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Exploring peer emotion transmission in foreign language classrooms: A social psychological investigation using mixed methods

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Abstract

Drawing on theories of interpersonal emotion transfer (Parkinson, 2020) and the control-value theory of achievement emotions (Pekrun, 2006), the present research employed a mixed-methods approach to examine how emotions are

transmitted among peers in foreign language (FL) classrooms. We collected quantitative data from 308 freshmen using self-report questionnaires and qualitative data from 18 freshmen using semi-structured interviews. Results of structural equation modeling showed that students' perceptions of peer FL enjoyment, anxiety, and boredom were positively related to their own corresponding emotions. Both control and value appraisals partially mediated the relations between perceived peer FL enjoyment and anxiety and students' corresponding emotions. However, value appraisal was the only significant mediator of the relation between perceived peer FL boredom and student boredom. Interview findings further supported the operation of emotion contagion and social appraisal in FL peer emotion transmission. In addition, the qualitative data revealed that perceptions of peer FL emotions may also activate students' discordant emotions as a result of social comparison processes. The interpretation of the findings is discussed along with future directions and pedagogical implications.

Keywords: emotion; language; transmission; peer; classroom; mixed methods

1. Introduction

Emotions are fundamental to foreign language (FL) learning and performance as they significantly influence learners' motivation, engagement, and overall cognitive processes. Although previous studies have provided valuable insights into the role of emotions in FL learning (Dewaele et al., 2023b; Papi & Khajavy, 2021; Pawlak et al., 2022; Solhi et al., 2024), they have tended to investigate FL emotions from an individualistic (i.e., person-centered) perspective. However, it is conceivable that students' emotional experiences in language learning cannot be isolated from social influences. Instead, these experiences are shaped by interactions and relationships with others, such as teachers and peers, within the specific micro-context of FL classrooms (Derakhshan et al., 2022; Khajavy, et al., 2018). Examining the impact of peers' emotions on students' emotions in the context of FL learning bears practical importance, given that students spend most of their classroom time with peers.

Social-psychological accounts of emotion contagion and social appraisal both provide viable frameworks for investigating peer emotion transmission in FL classrooms. Emotion contagion explains how an individual's emotions can be automatically influenced by the emotions of their social partners (Barsade et al., 2018; Hatfield et al., 1994). Social appraisal theory (Manstead & Fischer, 2001), on the other hand, suggests that the impact of social partners' emotions on one's own emotions may also depend on how those observed emotions are appraised (Parkinson, 2020; Parkinson & Simons, 2009). In a similar vein, the control-value theory (CVT) of achievement emotions posits that students' appraisals of control and value over achievement-related activities and outcomes are proximal antecedents of their

achievement emotions (Pekrun, 2006, 2018). Aspects of the classroom (e.g., peers, teachers, and learning environment) are thought to influence students' achievement emotions either directly or indirectly via control and value appraisals. Combining the two perspectives of interpersonal emotion transfer and CVT, it is reasonable to hypothesize that peer-to-student emotion transmission may be partially mediated by control and value appraisals. Yet, these assumptions have been rarely studied in FL classrooms (Derakshan, 2022; Shao & Parkinson, 2024).

Although a few studies have explored the operation of emotion contagion in the FL context, it is noteworthy that they have predominantly adopted quantitative research methods (Moskowitz & Dewaele, 2021; Talebzadeh et al., 2020). While these methods have the advantage of allowing large samples and providing precise and testable expressions of research ideas, they often assume that research variables and their relations have a fixed and measurable reality. By contrast, qualitative research methods allow an open and flexible way of exploring the meaning of research phenomena and assume that targeted variables have a negotiated reality. Therefore, it is essential to combine both methods in examining peer FL emotion transmission as this approach brings together the strengths of each, offering a more panoramic view of this phenomenon (McKim, 2017).

To advance beyond the individual person-centered approach in the field of FL emotions and address the existing theory-method-application gap in the literature, the present research takes the initiative to apply a mixed-methods approach to the investigation of peer emotion transmission in FL classrooms. Specifically, in the quantitative phase, we test the hypotheses of emotion contagion and social appraisal by examining the mediating effects of control and value appraisals in the relationship between perceived peer FL enjoyment, anxiety, and boredom which are the most studied and frequently experienced emotions in second language acquisition (SLA) (Dewaele et al., 2023a; Shao, Kutuk, et al., 2023), and students' corresponding emotions. In the qualitative phase, we seek to provide a more in-depth understanding of the phenomenon of peer FL emotion transmission and extend the quantitative data by analyzing students' narrative accounts of how the processes of emotion contagion and social appraisal operate during peer-to-student emotion interaction in language classrooms.

2. Literature review

2.1. Emotion contagion and social appraisal in interpersonal affect transfer

Emotion contagion and social appraisal are two fundamental theories for explaining interpersonal affect transfer in social psychology (Parkinson, 2020). Emotion contagion proposes that an individual automatically and unconsciously mimics

other people's emotional expressions (e.g., facial and bodily movements and other non-verbal cues), and such imitation responses provide interoceptive feedback that activates matching emotions (Elfenbein, 2014; Hatfield et al., 1994). For instance, one might experience happiness while conversing with a cheerful person or observing a laughing toddler without necessarily registering the personal significance of these moments. By contrast, social appraisal suggests that the impact of other people's emotions on an individual's emotions is a result of the individual's appraisals of the meaning conveyed by the perceived emotions of others (Clément & Dukes, 2017; Manstead & Fischer, 2001; Parkinson, 2019). This indicates that social appraisal could function as a mediator in determining how the emotions of others impact our own emotional experiences. For example, we may feel anxious about an event when we observe our companion's anxiety as their emotional reaction carries information about potential risks. A large body of studies in social psychology have lent support to the operation of these two processes in interpersonal emotion transfer (Delvaux et al., 2015; Kelly et al., 2016; Parkinson & Simons, 2009). In the context of peer emotion transmission, Hubbard et al. (2023) employed a round-robin design to investigate peer emotion contagion among 202 children in the US. Findings showed that children's escalation/de-escalation of positive and negative emotions in the previous moment predicted an increase/decrease in social partners' positive and negative emotions in the next moment. In another study, Delvaux et al. (2015) investigated the influence of peer emotions among 295 second-year psychology students in Belgium, who were organized into 68 task groups of four to six students. Their results revealed that students' anger and gratitude about class assignments were influenced by other in-group members' corresponding emotions. Moreover, emotion transfer was mediated by students' perceptions of in-group emotion norms as predicted by the social appraisal account of emotion transmission (Parkinson, 2020).

