; achievement emotions; college students

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1. INTRODUCTION

The recognition of emotions' pivotal role in the learning process has evolved gradually (Feng & Hong, 2022). Initially, when Krashen (1982) introduced the affective filter hypothesis, research on emotions was limited. However, since the delineation of the FLCA (hereafter foreign language classroom anxiety) Scale by Horwitz, Horwitz, and Cope (1986), FLCA has become a focal point of research, leading to a significant shift in the attention of second language acquisition scholars from learners' cognitive factors to the exploration of negative affective factors (Dewaele et al., 2019; Li et al., 2018).

Moreover, with the advent of positive psychology in the realm of second language acquisition research, there has been increased scrutiny of positive emotions, such as foreign language enjoyment (hereafter FLE) (Jiang & Dewaele, 2019; Li et al., 2021). This shift has not only led to the investigation of these positive emotions but also unveiled the intricate relationships between emotions and other individual differences among learners. Despite the burgeoning research on emotions, there remain gaps in understanding the networks of achievement emotions, especially from the perspective of control-value theory (Botes et al., 2021; Pekrun & Perry, 2014). For example, the relationship of achievement emotions, class social climate, and language mindsets is yet not identified. According to Patrick and Ryan (2005), classroom was a place where teacher and students had interactions with each other, playing a pivotal role in shaping learners' beliefs and behaviors. Language mindsets, as a kind of beliefs about the malleability of one's intelligence and ability (Siegle et al., 2010), function a lot in learners' emotion responses and motivation when they were encountering setbacks (Burnette & VanEpps, 2013). Although class environment, beliefs and achievement emotions have been hypothesized to be interrelated from the perspective of control-value theory (Pekrun & Perry, 2014), the precise nature of the correlations between class social climate, language mindsets, and achievement emotions, as well as how they connect, remains unexplored. Therefore, it is extremely urgent to reveal the relationship between class social climate, language mindsets, and achievement emotions, and to uncover the underlying mechanisms..

To this end, the present study aimed to investigate the relationship between class social climate, language mindsets, and achievement emotions. Specifically, the goals of this research were displayed as follows: (1) The general level of class social climate, language mindsets (e.g., fixed mindset and growth mindset), and achievement emotions (e.g., FLE and FLCA); (2) The correlations between class social climate, language mindsets, and achievement emotions; (3) The structural equation model between class social climate, language mindsets, and achievement emotions. By offering an insight about how class social climate, language mindsets, and achievement emotions interacted, the underlying mechanism about the relationship between environment, beliefs, and well-being would be exposed. By providing these evidence, the research gap was expected to be narrowed, and some implications about how to intervene learners' learning process would be given.

2. LITERATURE REVIEW, AIMS AND RESEARCH QUESTIONS

2.1 Literature Review

2.1.1 Language mindsets

Mindsets were initially referred to as implicit theories in their early development (Hong, 1999; Siegle et al., 2010). They encompassed two fundamental aspects: fixed mindset, known as entity theory, and growth mindset, also termed incremental theory. In essence, mindsets represented beliefs concerning the malleability or adaptability of one's intelligence or abilities (Siegle et al., 2010). A fixed mindset entailed the conviction that one's intelligence or abilities remained stable and largely beyond personal control. Conversely, a growth mindset posited that one's intelligence or abilities were flexible and could improve through efforts (Molden and Dweck, 2006).

Molden and Dweck (2006) asserted that mindsets influenced an individual's personality alongside other factors, as people habitually attempted to assign meaning to the events unfolding around them. Distinct mindsets offered varying perspectives through which individuals perceived the world, consequently influencing their behaviors (Burnette & VanEpps, 2013; Dweck et al., 1995). Those who embraced a growth mindset tended to invest greater effort when faced with setbacks, whereas those adhering to a fixed mindset might become discouraged and give up (Blackwell et al., 2007).

 Importantly, mindsets were domain-specific, meaning individuals might hold different mindsets for various aspects of their lives. For instance, someone might believe that their English proficiency could improve with efforts (a growth mindset) while perceiving their physical abilities as uncontrollable (a fixed mindset).

