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## Studies in Second Language Learning and Teaching

Department of English Studies, Faculty of Pedagogy and Fine Arts, Adam Mickiewicz University, Kalisz

SSLLT 16 (1). 2026. 105-131. Published online: 19.08.2025

<https://doi.org/10.14746/sslt.31610>

<http://pressto.amu.edu.pl/index.php/sslt>

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### *Chinese EFL learners' enjoyment and anxiety in an online class: An idiodynamic approach*

**Linlin Liu**

Yibin Vocational and Technical College, Yibin, China

The Education University of Hong Kong, Hong Kong SAR, China

<https://orcid.org/0000-0002-4682-4000>

[s1138612@s.eduhk.hk](mailto:s1138612@s.eduhk.hk)

**Ju Seong Lee** ✉

The Education University of Hong Kong, Hong Kong SAR, China

<https://orcid.org/0000-0002-8756-0910>

[jslee@eduhk.hk](mailto:jslee@eduhk.hk)

#### **Abstract**

While students often experience fluctuations in their positive and negative L2 emotions during online classes, there is a dearth of research on these emotional changes. This study fills this gap by exploring the dynamic nature of enjoyment and anxiety in an online English as a foreign language (EFL) classroom using an idiodynamic method. Seven Chinese EFL university students participated in a series of four online class sessions, each lasting 20 minutes. Following each session, they reviewed video recordings of their performance and rated their enjoyment and anxiety on a minute-by-minute basis. Stimulated recalls, interviews, and field notes identified factors influencing these emotional fluctuations. Results show that, in some cases, both emotions operated in a seesaw relationship, with one rising and the other falling, while in others they operated independently. A closer look reveals that the relationship between these emotions was complex and dynamic, shaped by both internal (e.g., personality) and external (e.g., task difficulty) factors. The findings also show that while EFL students initially experienced emotional turbulence at the beginning of online

classes, effective emotional, pedagogical, and technological support from teachers helped learners maintain optimal emotional states over time.

*Keywords:* L2 anxiety; L2 enjoyment; online class; idiodynamic method; positive psychology

## 1. Introduction

Acquiring a second language (L2) is a psychologically complex journey, involving both positive (e.g., enjoyment) and negative (e.g., anxiety) emotions (Dewaele & Li, 2020; Li & Wei, 2023). Since Dewaele and MacIntyre (2014) established that L2 enjoyment and anxiety are distinct constructs, numerous studies have examined these emotions (e.g., Chen, 2023; Dewaele & Dewaele, 2020; Dewaele & Saito, 2024; Yang et al., 2023). Research has shown that L2 enjoyment and anxiety are influenced not just by stable trait-like factors, such as gender, but also by dynamic, moment-to-moment interactions with teachers, peers, and the classroom environment (Boudreau et al., 2018; Kruk, 2022).

As digitally mediated L2 learning grows, research has begun exploring these emotions in online settings, including virtual reality environments (Kruk, 2022), automatic speech recognition websites (Bashori et al., 2021), and online classes (Derakhshan et al., 2021). Recent studies have used an idiodynamic approach to capture the nuanced, dynamic nature of L2 enjoyment and anxiety, which is defined as a method to study emotional or cognitive states during communication (Boudreau et al., 2018). It documents and examines the dynamic, moment-to-moment fluctuations in a learner's emotional and cognitive states while they engage in language use or learning activities (Hiver & Al-Hoorie, 2020). This involves detailed, real-time recording, followed by analysis of an individual's responses. Typically, this is done using video or audio playback, combined with the participant's self-reported accounts and reflections.

Despite the growing research, four significant gaps remain. First, most studies focus on face-to-face settings, neglecting the emotional dynamics in the increasingly prevalent online classroom environments (Derakhshan et al., 2021). Although Zhang et al. (2021) used the idiodynamic method to examine Chinese English as a foreign language (EFL) learners' emotions in online collaborative learning, they focused solely on enjoyment and used social media applications for writing tasks rather than online classroom platforms. This gap is particularly urgent given the rapid rise of online learning (Derakhshan et al., 2021). Second, although a dynamic approach to L2 emotions has been applied in traditional classrooms (Boudreau et al., 2018; Dewaele & Dewaele, 2020), its use in online settings is still emerging, despite the highly dynamic nature of digital environments (Kruk, 2022). Third, there are methodological issues in capturing the dynamic

nature of L2 emotions. Some studies (e.g., Dewaele & MacIntyre, 2016) have used inconsistent time scales, with some respondents reporting L2 enjoyment and anxiety episodes over short timescales (e.g., a minute) and others over long periods (e.g., an academic year). Additionally, studies like Boudreau et al. (2018), are limited by lab settings and involve advanced learners without interlocutors. Although Kruk (2022) addressed some of these issues, the study had a small sample size and responses were given on self-reported questionnaires. Finally, although Chinese EFL students are required to learn English and have been found to experience high L2 anxiety and low L2 enjoyment (Dewaele & MacIntyre, 2014), their emotional experiences have been underexplored from a positive psychological perspective (Li et al., 2024). Additionally, there is little research on how their emotions vary over time in online classes (Pan & Zhang, 2021).

This study aims to address these gaps by exploring L2 enjoyment and L2 anxiety in online contexts using a dynamic perspective and refined methodologies. It has the potential to provide valuable insights into L2 learners' emotional experiences and to inform effective online language teaching practices. Two research questions were formulated:

RQ1: Is there variability in the correlation between EFL learners' L2 enjoyment and L2 anxiety within a single online class session and between sessions?

RQ2: What factors influence the fluctuations in EFL learners' L2 enjoyment and L2 anxiety?

## **2. Literature review**

### **2.1. L2 enjoyment**

Inspired by the influence of positive psychology in mainstream education (MacIntyre et al., 2019), enjoyment has become a key focus in second language acquisition (SLA) research (Botes et al., 2021; Lee, 2022; Yang et al., 2023). L2 enjoyment is a complex and multifaceted emotion that includes a positive reaction to learning a second language, characterized by personal, social, and instructional satisfaction (Dewaele & MacIntyre, 2014; Li et al., 2018). In other words, L2 enjoyment involves a sense of pleasure and challenge derived from learning an L2 as a result of personal and contextual factors, such as interactions with teachers and peers (Botes et al., 2021). Following Fredrickson's (2001) broaden-and-build theory, L2 researchers contend that a positive attitude towards learning L2 can enhance attention and a wider range of learning behaviors, leading to greater openness to new ideas and experiences, and ultimately improving L2 skills (MacIntyre & Gregersen, 2012).

L2 enjoyment has frequently been investigated in Asian EFL contexts (Botes et al., 2022; Dewaele & Li, 2020; Jiang & Dewaele, 2019; Lee, 2022). Notably,

Asian L2 learners, more than 75% of whom are Chinese, report the lowest levels of L2 enjoyment globally (Dewaele & MacIntyre, 2014). Several factors affect L2 enjoyment: internal factors include speaking time, attitude towards L2 (Dewaele et al., 2018), informal digital learning of English (Lee & Chiu, 2023; Liu & Lee, 2023), and English proficiency (Jiang & Dewaele, 2019); external factors encompass classroom L2 use (Dewaele et al., 2018), tasks, peer and teacher support, and the overall learning atmosphere (Jiang & Dewaele, 2019).