While these two theoretical perspectives have not received much attention in the FL learning context, they seem to be equally relevant and applicable to language classrooms (Shao & Parkinson, 2024). For instance, students may find themselves feeling excited and motivated after observing their classmates enjoy lively discussions with their teachers in a foreign language, even if they do not fully comprehend the underlying reason for their enjoyment (contagion). This shared emotion may also influence students' perceptions of the value of communication or enhance their confidence to speak the target language (appraisal). This could, in turn, boost their own enjoyment of communicating in the FL. By contrast, after witnessing a peer experiencing anxiety while attempting to answer a challenging question in the FL, students may pick up on that anxiety, influencing their own feelings of nervousness. This could lead them to worry about potential negative evaluations for making mistakes, which may diminish their confidence or interest in

similar activities and potentially increase their language anxiety even further. These assumptions are also in line with the control-value theory of achievement emotions (Pekrun, 2006), which posits that features of classroom environment can shape students' achievement-related appraisals and emotions.

2.2. Control-value theory of achievement emotions in classroom emotion transmission

Contemporary psychological theories emphasize the vital role of cognitive appraisals in eliciting emotions (Lazarus, 1991; Scherer, 2009). In a similar vein, CVT proposes that students' appraisals of achievement-related control and value are proximal determinants of their achievement emotions (Pekrun, 2006). The theory assumes that when students perceive higher control over and place a high positive value on achievement activities and outcomes, they are likely to experience positive emotions, such as enjoyment or pride. By contrast, low perceived control and a high negative value are expected to trigger negative emotions, such as anxiety or shame. For example, students may feel enjoyment when they believe they can master the learning material and highly value it. On the other hand, they may experience anxiety when they anticipate failing an important exam. However, the negative emotion of boredom does not conform to this presumed pattern of effects because it can be induced by either low (overchallenge) or high (under-challenge) levels of control and a lack of value. One possible implication is that there may be a curvilinear relationship between students' control appraisal and boredom (Pekrun et al., 2010).

Guided by CVT, Pekrun et al. (2011) classified a number of achievement emotions (e.g., enjoyment, hope, pride, anxiety, anger, shame, hopelessness, and boredom) into a three-dimensional taxonomy combining valence (positive or negative), activation (activating or deactivating), and object focus (prospective, concurrent or retrospective). In the present study, we focused on three of these emotions: enjoyment (positive activating), anxiety (negative activating), and boredom (negative deactivating) which represent three prototypes of achievement emotions (Forsblom et al., 2022). They are the three most frequently examined emotions in educational contexts such as language learning (Dewaele et al., 2023a; Shao, Kutuk, et al., 2023). Indeed, second and foreign language (L2) researchers generally agree that enjoyment, anxiety, and boredom are the most representative emotions to measure when researching SLA (Dewaele et al., 2023b; Shao & Kutuk, 2024).

CVT also postulates that social environmental factors may have both direct and indirect effects on achievement emotions via control and value appraisals (Pekrun, 2006, 2018). Accordingly, affective features of the learning environment that deliver information about controllability and value are assumed to be

crucially important for students' emotions. Linking CVT with the current context of FL emotion transmission, it is plausible that the observed emotions of teachers or peers can convey significant signals regarding their appraisals of language learning activities. These emotions may influence students' emotions directly or via the mediation of control and value appraisals (Pekrun, 2006). The direct influence is congruent with the assumption of emotion contagion (Hatfield et al., 1994), which has been supported by Frenzel et al.'s (2009, 2018) research on teacher-to-student enjoyment transmission. The appraisal mediation aligns with the social appraisal account of emotion transfer, which highlights the role of integrating information from others' emotions into one's own assessment of an emotional situation (Parkinson & Simons, 2009). However, to date, there is a lack of empirical research documenting the links between students' perceptions of teacher or peer emotions and their own appraisals and emotions in the fields of both language and education.

2.3. Recent studies of emotion transmission in FL classrooms

According to social-cognitive learning theories (Bandura, 1977; Pekrun, 2006), students' emotions are likely to be affected by the thoughts, feelings, and behaviors of their peers and teachers. However, the limited research on interpersonal affect transfer in FL learning has almost exclusively focused on the relation between teacher emotions and student emotions. For instance, prior research has shown that while FL teachers' negative emotions such as language anxiety increase students' anxiety (Horwitz, 1996), their positive characteristics such as humor and friendliness improve students' positive feelings toward language learning (Moskowitz & Dewaele, 2021). Recently, Talebzadeh et al. (2020) explored the dynamics and mechanics of enjoyment transmission between five undergraduates and one teacher in the Iranian English as a foreign language (EFL) context using the idiodynamic method. Their findings suggested that enjoyment transfer between the teacher and the students was primarily the result of automatic mimicry-based emotion contagion. In addition, Wang and Wang (2024) examined the influence of classroom climate on students' FL enjoyment among 346 Chinese EFL learners. Structural equation modeling showed that classroom factors such as teacher emotional support had a significant positive impact on students' FL enjoyment.

Although these studies provided promising support for the operation of emotion transfer in FL classrooms, they only focused on effects of teacher but not peer emotions. As peers share the same academic background with students and are closer social partners to them, it can be anticipated that their emotions may carry even more influence over students' emotions. Moreover, the theoretical

foundation of previous research has relied solely on emotion contagion but has not taken account of social appraisal in FL emotion transmission. Nevertheless, as asserted by appraisal theorists, social appraisal may play an even more important role than simple emotion contagion in interpersonal affect transfer (see Parkinson, 2020). In addition, the above studies have often examined only one type of emotion focusing on the transmission of either positive or negative FL emotion from teacher to peer. As the current landscape of positive psychology in SLA emphasizes a balanced approach for handling L2 emotions (Shao, Pekrun, et al., 2020), it is important to simultaneously consider the emotion transmission of both positive and negative emotions in a single investigation. Such an approach offers a more well-rounded framework for understanding interpersonal emotion dynamics.

As a notable exception, Shao and Parkinson (2024) recently assessed the operation of both emotion contagion and social appraisal during the process of FL peer emotion transmission in a large-scale study. Utilizing doubly latent multilevel analysis, their research showed that perceived peer FL enjoyment, anxiety, and boredom have direct positive effects on students' corresponding emotions for language learning. These interpersonal effects were mediated by control or value appraisals (social appraisal) but remained significant after controlling for the influence of appraisals (emotion contagion) at the individual level. At the class level, the mediation effects were only significant for control appraisal (as a mediator of effects on anxiety) and value appraisal (as a mediator of effects on boredom).