In recent years, language mindsets have become a prominent area of research, with scholars exploring various dimensions. One notable research trend has focused on investigating the domain-specific nature of language mindsets. For instance, Khajavy et al. (2022) highlighted the distinction between reading mindsets and overall language mindsets, emphasizing that language mindsets could vary within specific language-related domains. Similarly, Shivran et al. (2021) took an ecological approach to examine the distinctiveness of writing mindsets, further emphasizing the domain-specificity of these mindsets. These findings highlighted the notion that while language mindsets were a type of mindsets, they manifested differently in various language-related contexts such as reading, speaking, listening and so on.

Another research trend has involved examining language mindsets in conjunction with other factors. It was unsurprising that mindsets have been linked to academic achievement and motivation (Aneeta et al., 2016; Rhew et al., 2018). Lou and Noels (2017) delved into the intricate relationship between language mindsets, goal orientations, and the emotional and behavioral responses of college students. Their research revealed that a growth mindset was associated with a goal of deepening language knowledge, leading to greater mastery and reduced feelings of helplessness. Conversely, Sadeghi et al. (2020) found that a fixed mindset was linked to a performance-avoidance goal orientation, suggesting that students with growth language mindsets

were more inclined to perceive failures as opportunities for improvement, while those with fixed mindsets tended to view failures as threats to their ego.

Furthermore, research has shown that a growth mindset held significant advantages for language learning. It has been associated with improved language proficiency (Lou & Noels, 2017) and the prediction of self-regulated learning (Bai & Wang, 2020) when compared to other motivational beliefs. Moreover, it was important to acknowledge that motivational beliefs, including language mindsets, were dynamic and could interact with various socio-cultural factors.

Additionally, language mindsets served as mediators between the classroom social climate and second language emotions (Wang et al., 2021). Furthermore, Derakhshan et al. (2022) conducted a study on Iranian college students, exploring the interplay between classroom social climate, growth language mindsets, and student engagement. Their findings demonstrated that boredom played a mediating role in the relationship between class social climate, growth mindset, and student engagement.

However, it was worth noting that the relationship between social class climate, language mindsets, and achievement emotions in Chinese college students remained an unexplored territory in the current literature. Further research was needed to unravel this intricate web of factors and emotional experiences in this specific context.

2.1.2 Class Social Climate

The classroom served as a dynamic social arena where students and educators engaged in meaningful interactions (Patrick & Ryan, 2005). Particularly, for adolescent students, this environment exerted significant influence on their beliefs and conduct (Patrick & Ryan, 2007; Peng & Woodrow, 2010). Patrick and Ryan (2007) emphasized the substantial impact of the classroom's social climate on students' motivational beliefs, subsequently influencing their level of engagement in learning activities. It was noteworthy that teachers' conduct played a crucial role in shaping the classroom's social atmosphere and overall environment (Jennings & Greenberg, 2009).

In this context, students attentively observed various facets, such as the quality of the teacher-student relationship, perceptions of fairness, and the degree of mutual support from their peers. Consequently, the elements contributing to the classroom's social climate were intricate and multifaceted. Patrick and Ryan (2005) expounded on the components encompassing class social climate, which comprised teacher support, the promotion of mutual respect, encouragement of student task-related interaction, and the fostering of performance goals. It is important to highlight that an excessive emphasis on performance goals could engender unhealthy competition among students, which might have a detrimental impact on their academic achievements.

Teacher emotional support related to students' perceptions of their teacher's care and support, while mutual respect pertained to students' perception of their teachers' encouragement of mutual respect and peer collaboration during various interactive activities. Task-related interaction reflected students' perceptions of whether their teachers were willing to enhance interactions in various academic tasks (Derakhshan et al., 2022).

In a related vein, Khajavy et al. (2016) introduced the concept of the classroom environment. However, it was obvious that class social climate has gained more frequent usage in applied linguistics (Joe et al., 2017). Joe et al. (2017) further divided class social climate into three distinct categories: teacher emotional support, teacher academic support, and classroom mutual respect, which represented a more condensed classification compared to the original scale proposed by Patrick and Ryan (2005).

2.1.3 Achievement emotions

Emotions were a subset of affective phenomena, which were understood as complex response patterns that unfolded relatively quickly (Fredrickson, 2001, p. 218). Specifically, achievement emotions were defined as those directly linked to academic accomplishments or their outcomes (Pekrun, 2006, p. 317). The relationship between FLCA and academic achievement has been studied for over four decades, and it is now evident that FLCA can hinder students' learning achievements (e.g., MacIntyre & Gardner, 1989; Teimouri, Goetze & Plonsky, 2019; Zhang, 2019).