## **2.2. L2 anxiety**

L2 anxiety, which has been extensively researched, is characterized by Horwitz et al. (1986) as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process” (p. 128). It is categorized into speech anxiety (social anxiety about communicating), test anxiety (fear of failing L2 tests), and dread of receiving negative evaluation (concern about receiving negative feedback on language use). According to existing meta-analyses (e.g., Teimouri et al., 2019; Zhang, 2019), L2 anxiety has a negative impact on L2 achievement, as determined by both subjective (e.g., self-assessed competence) and objective (e.g., course grades, language tests, and GPAs) means. This negative relationship holds across all proficiency and education levels.

Factors influencing L2 anxiety include internal ones, such as personality (Dewaele, 2017), positive orientation (Jiang & Dewaele, 2019), willingness to communicate (Liu, 2018), attitude towards the teacher (Jiang & Dewaele, 2019), preparation level (Resnik et al., 2023), and frequency of L2 use (Jiang & Dewaele, 2020). External factors include task difficulty (Dewaele et al., 2018), peer pressure (Jiang & Dewaele, 2019), strict teachers (Dewaele et al., 2019), teacher compliments (Zarrinabadi et al., 2021), and lack of clear feedback in online classes (Resnik et al., 2023).

## **2.3. Dynamic nature of L2 enjoyment and L2 anxiety**

SLA researchers often take a holistic approach, examining both positive (e.g., L2 enjoyment) and negative (e.g., L2 anxiety) emotions together (Dewaele & Li, 2018; Lee & Chiu, 2024). Dewaele and MacIntyre (2016) found that these emotions can operate independently rather than in a seesaw relationship. Following the complex dynamic systems theory (CDST; Larsen-Freeman, 1997), the idiodynamic method is used to examine transient emotional fluctuations (Hiver & Al-Hoorie, 2020). For instance, in Boudreau et al.'s (2018) study (2018), ten French learners were asked to self-rate their per-second L2 enjoyment and L2 anxiety while watching a video of their tasks, revealing

complex interaction patterns. Therefore, the current study employs this method to capture the fluctuating and unpredictable nature of L2 emotions (Hiver & Al-Hoorie, 2020; Zhang et al., 2021).

## **2.4. Dynamic nature of L2 enjoyment and L2 anxiety in digital settings**

Emotions have been shown to significantly influence learner engagement, motivation, and overall academic performance in digital environments (Zhang et al., 2021). Thus, recent research has explored L2 emotions in online contexts, such as virtual learning environments (Kruk, 2022), automatic speech recognition websites (Bashori et al., 2020, 2021), online chat (Yoshida, 2020), and game-based learning platforms (Almusharraf, 2021; Li et al., 2019). Digital settings offer psychological and pedagogical benefits compared to traditional EFL classrooms. For example, Kahoot!, a game-based platform, has been shown to increase student enthusiasm and curiosity, deepening their understanding of the content (Almusharraf, 2021). Kruk (2022) examined variability in emotions, willingness to communicate, motivation, boredom, and anxiety in Second Life, where two Polish advanced English majors participated in eight sessions. They self-rated their emotions after each session, showing changes influenced by internal factors (e.g., interesting topics, avatars, and pseudonyms) and external factors (e.g., interlocutors and monotony). These factors affected the two participants' emotions both independently and jointly.

Despite the growing body of research on L2 enjoyment and L2 anxiety, there are still four crucial gaps: (a) few studies focus on L2 learners' emotions in online classes; (b) little research has examined these emotions in online settings from a dynamic perspective; (c) methodological challenges persist in studying L2 emotions; and (d) there is a lack of research on the emotions of Asian EFL learners in online classes. This study aims to fill these gaps by using the idiodynamic method to explore how L2 enjoyment and L2 anxiety interact among Chinese EFL learners in online classes, considering both individual differences and external factors.

## **3. Method**

### **3.1. Participants and context**

In the first semester of the 2020-2021 academic year, data was collected for a larger research project (Lee & Liu, 2022). Seven first-year English language students from a public vocational college in China agreed to participate (see Table 1). All were Chinese nationals who spoke Chinese as their first language and had been learning English for 10 to 13 years, with no international experience. According to *the Common*

*European Framework of Reference*, their English proficiency ranged from intermediate to advanced, based on their instructor's judgment and their own self-assessment. They were recruited for a pseudo-online English class on Tencent Classroom (Teng Xun Ke Tang in Chinese), a leading digital educational platform in Mainland China (UNESCO, n.d.). Tencent Classroom offers a variety of courses and interactive educational tools, including live streaming, recorded lectures, and virtual classrooms. Over 70% of the students (five out of seven) rated themselves as having below-average familiarity with online classes, while only two reported above-average familiarity. To protect their privacy, pseudonyms were used.

**Table 1** Participants' demographic data (Lee & Liu, 2022)

Name (Pseudonyms)	Gender	Age	First language	English proficiency	Familiarity with an online class (1 = lowest to 5 = highest)
Emma	Female	19	Chinese	C1	1
Sophia	Female	20	Chinese	B2	2
Roy	Male	20	Chinese	B2	3
Anne	Female	20	Chinese	B1	2
Lucy	Female	19	Chinese	C1	3
Jacky	Male	19	Chinese	B1	2
Linda	Female	20	Chinese	B2	1

### 3.2. Online class procedures

Four 20-minute fully synchronous online class sessions were conducted (see Table 2). In the pre-task stage, students reviewed key English expressions from the previous lesson for two minutes. During the 15-minute task stage, three or four activities were conducted based on the session topic. Activities began with simple tasks (e.g., describing pictures) and progressed to more difficult tasks (e.g., expressing personal opinions) and engaging in various conversation scenarios (e.g., pair and group activities) to elicit fluctuations in L2 emotions (MacIntyre & Legatto, 2011). In the three-minute post-task stage, students completed a self-evaluation sheet and a reflection log.

### 3.3. Research procedure and data collection

A research announcement was posted on the university website, inviting participants to sign up for the study. After being informed about the objectives of the study, procedures, and potential benefits and risks, participants provided their consent. They were assured that they could withdraw from the study at any time without any consequences. Upon completing the study, participants would receive a reward equivalent

to 10% of their attendance scores for their English classes. The study used the idiodynamic method, which included video recordings and self-reported ratings. Stimulated recall, interviews, and field notes were also used to confirm and expand on the findings (see Figure 1). Participants were asked to rate their levels of enjoyment and anxiety on a scale from -5 to 5 in an online editable Excel spreadsheet while watching a playback video of their performance in the online class. During the interviews, participants were instructed to pause the video whenever specific factors influenced their L2 emotions and to respond to follow-up questions from the researcher (e.g., "Can you tell me more in detail?" or "Is that what you meant?"). Meanwhile, the researcher used field notes to check if the participants' pauses matched significant moments identified during the preliminary examination of the video recordings.