Although Shao and Parkinson's (2024) study marks the first step towards expanding the theoretical basis to social appraisal and the empirical focus to peer emotions, there are two important limitations that warrant further investigation. First, due to model complexity and statistical constraints in doubly latent multilevel analysis, perceived control and perceived value were entered separately into the model for testing mediation effects. This approach compromised appraisal theory's assumption that specific emotional experiences depend on combinations of different appraisals rather than single appraisals operating separately (Lazarus, 1991) as well as CVT's proposition that both control and value appraisals are necessary for instigating an emotion (Pekrun, 2006). Second, the study adopted a purely quantitative research design. While quantitative research methods allow rigorous testing of theories and hypotheses by using systematic statistical analyses, their typical hypothesis-driven application based on numbers and algorithms often reduces a complex, variable and multifaceted reality into a more simplified, fixed, and directly measurable set of indices. Such an approach might overlook certain research phenomena that are specific to the local context. These local phenomena can often be revealed through qualitative methods which allow the meaning of an event to emerge from participants' evolving narratives and discussions (Creswell & Clark, 2017). For this

reason, combining quantitative and qualitative data can offer a more balanced view on the phenomenon of peer FL emotion transmission and complement existing research by allowing participants more time to reflect on the dynamic changes in their language emotions.

2.4. The present study

The present research grounds the investigation of peer FL emotion transmission in social-psychological theories of interpersonal affect transfer and the control-value theory of achievement emotions. Employing a mixed-methods approach, we make the first attempt to investigate the following research questions:

RQ1: What are the relationships between perceived peer FL enjoyment, anxiety and boredom with students' control and value appraisals and corresponding emotions for language learning?
RQ2: Are the relationships between perceived peer FL enjoyment, anxiety, and boredom and students' corresponding emotions mediated by control and value appraisals (social appraisal) but remain significant when accounting for the influence of appraisals (emotion contagion)?
RQ3: How do students describe the process of peer emotion contagion in FL classrooms?
RQ4: How do students account for the process of social appraisal during peer emotion transmission in FL classrooms?

3. Methods

3.1. Participants

For the quantitative data, we recruited a total of 308 (47% females; 53% males) Chinese freshmen studying various majors (science, engineering, social science, humanity and arts) at a public university in a northwestern city in China with the support of their English course teachers. Among these participants, 181 (59%) were of Uighur ethnicity, an ethnic minority group that has typically been underrepresented in FL research. The remaining 127 participants (41%) were of Han ethnicity, the largest ethnic group in China. Participants' ages ranged from 16 to 20 years old (M_{age} = 18.56, SD = 1.19). For the qualitative data, we used a random stratified sampling method to select 18 students (10 females, 8 males; age: M_{age} = 17.89; SD = 0.58) from 151 Chinese EFL freshmen studying multiple majors

(languages, science, engineering, social science, humanity and arts) at a public university in a northeastern city in China. Specifically, we divided the total number of students into nine subgroups based on the types (enjoyment/anxiety/boredom) and levels (high/medium/low) of their FL emotional experiences when responding to the preliminary *FL Achievement Emotions Questionnaire* (Shao, Stockinger, et al., 2023) which was used in the quantitative phase. Two students were randomly selected from each subgroup. Among the 18 participants, 15 students were of Han ethnicity, two were of Korean ethnicity, and one was of Uighur ethnicity.

All participants (in both quantitative and qualitative phases of the study) had received over 12 years' previous English education in primary and secondary schools. They were registered in a comprehensive English course designed to improve their English reading, speaking, writing, and listening skills to meet the requirements for their respective degrees. Participants were informed about the purpose and the voluntary nature of this research. Ethical approval was obtained from the first author's University Review Board, and the research adhered to the American Educational Research Association's ethical principles regarding research involving human participants (AERA, 2011).

3.2. Data collection

This study employed a convergent parallel mixed-methods research design consisting of two phases: quantitative data collection and qualitative data collection (Creswell & Clark, 2017). Following this approach, we collected quantitative and qualitative data using two independent samples. The quantitative data were collected using three separate scales measuring peer emotions, control-value appraisals, and participants' own emotions. The qualitative data were collected using an interview protocol and analyzed using thematic analysis to help explain the quantitative results. The mixed-methods approach was deemed appropriate for this research as neither quantitative nor qualitative methods alone are sufficient to capture the details of the phenomenon under investigation (McKim, 2017). However, when used in combination, quantitative and qualitative methods can complement each other and provide a more comprehensive understanding of the research problem by addressing both the measurable aspects of phenomena as well as broader contextual details. In the quantitative data (RQ1 and RQ2), we examined the direct effects (emotion contagion) of perceived peer FL enjoyment, anxiety, and boredom on individual students' corresponding emotions, as well as the indirect effects (social appraisal) mediated by perceived control and perceived value. In the qualitative data (RQ3 and RQ4), we explored the two accounts of interpersonal affect transfer by listening to students' voices

and perspectives on the process through which each of the three perceived peer FL emotions influenced their own emotions.

3.3. Instruments

3.3.1. Questionnaire

We used three sets of scales to respectively measure students' perceived peer FL emotions, control and value appraisals, and achievement emotions in the language classes. All items were assessed on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

1. *Perceived peer emotions:* Students' perceptions of peer FL enjoyment, anxiety, and boredom were assessed by three five-item scales adapted from Shao and Parkinson (2024). As perceived peer emotion represents a classroom variable, the scales used a uniform stem "My classmates . . ." for measuring each item (e.g., enjoyment: "My classmates enjoy participating in this English class so much that they get energized;" anxiety: "My classmates get tense when communicating with the teacher in English;" boredom: "My classmates get so bored by this English class that their minds begin to wonder").
2. *Control and value appraisals*: Students' perceived control was measured using a six-item scale adapted from Shao, Nicholson, et al. (2020), assessing students' self-concept in the subject of English language learning (e.g., "I learn things quickly in English classes"). Students' perceived lesson value was measured using a six-item version of the *Task Value Questionnaire* (Pekrun et al., 2011). This scale measures students' intrinsic, utility and attainment value (two items for each dimension) related to English learning (e.g., "I find learning English is very interesting;" "Learning more about English is useful for my life;" "It is important to me not to get bad grades in English").
3. *Achievement emotions*: Students' achievement emotions were measured using the course-related emotion scales of the *Achievement Emotion Questionnaire* (Pekrun et al., 2011) and these scales were adapted from Shao, Stockinger, et al. (2023) to suit the EFL context. Each emotion was assessed using five items: enjoyment (e.g., "My enjoyment of this English class makes me want to participate"), anxiety (e.g., "I get tense when communicating with the teacher in English") and boredom (e.g., "I feel so bored that I can't wait for this English class to end").