Anxiety was one such emotion that was negatively associated with past or future outcomes. Spielberger (1983, p. 15) defined anxiety as "a subjective feeling of tension, apprehension, nervousness, and worry associated with the activation of the nervous system." Pekrun (2006, p. 316) further characterized anxiety as a complex phenomenon with components such as uneasiness and nervous feelings (affective), worries (cognitive), avoidance motivation (motivational), anxious facial expressions (expressive), and peripheral physiological activation (physiological), all viewed from a complex system perspective (Pekrun & Perry, 2014). It was important to note that the anxiety being discussed here was state anxiety rather than trait anxiety (Horwitz, Horwitz & Cope, 1986; MacIntyre & Gardner, 1994).

Recent research has revealed that FLCA interacted with various individual learning differences within a complex systems theory framework (Griffiths et al., 2020). FLCA had the potential to influence a wide range of individual differences, including willingness to communicate and self-efficacy beliefs (e.g., Liu & Jackson, 2008; Torres & Turner, 2016). Additionally, sociobiographical and language-related variables have been shown to predict FLCA (Jiang & Dewaele, 2020). As FLCA was studied so much, the nature of FLE was still uncovered. The current research has analyzed the combination of FLE and FLCA. FLCA also had a negative relationship with FLE (Dewaele & Dewaele, 2017; Dewaele & Özdemir, 2019; Li & Huang, 2021). FLE was termed as "a positive activating activity-focused emotion" (Li et al., 2018, p. 184).

Chinese EFL learners had unique FLCA and FLE than learners in other contexts (Jiang & Dewaele, 2019). Meanwhile, FLE was more related to teacher-related variables while FLCA pertained to learner-internal variables. Dewaele et al. (2019) demonstrated that teacher's characteristics accounted more variance in FLE than FLCA. Li et al. (2021) pointed out that trait emotional intelligence and classroom environment played an important function in shaping learners' emotions, and classroom environment predicted FLE more than trait emotional intelligence.

Fredrickson (2001) argued that positive emotions not only served as indicators of flourishing but also actively contributed to the creation of flourishing and happiness. Fredrickson (1998) proposed broaden-and-build theory, indicating that "these positive emotions serve to broaden an individual's momentary thought-action repertoire, which in turn has the effect of building that individual's physical, intellectual, and social resources" (p. 300). However, some recent studies (Komorowska, 2016; Wu & Yu, 2022) have explored the potentially concealed or latent effects of positive emotions in specific contexts. These studies suggested that positive emotions might, at times, have disruptive effects on individuals, while negative emotions could have positive outcomes for people. Consequently, it was advisable to strike a balance between experiencing both positive and negative emotions for overall emotional well-being.

2.2 Theoretical framework

2.2.1 Control-value theory

The control-value theory played a crucial role in understanding achievement emotions, as highlighted by Pekrun (2006). Pekrun et al. (2007) further expanded on this theory, presenting a taxonomy of achievement emotions that encompassed three dimensions: object focus (distinguishing between emotions related to the activity itself and those tied to the outcome), valence (categorizing emotions as either positive or related to success, or negative and associated with failure), and activation (examining the level of emotional activation or deactivation).

This theory represented an amalgamation of attribution theory, the meaning-system approach, and models of emotions related to achievement (Pekrun, 2006). It effectively elucidated the determinants of emotions and their impact on achievement, highlighting the intricate interactions among various factors, including the learning environment, learner characteristics, emotions, and academic accomplishments, all considered within a complex and dynamic framework.

2.2.2 Positive psychology

Seligman and Csikszentmihalyi (2000) underscored the foundational elements of positive psychology, which rested upon three pillars: positive emotions (e.g., joy and hope), positive characteristics (e.g., virtues and hope), and positive institutions (e.g., family and school). While the first two pillars have garnered significant attention, the exploration of the third pillar has been relatively limited in research (Wang & Marecki, 2021).