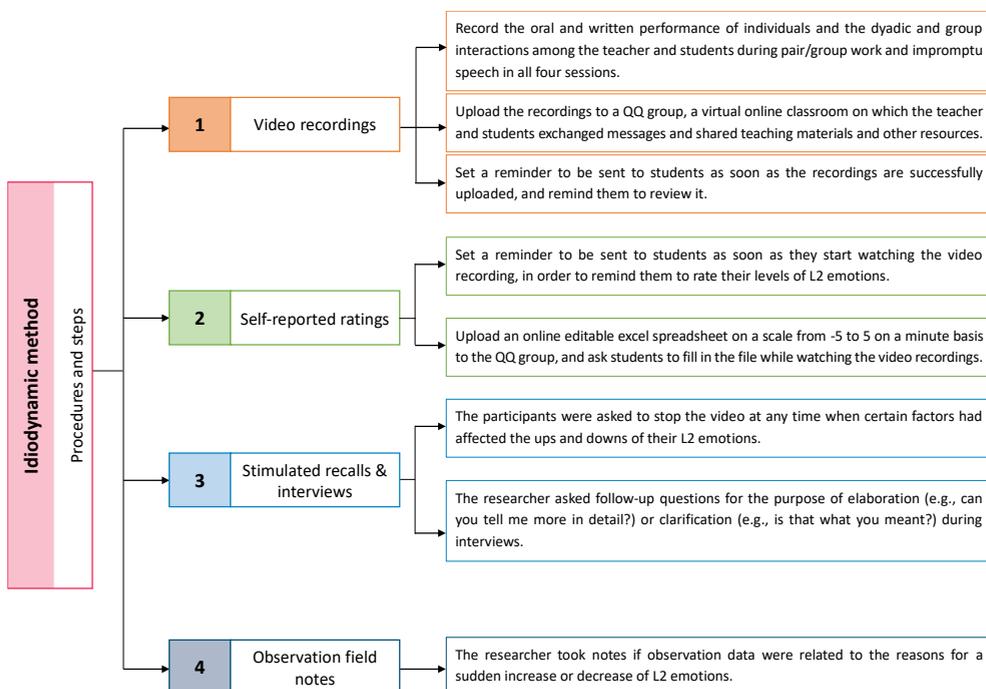
**Table 2** Topics and main activities (Lee & Liu, 2022)

Session	Topic	Main activities
1	Hometown	<ol style="list-style-type: none"><li>1. Talk about expressions that ask a question, such as "Where are you from?"</li><li>2. Discuss topics related to their hometown.</li><li>3. Listen to a narration about their hometown and retell what they hear.</li><li>4. Introduce famous food from their hometown to others.</li></ol>
2	Campus life	<ol style="list-style-type: none"><li>1. Describe images depicting campus life.</li><li>2. Listen to a short passage and retell it to their classmates.</li><li>3. Compare and contrast campus life in Mainland China and the United States.</li></ol>
3	Movies	<ol style="list-style-type: none"><li>1. Watch a conversation in front of a movie theater.</li><li>2. Retell the conversation to their peers.</li><li>3. Discuss their favorite movie(s) and why they like them.</li><li>4. Introduce their favorite film to the entire class.</li></ol>
4	Shopping	<ol style="list-style-type: none"><li>1. Analyze and explain conversation patterns about buying things.</li><li>2. Practice asking for information in order to buy things.</li><li>3. Explain conversation patterns about saving and investing money.</li><li>4. Practice talking about money savings and investments.</li></ol>

### 3.4. Data analysis

To answer RQ1, we calculated the means and standard deviations of participants' self-reported ratings for each session, which demonstrated the fluctuating patterns in their L2 enjoyment and L2 anxiety. We then performed a session-by-session analysis using bivariate Pearson correlation to examine the relationship between L2 enjoyment and L2 anxiety. For RQ2, the first author transcribed the stimulated recall and interview data from Chinese to English. Participants reviewed and approved these translations. The transcriptions were then independently analyzed by the first author and an external TESOL researcher using open coding to identify factors influencing L2 enjoyment and anxiety. They chose recurring themes for axial and selective coding, achieving over 90% inter-coder reliability (Cohen's  $\kappa = .90$ ). The final coded themes,

which identify both internal learner factors and external influences affecting fluctuations in L2 enjoyment (e.g., confidence in using English expressions) and L2 anxiety (e.g., being called to provide an answer in the chatroom), are presented in the results section.



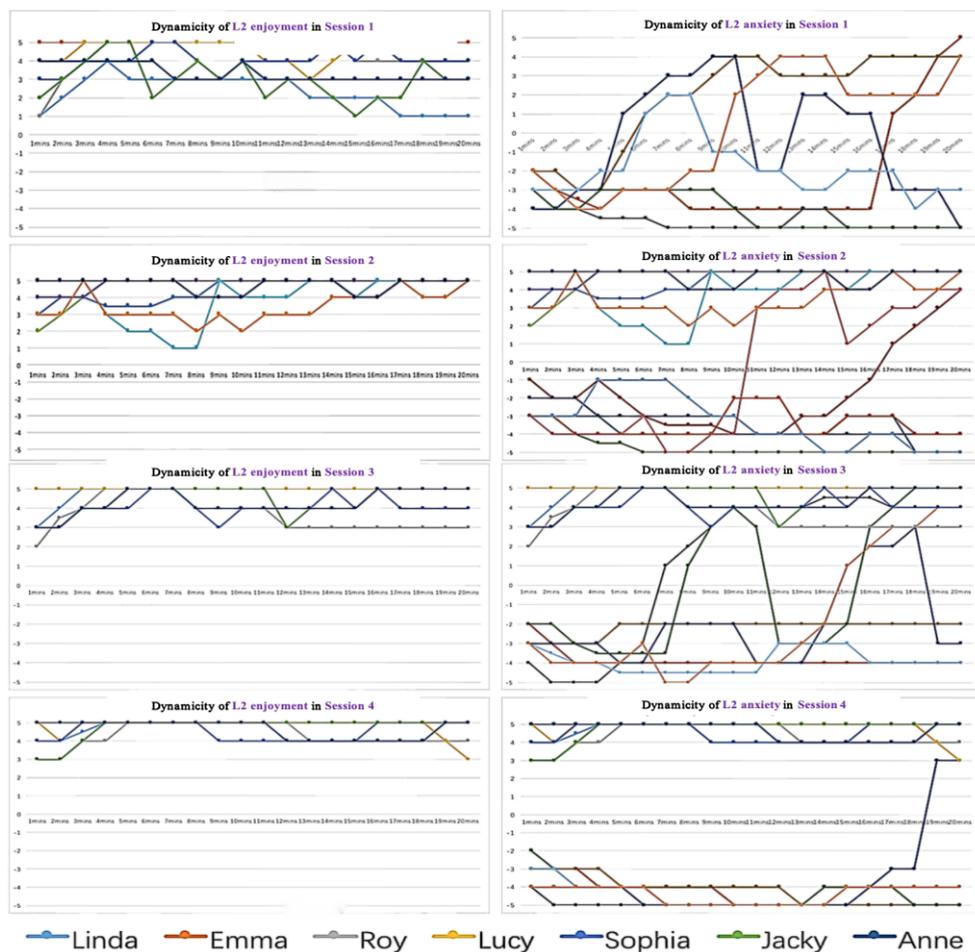
**Figure 1** Procedures and steps of the idiodynamic method

## 4. Results

This section first provides a statistical analysis of the participants' fluctuating levels of L2 enjoyment and L2 anxiety across the four online class sessions. It then explores the factors influencing these fluctuations based on qualitative analysis of interview data.