In order to suit the present EFL context, we modified the instructions and items in each scale to specifically refer to students' emotions and appraisals about the English course. The original English version of the questionnaire was translated into Chinese and back-translated by a team of six bilingual researchers. A series of statistical analyses (e.g., item-total correlations, reliability indices, factor loadings, and confirmatory factor analysis) were run to validate the Chinese version of the questionnaire. The Chinese version of these scales has also been validated in previous studies (Shao & Parkinson, 2024; Shao, Nicholson, et al., 2020; Shao, Stockinger, et al., 2023) demonstrating good psychometric properties. Data collection instruments are accessible via the IRIS Repository at https://www.iris-database.org.

3.3.2. Interview protocol

We developed a semi-structured interview protocol based on our theoretically grounded hypotheses about the relations between perceived peer emotions and student emotions (i.e., anxiety, enjoyment and boredom). The interview questions were first piloted with four students who were excluded from the final data analysis. Following the pilot study, the interview questions were revised to refine clarity, relevance, and alignment with participant feedback and study objectives. The final version of the interview protocol consisted of six sections. The first section asked interviewees to identify and exemplify their peers' emotions in the FL classroom. The second section focused on interviewees' evaluation of peer enjoyment, anxiety, boredom and their effects on their own emotions. In the third and fourth sections, interviewees were asked to explain their perceptions of peers' assessments of control, value, and FL emotions. They were also asked to discuss how these perceptions influenced their own evaluations of control and value. The last two sections explored how interviewees linked their evaluations of control and value with their own emotions. The interviews were conducted in Chinese with each interviewee for about 25 to 40 minutes. Interview questions are available on IRIS.

3.4. Data analysis

For the quantitative data, the analysis consisted of four main steps. First, the scores obtained from all measurements were standardized in order to facilitate comparison and to reduce non-essential multicollinearity. Second, basic scale statistics (e.g., mean, standard deviation, and reliabilities) were assessed using SPSS (Version 26). Third, a series of confirmatory factor analyses (CFA) were conducted to examine the measurement properties of each construct using M*plus*

(Version 8.0). Goodness of model fit was evaluated using a number of criteria and the cut-off parameters for each fit index were determined based on Byrne (2011). These were: (1) CFI (comparative fit index) and TLI (Tucker-Lewis index) ≥ .95 and ≥ .90; (2) RMSEA (root mean square error of approximation) ≤ .06 and ≤ .08; (3) SRMR (standardized root mean square residual) ≤ .08 and ≤ .10. Table 1 shows that factor loadings on the relevant factors were above .40 for all items, except for one item of the value appraisal scale. Model fit indices demonstrated that most scales had a very good fit to the data (except that RMSEA was reasonable for peer enjoyment, value appraisal, and student enjoyment). Finally, to test the mediation assumptions, we ran three structural equation models (SEM) with perceived peer FL enjoyment, anxiety, and boredom as predictors, control and value appraisals as mediators, and students' corresponding emotions (enjoyment, anxiety, boredom) as outcomes. Fit indices were good for all three models. To address potential non-normally distributed data, all analyses in this study were performed using a robust maximum likelihood estimator (MLR). Missing data were handled by implementing full information maximum likelihood (FIML) estimation.

Table 1 Fit indices for confirmatory factor analyses and structural equation models

	Factor loadings	χ2	*df*	CFI	TLI	RMSEA	SRMR
CFA models							
Perceived peer enjoyment	.73-.81	16.11	5	.977	.955	.079	.026
Perceived peer anxiety	.68-.74	8.86	5	.990	.981	.050	.023
Perceived peer boredom	.76-.83	8.62	5	.992	.983	.049	.018
Control appraisal	.63-.79	11.96	9	.987	.978	.033	.020
Value appraisal	.38-.79	17.33	9	.979	.954	.069	.044
Student enjoyment	.59-.82	14.06	5	.983	.965	.077	.026
Student anxiety	.69-.82	8.55	5	.993	.985	.048	.018
Student boredom	.76-.83	8.62	5	.992	.983	.049	.018
SEM models							
Enjoyment transfer	-	330.52	203	.946	.937	.046	.045
Anxiety transfer	-	262.34	203	.975	.971	.032	.047
Boredom transfer	-	348.10	203	.942	.933	.049	.047

Note. All factor loadings are standardized coefficients and are significant at $p < .001$.

For the qualitative data, interviews were audio-recorded and transcribed verbatim. The data were then analyzed using NVivo (version 13). We followed Braun and Clarke's (2006) six-step process for thematic analysis, which includes familiarization, coding, generating themes, reviewing themes, defining themes, and summarizing. Throughout this process, we employed a combination of deductive and inductive approaches to analyze the data (Creswell & Clark, 2017). In the initial deductive analysis, we relied on the theories of emotion contagion, social appraisal and CVT as the analytical framework to identify themes indicative of: (1) direct emotion contagion and (2) indirect emotion transfer via control

and value appraisals between perceived peer FL emotions and students' corresponding emotions. In the inductive analysis, we closely examined the data to identify additional important patterns and themes that were not captured through deductive analysis, aiming to achieve a more complete understanding of the mechanisms underlying peer FL emotion transmission. Approximately one-third of initial coding was conducted independently by the first two authors and the inter-coder coding identification was over 90%. Next, the two coders collaboratively compared themes within and across cases and resolved disagreements through iterative re-analyses and adjustments informed by theories and literature to enhance the trustworthiness of the analyses. The second author coded the remaining data by employing both deductive and inductive approaches by iteratively moving between theories and data (Creswell & Clark, 2017). As we recognized that our understanding of student emotions might cause biases in data interpretation, we were committed to prioritizing the participants' perspectives across the coding process to ensure our interpretations reflect their voices rather than imposing our personal views or preconceived notions. The identified themes were later fed back to the participants to check for accuracy and resonance with their perspectives. To further strengthen the validity of the findings, the first two authors engaged in peer debriefing where they critically examined the theme identification before drawing the final conclusions.

4. Results

Before conducting the main analyses, descriptive statistics and reliabilities of all scales were tested (see Table 2). The mean scores show that students generally perceived their peers and themselves to experience more FL enjoyment than FL anxiety and boredom in language classrooms. Participants also rated the perceived value of English learning as high but their perceived control as low. As shown by skewness and kurtosis indices, scores were normally distributed for all variables (between -2 and +2; Hair et al., 2022). Moreover, the items had excellent part-whole corrected item-total correlations with $rit \geq .50$ for all items and scales, except for value appraisal which was satisfactory. We calculated Cronbach's alpha (α) to measure internal consistency and omega (ω) to measure composite reliability of the scales. All measures had good internal consistency and composite reliability, except for value appraisal where the values were acceptable.