According to Fredrickson (2001), positive emotions served as signals of flourishing, not merely as the ultimate destination of happiness but also as pathways to achieving psychological growth and long-term well-being. Fredrickson (1998, 2001) introduced the broaden-and-build theory, which elucidated the pivotal role of positive emotions in expanding one's cognitive and behavioral repertoire.

Furthermore, positive characteristics such as emotional intelligence and grit manifested in an individual's thoughts, emotions, and behaviors, empowering learners to recognize their strengths and surmount challenges (Shao et al., 2013; Shao et al., 2020). Finally,

positive institutions characterized by security, democracy, and freedom played a vital role in fostering positive characteristics and positive emotions (Khajavy et al., 2017).

This study provided an insightful perspective on positive institutions, positive and negative characteristics, and positive and negative emotions. By integrating these three pillars, it contributed to a comprehensive understanding of how institutions, characteristics, and emotions interacted in shaping individuals' well-being and personal development.

2.3 Aims and research questions

2.3.1 What is the level of Chinese college students' language mindsets, class social climate, and achievement emotions?

2.3.2 What are the correlations between Chinese college students' language mindsets, class social climate, and achievement emotions?

2.3.3 What are the relationships between Chinese college students' language mindsets, class social climate, and achievement emotions?

3. RESEARCH METHODS

3.1 Participants and procedure

551 college students who studied English as foreign language in two universities of China were enrolled in this study. One university sits in Kunming, Yunnan, a public normal university, and the other is a private college where locates in Lijiang, Yunnan. Of the sample, 482 students (87.5%) were female, and 69 students (12.5%) were male. All of the 551 students fell in the ages ranged from 15 to 29 years (M=18.89, SD=1.227). According to the age distribution, more than 90% participants were between 18 to 20 years old. In terms of grade, 431 students were freshmen (78.2%), 102 sophomore (18.5%). Except for 136 ethnic minority group students, there were 415 Han students (75.3%). The largest minority group students were Yi, with 43 students. 328 participants were studying English as their major, and 223 participants did not study English as their major. Despite 34 students (6.2%) studied English since they were in kindergarten, most students started to learn English in primary school and junior high school.

Participants finished all measurements through an online questionnaire, which was made up of a consent document, a demographic part, and scales of language mindsets inventory, class social climate, FLCA, and FLE. All the data were obtained in September, 2022. Due to the Covid-19, students did not return to their universities. Therefore, this study adopted an online questionnaire to access the data.

Table 1. Participants' profile

Category		Number	%
Gender	Male	69	12.5
	Female	482	87.5
Age	15-17	24	4.5

	18-20	499	90.5
	21-23	25	4.5
	Above 23	3	0.5
Grade	Freshman	431	78.2
	Sophomore	102	18.5
	Other	18	3.3
Ethnicity	Han	415	75.3
	Minority groups	136	24.7
Major	English major	328	59.5
	Non-English major	223	40.5
Onset of English learning	Kindergarten	34	6.2
	Primary school	335	60.8
	Junior high school	182	33

3.2 Measures

An adapted online questionnaire was used to get quantitative data. This questionnaire consisted of five parts. Except the background information of participants, there were four scales translated from previous studies in order to make participants fully understand the contents.

3.2.1 Language mindsets

The language mindsets inventory was developed by Lou and Noels' (2017) language mindsets inventory, which includes three dimensions (e.g., general language intelligence belief, second language aptitude beliefs, age sensitivity beliefs about language learning). Yao et al. (2021) translated into Chinese and adapted it to fit Chinese junior high school students' situation. The reliability and validity were good. There are 18 items rated on 6-likert scale ranging from strongly disagree (1 point) to strongly agree (6 points). To help students better understand the contents and to have a better clarity, this study adopted Yao et al.'s (2021) translated version. There were two dimensions including growth language mindset and fixed language mindset with Cronbach's alpha coefficient 0.831 and 0.792 respectively, indicating a good reliability. In order to assess whether growth language mindset and fixed language mindset confirmed the normal distribution, the descriptive analysis of skewness and kurtosis was performed. When the absolute value of these two data is between 0 and 1, it suggests that the data confirm the normality.

Table 2. The reliability and validity of scales

Descriptive Statistics			KMO	Bartlett's Test of Sphericity			
α	Skewness	Kurtosis		Approx. Square	Chi-	df	Sig.