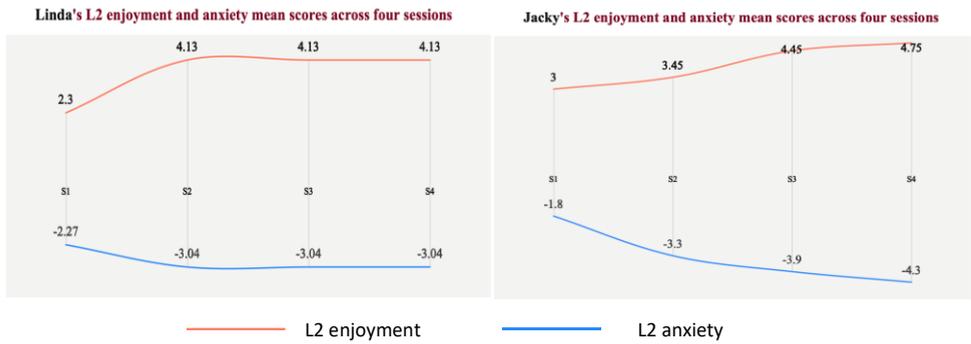
### 4.1. Dynamic relationship between L2 enjoyment and L2 anxiety

Figure 2 presents quantitative data from participants' self-ratings of L2 enjoyment and L2 anxiety, recorded on a minute-by-minute basis for each session. Noticeable fluctuations were observed both within and between sessions. Over time, both L2 enjoyment and L2 anxiety showed increased stability. However, L2 anxiety exhibited more pronounced fluctuations compared to L2 enjoyment, indicating a higher degree of variability in L2 anxiety during online classes.

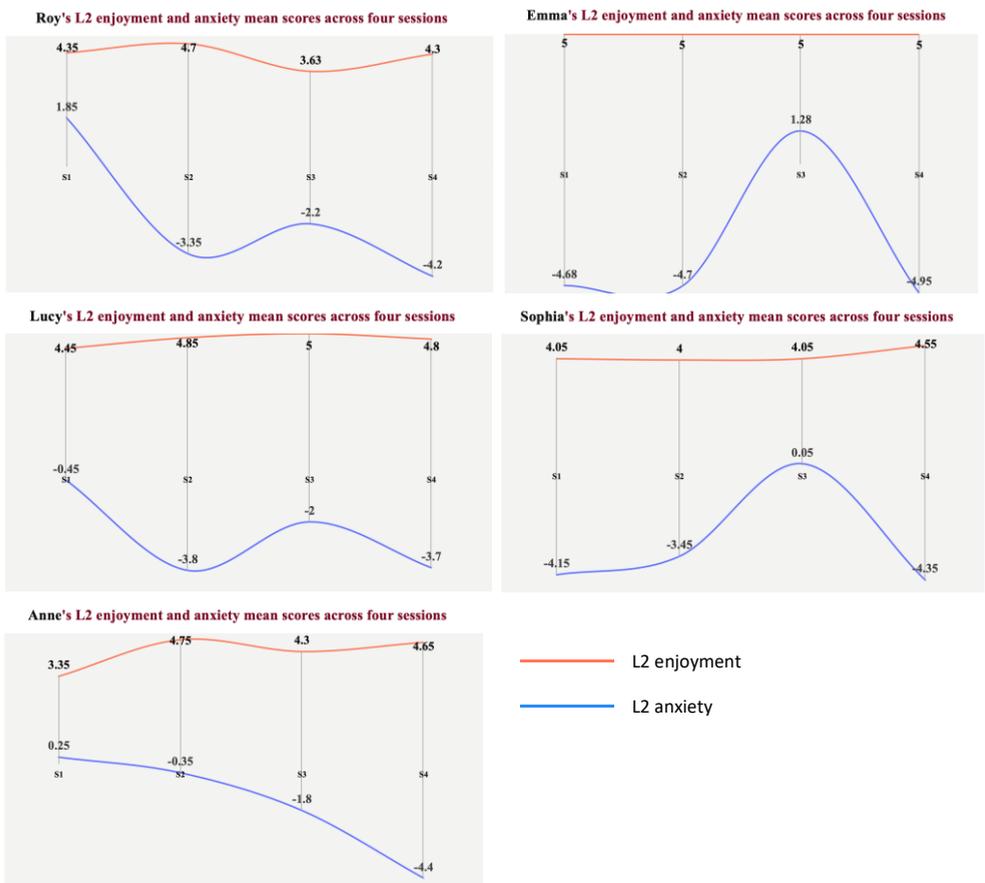


**Figure 2** Dynamicity of L2 enjoyment and L2 anxiety for four sessions across an online class

Descriptive data revealed differences in L2 enjoyment and L2 anxiety within and between sessions, as well as among individuals. As sessions progressed, L2 anxiety gradually decreased, while L2 enjoyment increased. A closer examination of the results shows that the relationship between L2 enjoyment and L2 anxiety varied significantly among individuals. For instance, in the case of Linda and Jacky, L2 enjoyment and L2 anxiety were inversely related, meaning that as one emotion increased, the other decreased (see Figure 3). By contrast, for the other five participants, L2 enjoyment and L2 anxiety appeared unrelated, as their levels of enjoyment fluctuated independently of their anxiety levels (see Figure 4).



**Figure 3** Linda and Jacky's L2 emotions mean scores during an online class (S = Session)



**Figure 4** Roy, Emma, Lucy, Sophia and Anne's L2 emotions mean scores during an online class

We calculated bivariate Pearson correlations between L2 enjoyment and L2 anxiety for each participant per session using IBM SPSS Statistics version 26 (see Table 3). Despite having only seven participants, their minute-by-minute ratings generated a dataset of 560 entries. Each participant demonstrated a notable link between L2 enjoyment and L2 anxiety levels in at least one session. A closer examination revealed statistically significant correlations in 12 of the 28 sessions (43%): 11 were negative and one was positive. This indicates a general seesaw relationship where one emotion rises as the other falls, except for one case where both emotions increased together.

Notably, there were two correlational cases in Session 1, three in Session 2, three in Session 3, and four in Session 4. More correlations (92%) were negative, suggesting that the relationship between the two emotions becomes more predictable. Interview data showed that initially, individual and contextual factors strongly influenced participants' L2 enjoyment and L2 anxiety but had less impact as sessions progressed. For example, Linda, an outgoing and confident individual, was silent during Session 1. Her self-ratings and follow-up interviews explained this: she became frustrated and anxious because she could not find the button to raise her hand in the online class. Additionally, her dormitory mates were sleeping at 9 am, making it difficult for her to communicate by speaking or typing. According to the interview data, except for Emma, all participants disliked the fill-in-the-blank listening tests, which displayed scores immediately, triggering L2 anxiety.

During a ten-minute break in Session 1, the instructor learned about these issues while chatting with students. The class was rescheduled to 11 am and 3 pm, allowing Linda to participate freely without disturbing her dormitory mates. The listening tasks were also modified to include open-ended questions and multiple-choice with short answers, lowering L2 anxiety by removing the right or wrong answers. By Session 4, participants appeared more relaxed, confident, and active in the chatroom. No technical issues were observed in Session 4, and interviews frequently described it as "comfortable."