Table 2 Descriptive statistics and reliability of the measures

Variable	*M*	*SD*	Skewness	Kurtosis	$M_{ri(t-i)}$	*α*	*ω*
Perceived peer enjoyment	3.61	.92	-.33	-.54	.59	.88	.88
Perceived peer anxiety	2.57	.91	.12	-.69	.50	.84	.85
Perceived peer boredom	1.92	.75	1.03	1.56	.53	.85	.85
Control appraisal	3.13	1.01	-.16	-.62	.51	.86	.87
Value appraisal	3.96	.72	-.92	1.32	.35	.76	.76
Student enjoyment	3.62	.86	-.39	-.55	.55	.86	.86
Student anxiety	2.80	1.08	.02	-.87	.57	.87	.88
Student boredom	1.85	.89	1.23	1.64	.65	.90	.90

4.1. Correlations between perceived peer emotions, appraisals, and student emotions in FL classrooms (RQ1)

Table 3 presents results of latent correlation analyses between all study variables. Students' perceptions of peer FL enjoyment, anxiety, and boredom linked positively to their own corresponding FL enjoyment, anxiety, and boredom. Students' perceptions of peer FL enjoyment correlated positively with their control and value appraisals, while students' perceptions of peer FL anxiety and boredom correlated negatively with their appraisals of control and value. Students' control and value appraisals were positively related to their own FL enjoyment but were negatively related to their own FL anxiety and boredom. Perceived peer and student FL enjoyment were negatively related to perceived peer and student FL anxiety and boredom. All the correlations were statistically significant and ranged from moderate to strong ($.31 \leq r \leq .68$; Cohen, 1992). The observed patterns of correlations provided the basis for examining our mediation hypotheses concerning relations between the target variables below.

Table 3 Latent correlations between the study variables

	1	2	3	4	5	6	7
1 Perceived peer enjoyment							
2 Perceived peer anxiety	-.33						
3 Perceived peer boredom	-.43	.55					
4 Control appraisal	.51	-.62	-.53				
5 Value appraisal	.50	-.36	-.59	.55			
6 Student enjoyment	.53	-.53	-.61	.59	.61		
7 Student anxiety	-.34	.68	.52	-.55	-.43	-.66	
8 Student boredom	-.31	.45	.66	-.37	-.51	-.65	.62

Note. All correlations were significant at $p < .001$.

4.2. Mediation of effects of perceived peer FL emotions on student corresponding emotions by control and value appraisals (RQ2)

We ran three separate latent mediation analyses for each pair of emotions to test the two hypotheses of emotion contagion and social appraisal in interpersonal affect transfer between students' perceptions of peer emotions, control and value appraisals, and their own corresponding emotions in the FL classes. We first examined the direct effects of perceived peer emotions on students' control and value appraisals in language learning. As demonstrated in Figure 1, perceived peer FL enjoyment had significant positive effects on students' control and value appraisals. By contrast, perceived peer FL anxiety and boredom had significant negative effects on their appraisals of control and value. In the second step, we examined the effects of students' appraisals on their emotions after controlling for the effects of perceived peer FL emotions. While control and value appraisals had significant positive effects on FL enjoyment, control appraisal had significant negative effects on FL anxiety and value appraisal had significant negative effects on FL anxiety and boredom. Control appraisal did not have a significant effect on FL boredom. Next, we examined the direct effects, total indirect effects, and specific indirect effects of perceived peer FL emotions on students' corresponding emotions through appraisals by testing the full mediation models.

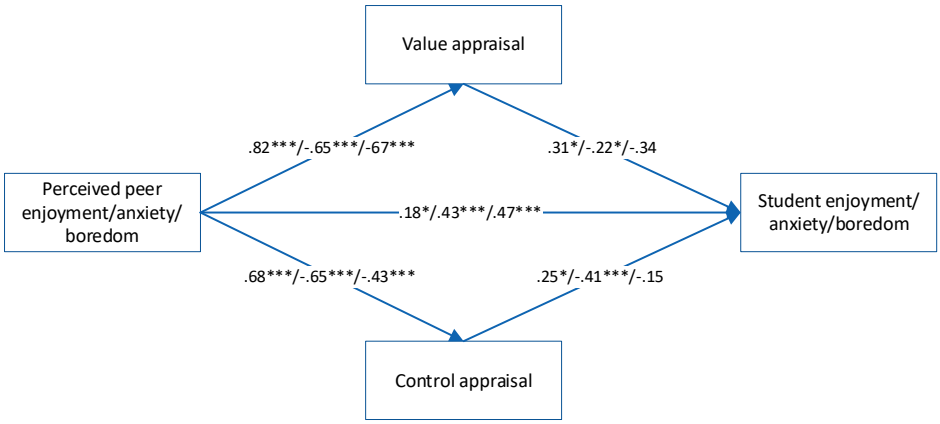

Figure 1 SEM model for relationships among perceived peer emotions, control-value appraisals, and student emotions with standardized parameter estimates (*p < .05; **p < .01; ***p < .001)

As reported in Table 4, perceived peer FL enjoyment yielded a significant positive total indirect effect on student FL enjoyment. Breaking down the total indirect effects into specific indirect effects revealed that both control and value

appraisals mediated the relationship between perceived peer FL enjoyment and student FL enjoyment. The direct effects of perceived peer FL enjoyment on student FL enjoyment remained significant even after accounting for the effects of the two appraisals. Similarly, perceived peer FL anxiety showed a significant positive total indirect effect on student FL anxiety. The specific indirect effects demonstrated that the relationship between perceived peer FL anxiety and student FL anxiety was jointly mediated through control and value appraisals. The direct effects of perceived peer FL anxiety on student FL anxiety were still significant after controlling for the effects of the two appraisals. Regarding boredom, perceived peer FL boredom had a significant positive total indirect effect on student FL boredom. The specific indirect effects showed that the relationship between perceived peer FL boredom and student FL boredom was only mediated by value appraisal. The direct effects of perceived peer FL boredom on student FL boredom remained significant after controlling for the effects of value appraisal.