1. GLM	0.831	-0.389	0.813	0.848	1652.019	36	0.000
2. FLM	0.792	0.388	0.813	0.807	1195.847	36	0.000
3. SCC	0.911	0.130	0.253	0.916	2978.150	36	0.000
4. FLCA	0.879	0.021	0.181	0.882	2079.680	28	0.000
5. FLE	0.829	0.186	0.969	0.854	1887.709	36	0.000

Note. GLM=Growth language mindset; FLM=Fixed language mindset; CSC=Class social climate; FLCA=Foreign language classroom anxiety; FLE=Foreign language enjoyment

3.2.2 Class social climate

Classroom social climate was measured by Joe et al's (2017) 12-item scale, which is consist of three dimensions such as teacher emotional support,teacher academic support, and classroom mutual respect. Another classroom environment scale including 13 items (teacher support, student cohesiveness, task orientation), which was designed by Khajavy et al (2016). However, classroom social climate is used in applied linguistic field more frequently (Joe et al., 2017; Wang et al., 2021). In this study, this scale demonstrated a very high reliability (α =0.911) and very good validity. This measure was rated with 5-likert scale from strongly disagree (1 point) to strongly agree (5 points).

3.2.3 Achievement emotions

The measurement of FLE will go on with the help of Botes et al. (2021) with good reliability and validity. It included three dimensions such as teacher appreciation, personal enjoyment, social enjoyment. There were 9 items. Dewaele and MacIntyre (2016) designed a short form of FLCA with 8 items, which indicates good reliability. Thus, this present study utilized Dewaele and MacIntyre's (2016) FLCA scale. Although Peixoto et al. (2015) designed shorter anxiety and enjoyment scales including 4 items respectively. These scales might not be appropriate in this study because they were utilized in math context instead of English context.

3.3 Data analysis

The descriptive data were given by using Statistical Product Service Solutions 26 (SPSS 26). Correlation analysis and participants' profile were provided with the help of SPSS 26.

The hypothesized relationships between variables were tested with the help of Analysis of Moment Structure 22 (AMOS 22). Maximum likelihood was the frequent way to test the structural equation modeling. Some indicators are presented to show whether a model is fit or not such as chi-square (χ^2), degree of freedom (DF), root mean square error of approximation (RMSEA), root mean square residual (RMR), standardized root mean square residuals (SRMR), comparative fit index (CFI), normed fit index (NFI), relative fix index (RFI). Typically, the value of χ^2/DF is more inclined to 0, the data is better. Except the value of χ^2/DF, CFI$\geq$0.90，NFI$\geq$0.90, RFI$\geq$0.90, RMR<0.05, RMSEA<0.05, SRMR<0.08 also show that the data have good fit of the measurement.

4. RESULTS

4.1 The means of different variables

According to Table 3, the means of growth language and fixed language mindset were 3.982 and 2.792 respectively, revealing Chinese undergraduate students had high growth language mindset and low fixed language mindset. The mean of class social climate was 4.047, which demonstrated that Chinese undergraduate students had very high classroom environment. They perceived that the schools provided very harmonious environments for them. The means of FLCA and FLE were 3.468 and 3.571 respectively, which indicated the FLCA and FLE they had experienced were in intermediate level. However, students felt more FLE than FLCA.

4.2 The correlations between variables

The correlations and standard deviations are showed in Table 3. As indicated in Table 3, growth mindset was negatively and significantly correlated with fixed language mindset, and FLCA. Meanwhile, growth mindset was positively and significantly correlated with class social climate, and FLE. Fixed language mindset is negatively and significantly correlated with class social climate and FLE. At the same time, fixed language mindset is positively and significantly correlated with FLCA. Class social climate is positively and significantly correlated with FLE. FLE is negatively and significantly correlated with FLCA.

Table 3. The correlations between different variables

	1	2	3	4	5	M	SD
1.GLM	-					3.982	0.684
2.FLM	-.344**	-				2.792	0.693
3.CSC	.234**	-.171**	-			4.047	0.487
4.FLCA	-.306**	.291**		-		3.468	0.665
5.FLE	.314**	-.197**	.621**	-.336**	-	3.571	0.502

Note. GLM=Growth language mindset; FLM=Fixed language mindset; CSC=Class social climate; FLCA=Foreign language classroom anxiety; FLE=Foreign language enjoyment. *<.05, **p<.01, ***p<.001

4.3 Structural equation modeling

The confirmatory factor analysis (CFA) results indicated a very good fit between the model and the data. χ^2/df=2.099, RMSEA=0.045, RMR=0.009, SRMR=0.0256, CFI=0.0994, NFI=0.989, RFI=0.962. All of indices showed that the data had a very good fit, which meant that it was appropriate for later analysis.