**Table 3** Session-by-session L2 enjoyment and L2 anxiety correlations for each participant

Session	Correlations between L2 enjoyment and L2 anxiety						
	Linda	Roy	Jacky	Emma	Sophia	Anne	Lucy
1	-.736**	.334	.029	-.363	-.172	-.663**	.437
2	.156	-.714**	-.543	-.629**	.196	.253	-.496*
3	-1.00**	.000	-.800**	.320	-.151	.539*	.107
4	-.765**	-.082	-.083	-1.00**	-.690**	.043	-.835**

Note. \*\* =  $p < .01$ ; \* =  $p < .05$

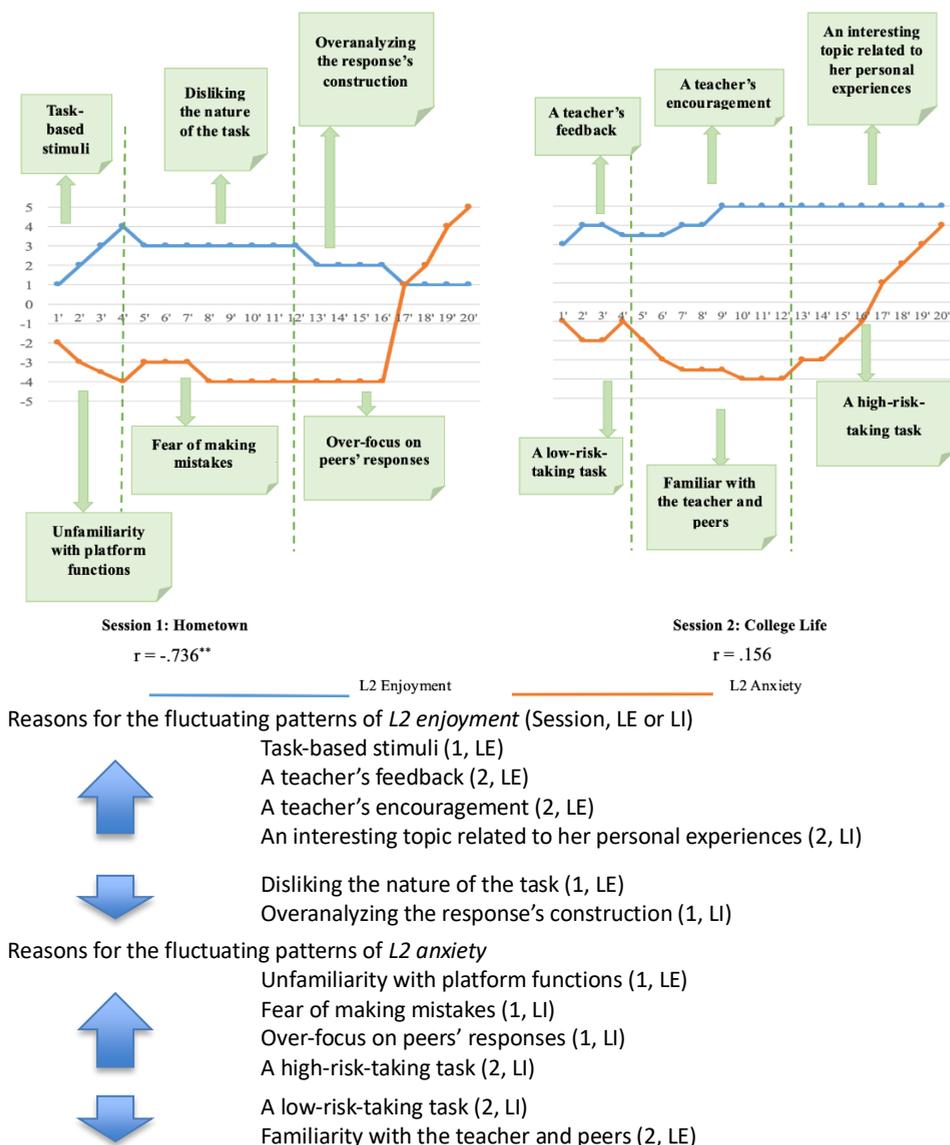
## 4.2. Factors influencing L2 enjoyment and L2 anxiety fluctuations

Using Linda and Anne's cases, we explored the factors affecting fluctuations in L2 enjoyment and L2 anxiety. Linda and Anne were selected for two reasons. First, the factors influencing their emotional fluctuations were similar to those affecting other participants. For example, both experienced dynamic changes due to learner-internal ( $N = 17$ ) and learner-external ( $N = 20$ ) factors, which were common among all participants (see Table 4). Second, Linda and Anne demonstrated distinct emotional patterns. Linda had the most correlations, showing a significant negative relationship between L2 enjoyment and L2 anxiety in three sessions. Conversely, Anne had one positive correlation, differing from the other participants. Both experienced emotional ups and downs at the start of the online class. Initially, Linda's L2 enjoyment fluctuated between 1 and 5, and her anxiety between -4 and -5 in Sessions 1 and 2. By Sessions 3 and 4, her enjoyment stabilized between 3 and 5, and her anxiety between -2 and -5. Anne's fluctuations remained dynamic and unstable across all sessions.

**Table 4** Factors influencing Linda and Anne's fluctuations in L2 enjoyment and L2 anxiety

Variable	Learner-internal factors ( $N = 17$ )	Learner-external factors ( $N = 20$ )
<i>Linda</i>	An interesting topic related to her personal experiences	Task-based stimuli
L2 enjoyment	Overanalyzing the response's construction Looking for a new experience Increased participation	A teacher's feedback A teacher's encouragement Disliking the nature of the task A safer classroom environment Unpredictability of game elements
L2 anxiety	Fear of making mistakes Over-focus on peers' responses A high-risk-taking task A low-risk-taking task Increased participation	Unfamiliarity with platform functions Familiarity with the teacher and peers Unfamiliarity with the topic Uncertainty-inducing game elements A safer classroom environment A teacher's use of wait-time
<i>Anne</i>	A low-risk-taking task Confidence in using English expressions	Disliking the nature of the task An interesting topic
L2 enjoyment	Gaining confidence in speaking English after participation A high-risk-taking task	Familiarity with the topic Encouragement from peers Encouragement from a teacher
L2 anxiety	Concerned about providing incorrect answers Being called to provide an answer in the chatroom Being called to speak on the topic An interesting topic	Typing answers in the chatroom A safer classroom environment A lack of state-like confidence in speaking English

*Note.* Codes that overlapped were combined.



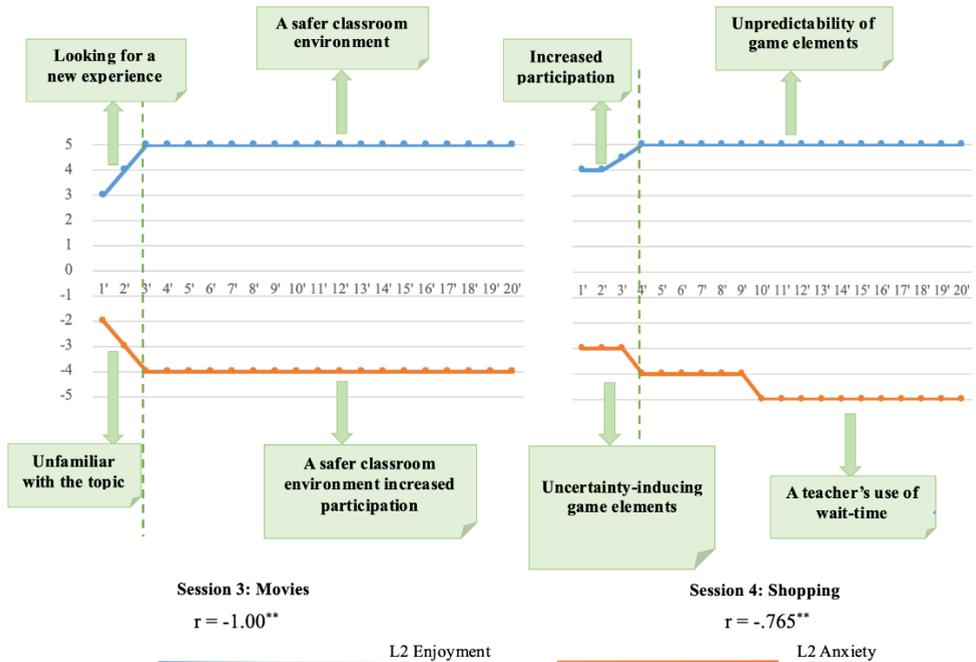
**Figure 5** Linda's reasons for L2 enjoyment and L2 anxiety fluctuations in sessions 1 and 2 (LI = Learner-Internal factor; LE = Learner-External factor)