Table 4 Direct, total indirect, and specific indirect effects of perceived FL peer emotions

	Direct effects	Total indirect effects	Specific indirect effects	
	P → S	P → A → S	P → C → S	P → V → S
Enjoyment transfer	.18 (.07)*	.42 (.10)***	.17 (.07)*	.25 (.11)*
Anxiety transfer	.43 (.05)***	.42 (.12)***	.27 (.05)***	.15 (.07)*
Boredom transfer	.47 (.11)***	.29 (.06)***	.06 (.05)	.22 (.10)*

Note. Values are standardized coefficients from structural equation models. Standard errors (SE) are in parentheses. P = peer; S = student; A = appraisal; C = control; V = value; *p < .05; **p < .01; ***p < .001.

4.3. Students' descriptions of the process of peer emotion contagion in FL classrooms (RQ3)

Students' (S) responses to the questions exploring peer FL emotions in the language classrooms revealed that enjoyment, anxiety and boredom were the most frequently registered perceived peer emotions. Supporting the quantitative data, the qualitative results suggested that these explicitly experienced emotions were sometimes contagious and might be transferred to students without them knowing why. As indicated in the following excerpts, students' positive (i.e., enjoyment) and negative (i.e., anxiety and boredom) emotions tended to be directly associated with their peers' corresponding emotions:

> *S7: When my teammates enjoyed doing the charade in the English class, they appeared excited, attentive to teachers' instruction, and active in guessing the words. At those moments, I simply feel excited and happy too.*

S18: What I feel most often is the anxiety of my peers who sit around me. They scratched heads or turned around the pen restlessly. Once they behave like this, I will be influenced without apparent reasons. I cannot help but feel anxious too.

S1: Recently, in the class A Brief Introduction to English-speaking Countries, seeing my neighboring fellows who got bored, played with their cell phones or dozed off, I felt bored too, though being unaware of the reasons.

Extending the quantitative findings, the interview data also indicated that in-group membership plays a considerable role in emotion contagion. For instance, S12 described how her emotional state was often influenced by the immediate emotional responses of her group members:

S12: I often find myself mirroring the enthusiasm of my group members who sit around me during language learning. When they are passionate or absent-minded about a language task, I tend to feel the same way. Other peers' emotions can directly influence my emotions only to a lesser extent.

This finding suggests that the closeness of relationship between peers in the classroom could be an important factor to consider when interpreting the phenomenon of emotion contagion during foreign language learning.

4.4. Students' account of the process of social appraisal during peer emotion transmission in FL classrooms (RQ4)

4.4.1. Social appraisal between perceived peer FL emotions and students' corresponding emotions

Apart from direct emotion contagion, the interview data also revealed that students' perceptions of their peers' underlying control-value appraisals may have influenced their own emotional responses. Specifically, students perceived their peers' FL enjoyment as a reflection of high control over the learning activity, and interest in the course or recognition of the positive value in the learning content. They believed that such perceptions may in turn enhance their own appraisals of control and value toward FL learning resulting in corresponding feelings of enjoyment. As can be seen in the excerpt below, S5 felt excited and cheerful after observing teammates' enthusiasm during English debate preparation:

S5: When we prepared for the English debate, my teammates were excited and joyful, because they were good at it and thought the topics of debate interesting. Noticing this, I started to get into the debate and think I may also do well in this task. As a result, I felt excited and cheerful too.

Conversely, in situations where a high subjective value was placed on language activities, perceived peer FL anxiety was often attributed to a lack of confidence or low control over these tasks. Such perceptions tended to influence students' own confidence and increase their fear of making mistakes. This would then trigger their own FL anxiety. S17's narrative of classmates avoiding eye contact during an impromptu speech invitation exemplifies these relationships:

> *S17: When the teacher was inviting us to give an impromptu speech, most of my classmates would lower or turn their heads to avoid eye-contact with the teacher. They were a bit anxious because they were not sure whether they could perform the task well and did not want to demonstrate their incompetence in front of the teacher or classmates. Seeing their reactions, I began to doubt myself, unsure whether I could do it. I was afraid of failure or making mistakes because the task was challenging and could reflect my competence. So, I felt anxious too.*

Furthermore, consistent with CVT (Pekrun, 2006), participants believed that peer FL boredom was mostly due to their peers' exposure to unchallenging activities (i.e., high control) or difficult content (i.e., low control), and subjectively uninteresting or unimportant materials (low value). For instance, S13 explained that "some of my classmates look bored or disengaged probably because they either feel the content or task is too difficult to handle, or too easy for them." S5 expressed "they feel bored simply because they are not interested." Interestingly, in line with the quantitative findings, such perceptions of peer FL boredom seemed to be related to students' value appraisal more than their control appraisal. As demonstrated in the following excerpt, they also contributed to participants' own boredom:

> *S8: In an English class, the teacher was reading the monotonous slides all the time and speaking fast and blurry. I noticed my classmates appeared bored and turned to other things that they might think more valuable. I became bored too, thinking I should also do something else to make better use of the time.*

These findings resonate with the quantitative results, suggesting that students' perceptions of their peers' emotional expressions can elicit congruent emotions via control-value appraisals. On the other hand, the interview data further support the quantitative data by evidencing how students' own appraisals were associated with their evaluation of each of the three peer emotions.

4.4.2. Social appraisal between perceived peer FL emotions and students' incongruent emotions

Moving beyond the emphasis on the transmission of similar FL emotions among peers in the quantitative phase, the qualitative data also revealed a surprising finding: Peer emotions can occasionally trigger incongruent emotional responses in students. This challenges the simple idea of emotion transmission where social partners only experience matching emotions. For instance, S3's response below exemplifies how observing a peer's joy paradoxically made her feel anxious:

> *S3: In an English class, my competitor did very well in the quiz, and was very active in answering questions. It's not hard to tell his delight and satisfaction. At that moment, I couldn't help reflecting on my own English ability, questioning my capacity, and as a result, I got anxious.*

In S3's case, the joy displayed by a peer did not evoke her expected joy or motivation. Instead, it triggered feelings of low control and self-doubt during the learning activity. This suggests that the competitive nature of interpersonal relationship could affect how FL emotions are transmitted from peers to individual students.