Table 4. The confirmatory factor analysis

|	χ^2	df	RMSEA	RMR	SRMR	CFI	NFI	RFI
Model	6.297	3	0.045	0.009	0.0256	0.994	0.989	0.962

Table 5. The effects of different variables

Independent variable	Dependent variable	Total effect	Direct effect	Indirect effect	Bootstrap CI(for direct effect)	
					LB	UB
CSC	GLM	.234	.234***	.000	.148	.320
CSC	FLE	.623	.581***	.042	.511	.647
GLM	FLM	-.344	-.344***	.000	-.440	-.227
GLM	FLE	.178	.095***	.083	.016	.164
FLCA	FLE	-.271	-.271***	.000	-.343	-.209
FLM	FLCA	.211	.211***	.000	.113	.317
GLM	FLCA	-.306	-.234**	-.073	-.315	-.147

Note. GLM=Growth language mindset; FLM=Fixed language mindset; CSC=Class social climate; FLCA=Foreign language classroom climate; FLE=FLE

*<.05, **p<.01, ***p<.001

Concerning the impacts of class social climate on FLE, the results showed that class social climate could positively predict FLE while language mindsets and FLCA had multiple mediation. Growth language mindset was predicted by class social climate; FLCA was predicted by growth language mindset and fixed language mindset; FLE was predicted by class social climate, growth language mindset, and FLCA. This study also used bootstrap to estimate the the confidence intervals for direct effect. It tried to take samples for 1000 times and set an estimate for 95% for confidence intervals. The results were showed in Table 5. As showed in Table 5, all the direct effects were significant and they had confidence intervals. It should be noted that the relationship between fixed language mindset and growth language mindset was assumed because the regression equation in this model was hypothesized. Therefore, it was obvious that the relationship between institutions, characteristics, and emotions were complex, which also offered a deep insight about the psychological growth and well-being.
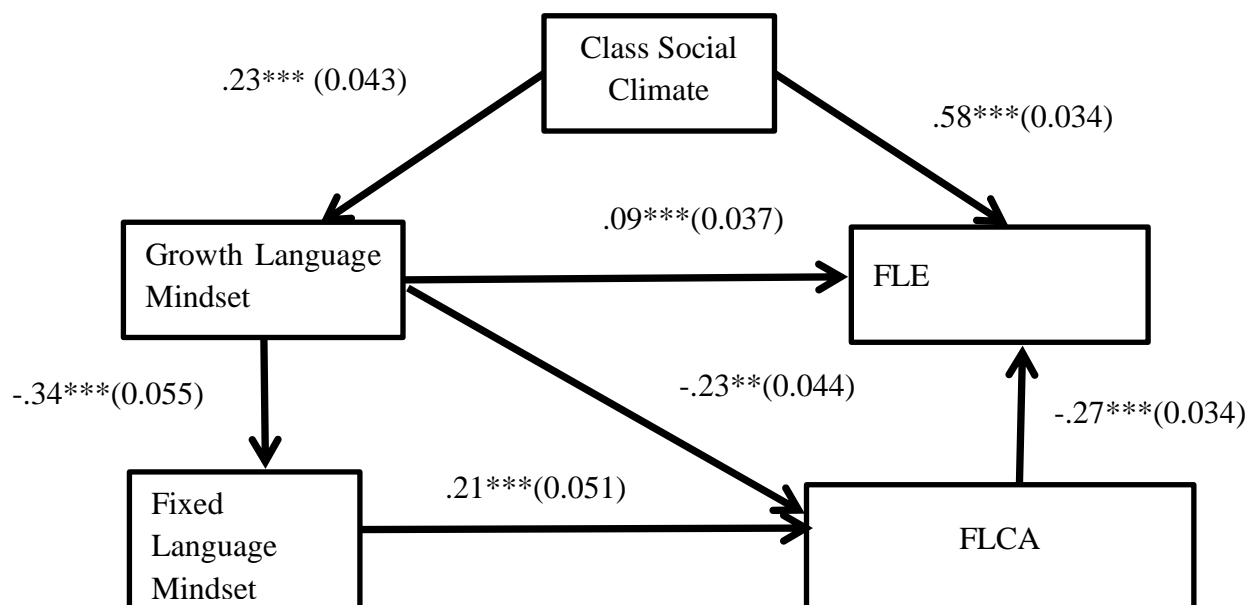
Fig 1. Structural equation modeling of different variables