#### 4.2.1. The case of Linda

Linda's ratings in Sessions 1 and 2 (see Figure 5) reveal that her L2 enjoyment and L2 anxiety were influenced by both internal and external factors. Her enjoyment increased with interesting topics and positive teacher feedback, while it decreased

with challenging tasks and overthinking her responses. Her anxiety was fueled by fear of making mistakes, focusing on peers' responses, high-risk-taking tasks, unfamiliarity with platform functions, and familiarity with the teacher and peers. Notably, focusing on peers' responses (oscillating between -4 and 5) and engaging in high-risk tasks (oscillating between -3 and 4) significantly heightened her anxiety. It is instructive here to take a look at Linda's account:

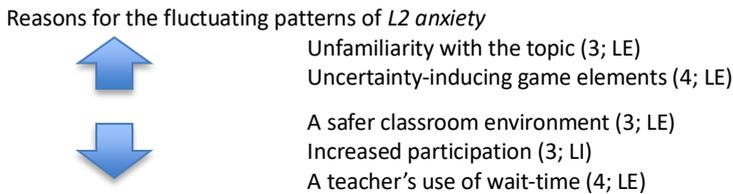
*I think because I hadn't taken online English-speaking classes before, I was worried that people I didn't know might laugh at me if I made mistakes. I spent a lot of time thinking about how I hesitated to give my answers. I also felt anxious because I wasn't interested in the topic, which made it hard for me to talk about it. But I remember that after the first class, the teacher told me to believe in myself and try my best, no matter what mistakes I made. I tried really hard to talk about the topic using my own life experiences. I felt really happy when I saw 'thumbs up' from my teacher and classmates in the chat box. This made me feel much more confident and eager to speak English. It made me believe that I can do even better in the future.*



Reasons for the fluctuating patterns of L2 enjoyment (Session, LE or LI)



- Looking for a new experience (3; LI)
- A safer classroom environment (3; LE)
- Increased participation (3; LI)
- Unpredictability of game elements (4; LE)
- Not reported



**Figure 6** Linda's reasons for L2 enjoyment and L2 anxiety fluctuations in sessions 3 and 4

In Sessions 3 and 4 (see Figure 6), Linda's emotional trends became more stable. Her enjoyment ranged between 3 and 5, and her anxiety between -2 and -5. Linda attributed her increased enjoyment to seeking new experiences and a safer classroom environment with game elements. Initially, her openness to new experiences enhanced her enjoyment, while a safer environment maintained it. Her anxiety was influenced by increased participation and factors like unfamiliar topics, uncertainty-inducing game elements, and the teacher's wait time. In Session 3, unfamiliarity with the topic initially raised her anxiety, but a safer classroom environment and increased participation helped her maintain low anxiety for the rest of the session.

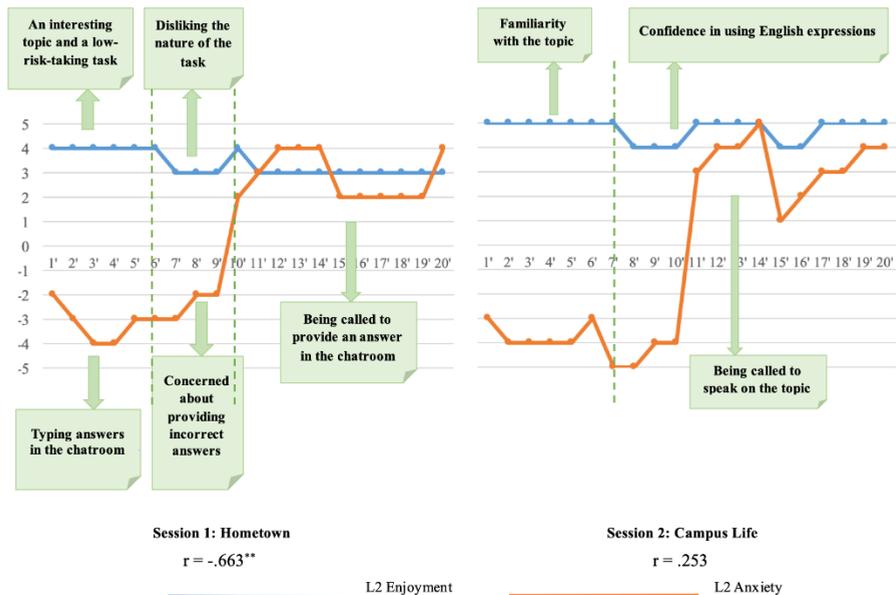
#### 4.2.2. The case of Anne

Figure 7 highlights Anne's ratings in Sessions 1 and 2, along with reasons for her emotional fluctuations. Anne attributed her L2 enjoyment to learner-internal (low-risk-taking tasks and confidence in using English) and learner-external (interesting and familiar topics and disliking the task nature) factors. Her L2 anxiety was influenced by learner-internal (fear of incorrect answers, being asked to provide answers in the chatroom, and speaking on the topic) and learner-external (typing answers in the chatroom) factors.

Specifically, Anne's L2 anxiety fluctuated more dynamically (between -4 and 5) than her L2 enjoyment (between 3 and -5). Typing answers in the chatroom reduced her anxiety from -2 to -4 in the first three minutes. However, her anxiety spiked due to concerns about incorrect answers (oscillating between -3 and 2), being called to answer in the chatroom (oscillating between 2 and 4), and being called to speak (oscillating between -4 and 5). Typing answers resulted in a two-point drop in anxiety, while speaking caused a nine-point spike, indicating that speaking in English online is more anxiety-inducing than typing. Anna commented on these trends in the following way:

*From the start of the first class, I found the topic very interesting and related to my life, so I enjoyed the activities a lot. However, during the listening exercises, I got bored because my classmates had already given the answers in the chatroom, the same ones I had. So, I was reluctant to give my answers for the remaining questions where I wasn't*

confident. I worried about giving wrong answers. Also, I felt anxious when the teacher asked me to type my answers in the chatroom. My anxiety got worse when the teacher asked me to speak using a microphone in the next session. But unlike in the first session, I felt more comfortable and confident in the second session because I got to know the teacher and my classmates better. Thanks to the teacher's timing adjustments, I didn't have to worry about disturbing my roommates during class, which was a problem in the first session. This allowed me to enjoy the class as I wanted to, since I felt confident using the phrases related to the topic, and I felt like I could talk a lot about it.