Similarly, as illustrated in the excerpt below, S5 described feeling anxious because she perceived that her ability to succeed in learning was undermined by her peer's confidence, which she inferred from their enjoyment:

> *S5: I saw my classmate, who usually ranks at the top of our class, light up with cheerfulness as he swiftly solved a very challenging question on the board. Seeing his contentment and ease after tackling the problem, I felt uneasy. I started to doubt my own ability. I wondered if I would be able to perform as well as he did.*

Moreover, some students mentioned that perceived peer FL anxiety unexpectedly stimulated their own enjoyment. They evaluated their peers' anxiety as a sign of struggling with language tasks (low control) and this boosted their own confidence. As demonstrated below, S9 and S10 supported this point:

> *S9: My enjoyment can also result from my classmates' anxiety. For example, when facing a difficult question, my classmates are anxious because they don't know the answer. Knowing that put me at ease, I am a bit happy because I can do it.*
>
> *S10: In the public speaking and debating class, my classmates were anxious because they worried about their performance. I felt relaxed and even delighted because it seemed I won't be the worst.*

These narratives demonstrate the complex relations between how students perceive their peers' emotions and how these perceptions influence their own emotional reactions during language learning activities.

5. Discussion

The present research employed a mixed-methods approach to explore the emotion transmission of FL enjoyment, anxiety, and boredom from peers to students in language classrooms. RQ1 addressed the relations between perceived peer emotions, student appraisals, and student emotions in FL learning. The positive associations of perceived peer FL enjoyment, anxiety, and boredom with students' corresponding emotions are congruent with social cognitive theory's (Bandura, 1977) claim that ongoing social interactions between teachers, peers, and students in the classroom are likely to influence students' cognition, emotions and behaviors. The positive correlations of control and value appraisals with perceived peer and student FL enjoyment as well as the negative correlations of the two appraisals with perceived peer and student FL anxiety and boredom are in line with CVT's (Pekrun, 2006) assumption that affective features of the classroom environment, such as teachers' or peers' emotions, may influence students' appraisals and emotions. These correlations support an overall FL emotion transmission among peers (Derakhshan, 2022; Khajavy et al., 2018) and highlight the strong relations between perceived peer emotions, student appraisals, and student emotions in FL learning.

RQ2 focused on mediation of the effects of perceived peer FL enjoyment, anxiety, and boredom on students' corresponding emotions by control and value appraisals. As hypothesized, control and value appraisals partially mediated the relationships between perceived peer FL enjoyment, anxiety, and boredom and students' corresponding emotions. This lends support to the operation of both emotion contagion (Hatfield et al., 1994) and social appraisal (Parkinson & Simons, 2009) in emotion transmission in FL classrooms. It is also in accordance with CVT's (Pekrun, 2006) proposition that the affective impact of social environments on students' achievement emotions is mediated by control and value appraisals. Importantly, the present findings extend previous research on peer FL emotion transfer (Shao & Parkinson, 2024) by demonstrating that the transmission of FL enjoyment and anxiety from peer to student was jointly mediated by appraisals of control and value rather than by either appraisal operating separately. This result corroborates appraisal theory's (Lazarus, 1991; Scherer, 2009) assertion that an individual's specific emotional experiences are co-determined by a combination of discrete appraisals of an event as well as CVT's key assumption that both control and value are essential for an achievement emotion to be activated (Pekrun, 2006).

As for FL boredom, value appraisal was found to be the sole mediator in the relationship between perceived peer and student FL boredom. In accordance with CVT (Pekrun, 2018), feelings of boredom arose when students assigned a low value to learning and achievement, along with either very high or very low perceptions of

control (Pekrun et al., 2010). The absence of a significant mediating effect of control may be attributed to the potential curvilinear relationship between control and boredom, which counterbalances the linear effects of control on boredom (see Pekrun et al., 2010). Indeed, a post hoc analysis showed that control had a significant quadratic effect on FL boredom ($R^2 = .29$, $p < .001$) in the present study.

RQ3 explored the process of peer FL emotion contagion by considering individual students' narrative accounts. In line with previous studies (e.g., Moskowitz & Dewaele, 2021; Talebzadeh et al., 2020) and the quantitative results of the present study, the interview reports showed that perceptions of peer FL enjoyment, anxiety, and boredom could be directly linked to students' corresponding enjoyment, anxiety, and boredom. Such results provide evidence for the theoretical assumption of emotion contagion which postulates that an individual's emotional reactions are often assimilated to their social partners' emotional expressions without them being aware of any reasons (Hatfield et al., 1994). Interestingly, the qualitative data further revealed that students' emotional reactions seemed to be more susceptible to the emotions of those who belonged to the same activity group, sat nearby, or had a closer personal relationship (i.e. in-group membership). This complements the quantitative findings and provides empirical support for the assumption that emotion transmission is more likely to operate among intimates and in-group members (e.g., Delvaux et al., 2015). This could be due to their affiliative motives or shared social identity. Physical as well as emotional proximity may also be factors that contribute to these effects (Parkinson, 2020).

RQ4 sought to examine the operation of social appraisal in peer FL emotion transmission through student interviews. In line with our quantitative findings, students' narratives suggest that both control and value appraisals may be potential mediators of the transmission of FL enjoyment and anxiety from peers to students. On the other hand, value appraisal is likely to be a more relevant mediator in peer FL boredom transmission. Overall, the findings align with the theoretical assumptions of social appraisal (e.g., Manstead & Fischer, 2001; Parkinson, 2020), which suggest that individuals' evaluations of the meaning conveyed by others' emotions are important in triggering their own emotional responses. Moreover, these results provide further support for CVT's assumptions regarding the combined effects of control and value appraisals in mediating the impact of classroom features on students' achievement emotions (Pekrun et al., 2006). They also offer preliminary qualitative evidence supporting CVT's assumption concerning the distinct role of value appraisal in eliciting boredom, as well as suggesting a potential U-shaped relationship between control appraisal and boredom (Pekrun et al., 2010).

Importantly, the qualitative data revealed that perceptions of peer FL enjoyment and anxiety can also activate students' incongruent FL emotions, suggesting diverse interpersonal emotion dynamics within the EFL learning environment. This

finding complements previous research (Shao & Parkinson, 2024) and our quantitative results on social appraisal. It demonstrates that perceptions of the same peer FL emotions can stimulate individual students' different patterns of appraisals, which in turn produce differential emotional experiences. One possible explanation for this phenomenon is that students who have a strong social comparison tendency (Parkinson, 2019) may interpret perceived peer FL enjoyment as a sign of high peer competence which threatens their own self-esteem or relative self-competence. Thus, the upward comparison with their peers might evoke negative emotions, such as anxiety or shame (Diel et al., 2021). By contrast, students may interpret perceived peer FL anxiety as an indicator of their peers' low competence which can boost their self-esteem or relative self-competence. Thus, the downward comparison with their peers might arouse positive emotions such as enjoyment or pride (Diel et al., 2021).