5. DISCUSSION

The structural equation model offered a complicated picture about class social climate, language mindsets, and achievement emotions. Because the relationship between growth mindset and fixed mindset was assumed, the fixed mindset was not found direct relationship with FLE. Moreover, there were some surprising results that should be noted.

5.1 The level of class social climate, language mindsets, and achievement emotions

Chinese undergraduate students perceived that they lived in a very good environment. They tended to have more growth language mindset than fixed language mindset. They also enjoyed more FLE than FLCA, which was echoed by Huang's (2021) research. The correlation between class social climate, language mindsets, and achievement emotions

Growth mindset was negatively and significantly correlated with fixed language mindset, and FLCA. Meanwhile, growth mindset was positively and significantly correlated with class social climate, and FLE. It was confirmed the model proposed by Shao et al. (2022): institution, characteristics and emotions were interrelated. Positive institution could cultivate positive characteristics and positive emotions. This study indicated that positive institution was beneficial and crucial to the cultivation of positive emotions. It was noteworthy that educators should understand the importance of social class climate and its potential influences to learning emotions.

5.2 The complex relationship between class social climate, language mindsets, and achievement emotions

(1) FLE pertained to external variables more compared to FLCA

As indicated in prior research (Dewaele et al., 2019; Jiang & Dewaele, 2019; Li et al., 2021), FLE has demonstrated a stronger association with the classroom environment than with individual internal differences. This present study corroborated these findings. In contrast, FLCA was primarily linked to fixed and growth mindsets, while FLE exhibited a robust connection with the classroom's social climate. It is worth noting that the classroom's social climate encompassed elements such as teacher emotional support, teacher academic support, and mutual respect among students, as identified by Joe et al. (2017). Both teachers and peers played pivotal roles in fostering FLE among learners. Moreover, FLE has been found to be positively correlated with intrinsic interest and motivation (Pekrun & Perry, 2014). Consequently, by nurturing positive teacher-student relationships and encouraging mutual support among students, a conducive classroom environment could be cultivated. This, in turn, led to heightened levels of FLE and intrinsic interest among learners (Jiang & Dewaele, 2020). The provision of a harmonious classroom environment was pivotal for learners, as it amplified the experience of enjoyment. Teachers could actively contribute to this environment by organizing engaging activities, such as role plays and drama, which served to enhance students' intrinsic motivation and interest.

(2) The control-value hypothesis was set in the equation model.

In summary, the present study has revealed that the control-value theory could indeed explain the equation model, albeit with some nuanced variations from its initial assumptions. Control-value theory posited that the classroom environment served as the distal antecedent influencing intrinsic values (language mindsets), which, in turn, played a role in shaping achievement emotions (Pekrun & Perry, 2014). This study has painted a more intricate picture of the relationship among the environment, beliefs, and emotions.

Firstly, it was observed that the class social climate did not directly influence FLCA. Secondly, fixed mindset did not exhibit a direct effect on FLE. Thirdly, the multiple mediation relationships within this model demonstrated that achievement emotions were shaped not only by internal factors but also by external factors. Nevertheless, it was evident that a growth mindset could enhance FLE and reduce FLCA, while a fixed mindset was positively associated with FLCA. These findings offered a valuable means of influencing learners' emotional profiles. As previous studies have indicated (e.g., MacIntyre & Gardner, 1989; Teimouri, Goetze & Plonsky, 2019; Zhang, 2019), FLCA could hinder learning outcomes, while FLE could enhance the yield from learning efforts. Therefore, by implementing interventions aimed at shifting students' language mindsets, we can enhance learning outcomes. This study reaffirmed the validity of the control-value theory by highlighting the relationship between the environment, beliefs, and emotions. It provided a practical pathway for improving students' learning outcomes through the cultivation of a growth mindset. While changing the environment or other factors might pose challenges, altering one's beliefs can be accomplished through targeted interventions.