Reasons for the fluctuating patterns of L2 enjoyment (Session, LE or LI)



- An interesting topic (1; LE)
- A low-risk-taking task (1; LI)
- Familiarity with the topic (2; LE)
- Confidence in using English expressions (2; LI)



- Disliking the nature of the task (1; LE)

Reasons for the fluctuating patterns of L2 anxiety



- Concerned about providing incorrect answers (1; LI)
- Being called to provide an answer in the chatroom (1; LI)
- Being called to speak on the topic (2; LI)

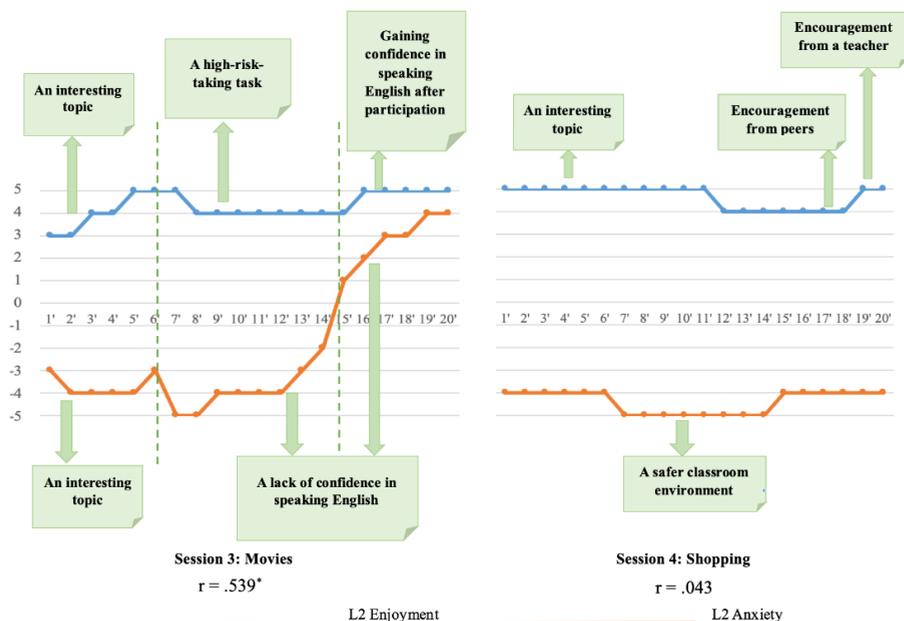


- Typing answers in the chatroom (1; LE)

**Figure 7** Anne's reasons for L2 enjoyment and L2 anxiety fluctuations in sessions 1 and 2

In Sessions 3 and 4 (see Figure 8), Anne's enjoyment of learning English was more stable, staying between 3 and 5 points. Her increased enjoyment came from

internal factors (taking on high-risk tasks and gaining confidence) and external factors (interesting topics and encouragement from peers and teachers). Her anxiety levels were influenced by internal factors (interesting topics and lack of confidence) and external factors (a safer classroom environment).



Reasons for the fluctuating patterns of L2 enjoyment (Session, LE or LI)



- An interesting topic (3; LE)
- Gaining confidence in speaking English after participation (3; LI)
- An interesting topic (4; LE)
- Encouragement from peers (4; LE)
- Encouragement from a teacher (4; LE)

A high-risk-taking task (3; LI)

Reasons for the fluctuating patterns of L2 anxiety



- An interesting topic (3; LI)
- A lack of state-like confidence in speaking English (3; LE)

A safer classroom environment (4; LE)

**Figure 8** Anne's reasons for L2 enjoyment and L2 anxiety fluctuations in sessions 3 and 4

In Session 3, Anne's anxiety fluctuated between -4 and 5, similar to Sessions 1 and 2. A positive correlation was identified between her level of enjoyment and anxiety ( $r = .539, p < .05$ ). An interesting topic increased her enjoyment and reduced her anxiety in the first five minutes. Field notes showed that Anne actively participated in a small group discussion about movies, her favorite topic, keeping her enjoyment high (between 4 and 5) and her anxiety low (between -3 and -5) until 12

minutes into the session. However, when she was asked to present her favorite movie to the whole class, her confidence dropped, and her anxiety spiked from -4 to 4 because of her more fluent classmates. Despite this, she managed to keep her anxiety low and stable in Session 4, thanks to a safer learning environment.

## 5. Discussion

This study aimed to explore the dynamics of L2 enjoyment and L2 anxiety in online classes. It also sought to provide insights into the emotional experiences of L2 learners and suggest effective strategies for online L2 teaching. Addressing the first research question, we found a significant correlation between L2 enjoyment and L2 anxiety in 12 out of 28 online class sessions (43%). In 11 of these sessions, the correlation was negative, suggesting a seesaw relationship where an increase in one leads to a decrease in the other. This aligns with previous research that treats L2 enjoyment and L2 anxiety as distinct constructs (Boudreau et al., 2018; Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2016). Kruk (2022) explored L2 emotions in CALL but did not investigate enjoyment and anxiety together. This study is among the first to show their complex interaction in an online class.

From a methodological standpoint, past studies often used retrospective self-reported questionnaires, leading to inconsistent results (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2016). Boudreau et al. (2018) used an idiosyncratic method in artificial lab settings without interlocutors, while Kruk (2022) studied L2 emotions in Second Life with only two advanced learners, relying on potentially biased self-reports. By contrast, our study collected minute-by-minute emotional data from seven EFL participants of varying proficiency levels in an online class, enhancing methodological rigor.

Regarding the second research question, we identified 37 factors influencing L2 enjoyment and L2 anxiety, categorized into learner-internal ( $N = 17$ ) and learner-external ( $N = 20$ ). Internal factors for enjoyment included personality traits (seeking new experiences, overanalyzing responses), self-confidence (increased participation, confidence in English), and perceived task difficulty (low- and high-risk tasks). These findings support previous research (Dewaele et al., 2018; Jiang & Dewaele, 2019), which has shown that L2 learners who have a positive attitude toward L2 learning, notice their progress, and engage in more practice are more likely to enjoy the experience. External factors included the teacher (feedback and encouragement), peers (peer encouragement), classroom atmosphere (a safer classroom environment), tasks (unpredictability of game elements, disliking the nature of the task, and task-based stimuli), and topics (an interesting topic and familiarity with it). These findings support previous research indicating that enjoyment varies

with positive peer and teacher support, a pleasant learning environment, and engaging tasks and topics (Dewaele et al., 2018; Jiang & Dewaele, 2019).

Internal factors influencing L2 anxiety included fear of failure and negative evaluation (fear of making mistakes), relative standing in the L2 proficiency (over-focus on peers' responses), perfectionism-oriented personality (concerned about providing incorrect answers), speaking without preparation (being called to provide an answer in the chatroom or speak on the topic), and self-perceived competence (an interesting topic, increased participation, and high- or low-risk-taking task). These findings align with prior studies on learner-internal factors influencing L2 anxiety in face-to-face settings (e.g., Dewaele, 2017; Dewaele & MacIntyre, 2014; Dewaele et al., 2018; Jiang & Dewaele, 2019; Jin & Dewaele, 2018). External factors included the teacher (familiarity with the teacher and the teacher's use of wait-time), peers (familiarity with the peers and a lack of state-like confidence in speaking English), classroom atmosphere (a safer classroom environment), tasks (uncertainty-inducing game elements and typing answers in the chatroom), topics (unfamiliarity with the topic), and unfamiliarity with platform functions. These findings are consistent with prior studies on anxiety in face-to-face and online settings (Dewaele et al., 2018, 2019; Jiang & Dewaele, 2019; Lee & Liu, 2022; Zarrinabadi et al., 2021).