6. Limitations and future directions

There are some limitations in the present study that need to be acknowledged when considering directions for future research. First, the data structure of both our quantitative and qualitative studies was cross-sectional in nature and thus can only provide a snapshot of the highly dynamic process of peer FL emotion transmission in the classroom. The predictive design that examined the influence of perceived peer emotions on students' appraisals and emotions in the quantitative study is also limited because all the study variables were assessed simultaneously at a single time point. Unlike cross-sectional designs, a longitudinal design can help establish the temporal order of study variables and have greater potential to determine causal relationships between perceived peer emotions, students' control-value appraisals, and their own corresponding emotions. Therefore, future quantitative studies may employ a longitudinal approach such as the cross-lagged panel model which could compare the results and examine the relationships between key variables from multiple time points of assessment (Forsblom et al., 2022). Similarly, future studies may adopt a longitudinal qualitative method such as follow-up interviews that could examine any changes in students' emotional experiences and in the causes and consequences of these experiences over an extended period of time.

Second, participants in the quantitative and the qualitative phases were recruited from two different regions of China. While approximately 60% of the quantitative sample consisted of students from ethnic minority groups, the majority of students interviewed belonged to the dominant ethnic group. As students' appraisals and emotions are socio-culturally shaped (Shao, Kutuk, et al.,

2023), different ethnic groups may have different social and cultural norms influencing their interpretations and emotional responses to observed peer emotions (Parkinson, 2020). This may have affected how they responded to the questionnaires and interview questions. Future research may consider collecting quantitative and qualitative data from the same sample or ethnic group in order to enhance the cross-validation of peer emotion contagion and social appraisals in FL classrooms. It may also be interesting to see whether results gained from the present study can be replicated in other national, cultural, ethnic, and situational contexts.

Third, since we used students' self-reports in both the quantitative and qualitative phases to examine the processes of emotion contagion and social appraisal in peer FL emotion transmission, the predictive effects observed in the present study may be susceptible to response bias. While self-ratings may be advantageous for exploring internal feelings and thoughts, their subjective nature can be difficult to control. Future studies should consider using objective measures, such as implicit emotion assessments, EEG, or fMRI, to evaluate students' appraisals and emotions. For instance, employing video observation to capture students' emotions in FL classes and aligning the transcribed data with other measurements can be an effective method for testing the proposed hypotheses (Reyes et al., 2012). Furthermore, researchers might seek input from teachers or parents to report on students' language appraisals and emotions as an alternative means of measurement.

Fourth, although the present research found that the phenomena of emotion contagion and social appraisal among peers were pervasive in FL classrooms, it should be noted that both the quantitative and qualitative data revealed that there were some students whose language emotions were not influenced so much by perceived peer FL emotions as others. These students seemed to have formed their own appraisals and emotions toward language learning, relatively independent of their peers' appraisals and emotions. As such, it might be important for future research to further investigate what personal (e.g., emotional intelligence) or environmental (e.g., teacher-student relationship) factors led to this immunity from social influence. For example, researchers could examine whether the associations among perceived peer emotions, students' appraisals, and students' emotions may differ between field-dependent and field-independent language learners (Chapelle & Green, 1992).

7. Pedagogical implications

The present study shows that perceived peer FL emotions can have a significant impact on students' appraisals and emotions toward classroom language learning.

Therefore, it is recommended that teachers consider designing interventions to promote positive peer FL emotions. This may include actively encouraging positive peer relationships. For instance, teachers can create opportunities for cooperative learning in the classroom by implementing cognitive scaffolding strategies, such as seeking assistance, engaging in other-correction, and negotiating meaning (Gagné & Parks, 2013). Such collaborative efforts toward common learning objectives could enable mutual support and collective responsibility among peers. This would consequently establish a positive interdependence where the language proficiency of one student relies on the success of all others (Reyes et al., 2012). That is, students might experience increased competence and positive emotions in FL learning, which would in turn contribute to their overall success as language learners.

Another approach to encouraging positive peer emotions toward FL learning is for teachers to take into account how students' social interactions and cognitive processes influence each other's learning experiences, as suggested by social cognitive theory (Bandura, 1977). Teachers can utilize the influence of peer FL emotion contagion by engaging more with students who show positivity and enthusiasm about language learning. They can also highlight examples of successful FL learners in class, emphasizing the attitudes, strategies, and behaviors that contribute to their success. Successful L2 learners can be encouraged to share their personal language learning experiences and tips with peers (Shao et al., 2019), which may positively impact their peers' emotions, such as enjoyment and pride, while reducing negative emotions like anxiety or boredom (Shao & Parkinson, 2024).

Furthermore, the present findings reveal that the process of peer FL emotion transmission is partially mediated by students' social appraisals of control and value. Accordingly, teachers are advised to encourage students to internalize positive emotional cues. Intervention specialists may also consider implementing teaching programs that enhance students' sense of control and value in language activities. This would indirectly promote positive FL emotions and alleviate negative ones. Specifically, teachers may improve students' perceived control over FL learning by integrating attribution retraining treatment into language curricula (Parker et al., 2018). Regarding perceived value, teachers may try to incorporate language materials and topics that are relevant for students, which would help increase positive values in FL learning (Shao, Pekrun, et al., 2020).

Finally, considering the potential negative impact of social comparison in the process of peer FL emotion transmission, teachers should provide guidance for students to regulate their emotional reactions and adopt more adaptive social appraisals in response to perceived peer emotions. One potentially effective approach would be to establish clear language learning goals. To be specific, language teachers should create a mastery-goal classroom climate focusing on

the improvement of knowledge and self-based competence and deemphasizing the value of peer competition based on exam performance. For instance, this could involve promoting autonomy and collaboration, implementing cognitive and emotional scaffolding, establishing clear goal structures, and encouraging self-regulation (Patall et al., 2018).

8. Conclusion

Adopting a mixed-methods research design in the present study, we demonstrated that perceived peer FL emotions are closely associated with individual students' language emotions through mechanisms of emotion contagion and social appraisal. The quantitative phase found both joint and partial mediating effects of control and value appraisals between perceptions of peer FL enjoyment, anxiety, and boredom, and students' corresponding emotions. The qualitative phase supported and extended these results by showing that peer FL emotion transmission can also trigger interpersonally incongruent emotions. It is important to understand the processes underlying affective interactions between peers and individual students as student-student interactions can significantly impact learning and achievement. Our study suggests that promoting positive emotions and addressing negative ones at the classroom level can increase students' sense of control and the value they ascribe to the subject, which is likely to contribute to their success and achievement. We propose that by applying these language theories to their instructional practices, FL teachers can create a cognitively stimulating and emotionally supportive environment that benefits FL learners' psychological well-being and language development.

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