6. CONCLUSION AND SUGGESTIONS FOR FUTURE RESEARCH

The class social climate served as a significant precursor to the development of a growth language mindset and the experience of FLE. In contrast, fixed language mindset and growth language mindset were found to be precursors of foreign language anxiety. It was crucial to highlight the pivotal role of the class social climate in cultivating language mindsets and shaping learners' achievement emotions. Notably, FLE, when compared to the growth language mindset, exhibited a weaker connection.

These findings carried important implications. Firstly, class social climate emerged as a cornerstone in language learning, providing a platform for meaningful interactions between students and teachers. Factors such as teacher emotional support, teacher academic support, and classroom mutual respect served as sources of motivational beliefs and influenced achievement emotions (Joe et al., 2017; Patrick and Ryan, 2007). Given that teachers' behavior could significantly impact the social class climate or classroom environment (Jennings & Greenberg, 2009), the role of teachers in the language learning process was undeniable. Secondly, achieving favorable learning outcomes required a collaborative effort on the part of both teachers and students. Teachers could enhance students' enjoyment by assigning meaningful and engaging tasks. On the students' side, transforming fixed mindsets into more adaptable ones could help reduce FLCA, as language mindsets were relatively malleable. Thirdly, this research emphasized the effectiveness of the control-value theory in elucidating the intricate dynamics among class social climate, language mindsets, and achievement emotions. It revealed that both classroom climate and growth mindset contributed to the formation of achievement emotions. However, this relationship was multifaceted, taking into account the internal interplay between FLCA and FLE, as well as fixed and growth language mindsets. These findings provided empirical support for the utility of the control-value theory. Lastly, this study also highlighted the connection between negative emotions and negative individual characteristics, as well as the association between positive emotions and positive individual characteristics. This aligned with the principles of positive psychology, which investigated three pillars: positive emotions, positive institutions, and positive individual characteristics. It underscored the importance of striking a balance between negative and positive emotions for overall well-being.

There were several avenues for future research worth exploring. First and foremost, it was advisable to conduct more longitudinal studies as the present investigation primarily focused on static states. In line with the control-value theory, which posited dynamic and reciprocal relationships among the environment, motivational beliefs, and achievement emotions, future research should consider incorporating dynamic research methodologies. Such an approach would offer a more comprehensive understanding of how achievement emotions influenced the class social climate over time. Secondly, it was essential to acknowledge that the research samples in this study might not fully represent the diverse learning contexts of Chinese college students, as it was limited to participants from just two colleges. Future research should aim to diversify the samples by including participants from various educational institutions to enhance the study's reliability and validity. Lastly, there was an increasing need for positive psychology interventions to

enhance students' learning achievements. As the understanding of achievement emotions deepened, it became apparent that approaches rooted in positive psychology could be effectively employed to test the practicality and efficacy of this theory. Thus, future research should explore the implementation of such interventions to ascertain their impact on students' academic performance and overall well-being.

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Ethical approval statement

Due to the nature of this study and the constraints faced, obtaining ethical approval from an ethics committee was not pursued. However, the study was conducted using an online survey that was designed to ensure participant anonymity and confidentiality. No personally identifiable information was collected, and all data was stored securely. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any penalty. The study design and procedures were reviewed by the research team to ensure adherence to ethical standards.

Informed Consent Statement

Participants in this study were informed about the nature and purpose of the research, the procedures involved, potential risks and benefits, and their rights as participants. Participation was entirely voluntary, and participants could withdraw from the study at any time without any penalty. The confidentiality and anonymity of the participants were guaranteed, and all data collected were stored securely and used solely for research purposes. By completing the survey, participants indicated their informed consent to participate in the study.

Competing Interest Statement

The authors declare that they have no competing interests. There are no financial, personal, or professional conflicts that could have influenced the research, its results, or the interpretation of the findings. The study was conducted independently, and all data were analyzed and reported impartially.

Data availability statement

The data collected from this study are available from the corresponding author upon reasonable request. Due to privacy concerns, raw data will not be made publicly available.