Interview data revealed a complex and dynamic relationship between L2 enjoyment and L2 anxiety, due to the interplay of internal and external factors. For example, Linda's anxiety spiked during the first four minutes of Session 4 due to an unfamiliar game introduced by the teacher. However, she familiarized herself with the unpredictable elements of the game, which included a random mix of her favorite or challenging open-ended questions (Dewaele et al., 2018). As a result, her enjoyment increased, maintaining high levels throughout the session. This suggests that, no matter how thoroughly teachers prepare tasks and topics, students' perceptions of task relevance, difficulty, and familiarity significantly impact L2 emotions, supporting Boudreau et al.'s (2018) work on the dynamic interaction between L2 enjoyment and L2 anxiety in face-to-face contexts. This suggests that, just as in a face-to-face situation, L2 enjoyment and L2 anxiety are distinct constructs, and their relationship in an online class is not a simple seesaw pattern.

However, our study diverges from Boudreau et al. (2018) by highlighting a positive correlation between L2 enjoyment and L2 anxiety in Anne's case. During the first six minutes, discussing her favorite movie boosted Anne's enjoyment from 4 to 5, while her anxiety slightly increased from -4 to -3. Between minutes 7 and 20, when Anne had to present in front of more fluent English speakers, her confidence dipped, causing her anxiety to spike from -5 to 4. Despite this, she maintained high enjoyment levels (4 to 5), due to the initial confidence boost from talking about a topic she liked.

In addition, the triggers for L2 emotions in our online class mirrored those found in other digital settings. For example, in virtual environments (Kruk, 2022), interesting topics and friendly interlocutors fostered positive attitudes toward learning English. EFL learners were able to practice English more frequently and type and post English comments (if needed), and they became more confident and less anxious in using English expressions on automatic speech recognition-based websites (Bashori, 2018; Bashori et al., 2020, 2021). The process of chatting and conversational partners significantly impacted learners' emotions in online chats (Yoshida, 2020). Game-based learning environments with high- or low-risk tasks, unpredictable elements, healthy competition, and immediate feedback helped EFL learners become more positive or less anxious about learning English (Almusharraf, 2021; Li et al., 2019; Yang et al., 2021). However, in our study, teachers played a critical role in managing students' L2 enjoyment and L2 anxiety through emotional, technical, and pedagogical support. This makes sense because, just like in traditional classrooms, online L2 teachers must set learning objectives, choose materials, and design and implement activities that shape students' emotional experiences (Derakhshan et al., 2021; Lee & Liu, 2022).

## **6. Pedagogical implications**

Our findings suggest that teachers' ongoing attention to students' needs and concerns, combined with emotional, pedagogical, and technological support, can help students maintain optimal emotional levels in online L2 classes. Six pedagogical suggestions could be made based on our findings. First, EFL students may experience an emotional roller coaster at the start of an online class. Thus, before the first day of class, a teacher can provide a basic overview of an online platform, such as its features and functions. As a result, students are likely to be better prepared for the new online platform, and teachers have more time to address individual technical issues. Second, teachers are encouraged to conduct pre-class surveys to learn about students' favorite topics and incorporate them into activities. Students are more likely to enjoy learning and feel less anxious when the topics relate to their personal interests (Dewaele et al., 2018). This could be done more easily on the online platform by sending them a questionnaire or a quick multiple-choice question to answer, with the results automatically and timely presented to both teachers and students. Third, when it comes to task implementation, teachers must be adaptable and flexible. The participants in the current study experienced increased anxiety when they learned their relative ranking in the group based on the results of a fill-in-the-blank listening test. However, when the teacher became aware of the students' concerns, she

immediately changed the listening task to open-ended questions, reducing the students' L2 anxiety. Fourth, depending on the level of familiarity of the students with the online class and their language levels, the teacher may consider implementing unpredictable, surprising, and challenging tasks to create positive vibes in an online class (Dewaele et al., 2018). Fifth, the teacher can foster a positive online learning environment by praising students and making good use of chatroom functions, such as emoji and written comments. However, as Zarrinabadi et al. (2021) demonstrated, not all praise is equal. Praise for "effort" may reduce students' L2 anxiety because linguistic failure or setbacks in the online class are interpreted as a need for hard work or an opportunity for growth. Praise for "intelligence," on the other hand, may increase students' L2 anxiety because they may perceive linguistic mistakes as a threat or something to avoid. Lastly, the teacher should keep in mind that the fear of losing face in the virtual presence of peers and teachers can still be intimidating. Thus, reflective L2 students should be given enough time to think and type their responses in a chatroom before making oral statements in front of other interlocutors (Zarrinabadi, 2014).

## **7. Limitations and future directions**

We recognize four limitations and make suggestions for future research. First, seven EFL students participated in this study. Although smaller class sizes tend to foster a better learning environment because they allow students to form closer social bonds with their classmates (Dewaele et al., 2018), future research could look into the dynamic pattern of L2 enjoyment and L2 anxiety in a larger online class to improve the robustness of their findings. Second, all participants were in their early twenties. In an online class, different age groups may exhibit different patterns of L2 enjoyment and L2 anxiety. Hence, we strongly encourage future researchers to expand the scope of the study by recruiting participants from diverse age demographics. Third, the instructor was a seasoned bilingual educator who believed in a student-centered approach to education. Different types of teachers, such as novice teachers, native English speakers, and teachers with teacher-centered beliefs, may cause students to experience different dynamics of L2 enjoyment and L2 anxiety. Lastly, we only examined the dynamic nature of L2 enjoyment and L2 anxiety. Because other positive (e.g., grit) and negative (e.g., boredom) non-cognitive factors may exist in an online class, future research could naturally include them (Kruk et al., 2021; Li, 2021; Li et al., 2021; Pawlak et al., 2021; Zawodniak et al., 2021).

## **8. Conclusions**

The idiodynamic method was used in this study to examine the complex interactions between L2 enjoyment and L2 anxiety among Chinese EFL learners in an online class while accounting for individual differences related to learner-internal and learner-external factors. Our findings demonstrated that, in some cases, both emotions could work in tandem, whereas in others, they could work independently. A closer examination revealed that the relationship between the two emotions is highly complex and dynamic, owing to independent or combined influences from learner-internal and learner-external factors.

From a pedagogical standpoint, while EFL students may experience an emotional roller coaster at the start of the online class, teachers' affective, technical, and pedagogical support can help students maintain optimal L2 emotional levels over time. Methodologically, this study showcased the effectiveness of using an idiodynamic method to analyze the fluid and dynamic nature of L2 emotions experienced by EFL learners in an online class. This methodology allows for the generation of more accurate and reliable data in a consistent manner. Given the growing popularity of online L2 education in recent years, more research on L2 emotions is required to maximize L2 learning and teaching in an online class.

## **Acknowledgement**

This work was supported by the Sichuan Cognitive Linguistics Association and is part of a project titled "Research on the Path of Cultivating the Communication Skills of Foreign Language Talents through New Quality Productivity" (#SCRY2024GJ07). It was also supported by Funding Support to GRF Proposal Rated 3.5 by the RGC (#R4233).

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