Language learners’ enjoyment and emotion regulation in online collaborative learning

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A B S T R A C T

This study explores how language learners’ enjoyment and emotion regulation manifest themselves in online collaborative learning. In the study, we collected multiple data during online collaboration tasks carried out by six Chinese undergraduate EFL learners in two 3-member groups, facilitated by a social media app. We used an idiodynamic approach to examine the moment-to-moment evolution of enjoyment at both the individual and group levels, and carried out semi-structured interviews and video recordings of the online group conversation to study the mechanisms of emotion regulation underlying the group-level enjoyment in both groups. The findings documented the dynamic evolution of enjoyment within and across individuals during the collaboration tasks. Participants used different but mutually supported types of regulation such as self-, co-, and socially shared regulation to achieve group-level enjoyment. Within the interplay of these regulation types, participants mostly engaged in shared regulation processes including joint planning, monitoring, and evaluating. The study also revealed that participants adopted emojis, together with words, to realize emotion regulation in online collaborative settings. The findings will be helpful to teachers and learners in optimizing their collaborative language activities, especially those that are online.

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1. Introduction

Enabled by the development of technology, online collaborative language learning is increasingly promoted as a valid alternative to traditional classroom learning (Zou, Li, & Li, 2018). During online language learning, collaboration facilitates knowledge construction and the development of critical thinking among language learners through social interaction (Kukulska-Hulme & Viberg, 2018; Zou et al., 2018). However, successful collaboration is not simple or easy to achieve; learners in collaborative settings face significant emotional challenges triggered by variables ranging from individual differences to dysfunctional interaction processes (Näykki, Järvelä, Kirschner, & Järvenoja, 2014). These emotional challenges can act as obstacles to a learner’s engagement in collaboration (Järvenoja, Volet, & Järvelä, 2013).

To overcome these challenges, language learners need to manage their negative emotions during interaction, and sustain positive emotions such as enjoyment to ensure successful group interaction and knowledge construction (Bakhtiar, Webster,

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E-mail address: ting.liu1@student.unsw.edu.au (T. Liu).
Emotions are not merely passive individual responses to environmental stimuli; rather, they are social and interpersonal events that are shaped or regulated by social goals and norms (Imai, 2010; Swain, 2013). For enjoyable and effective collaboration to take place, emotion regulation is an indispensable mechanism through which group members can, individually and together, achieve and maintain a positive atmosphere in the group (Järvenoja, Näykki, & Törönen, 2019). Both positive emotions and emotion regulation play a crucial part in online collaborative language learning, but previous studies have only regarded emotions as by-products of collaboration and ignored their important role in the process (Järvenoja et al., 2020; Kukulska-Hulme & Viberg, 2018). In addition, studies focusing on the manifestation of emotion regulation in collaborative learning are rare (Järvenoja et al., 2019).

To address these gaps, the present study intends to explore how Chinese EFL learners’ enjoyment, a typical positive emotion, evolves and is realized via emotion regulation in an online collaborative language learning activity. In this particular study, participants in a Chinese university employed a popular social media app, WeChat, to finish an EFL writing task in an online collaborative manner.

2. Literature review

2.1. Foreign language enjoyment

Enjoyment is one of the most typical and widespread positive emotions experienced by foreign language (FL) learners during language learning (Jiang & Dewaele, 2019; Li, Jiang, & Dewaele, 2018; Piniel & Albert, 2018). Enjoyment can be defined as a sense of novelty or accomplishment experienced when persons go beyond themselves and achieve something unexpected (Csíkszentmihalyi, 2008). In other words, enjoyment is usually experienced by people when pursuing and investing in an outcome that matters to them (Dewaele & MacIntyre, 2016). Csíkszentmihalyi (2008) described enjoyment as a key component of flow experiences, which are characterized by a high degree of involvement and engagement in an activity without consciousness of time and self, and which are helpful to language learning and development (Li et al., 2018). Dewaele and Dewaele (2018) and Khajavy, MacIntyre, and Barabadi (2018) found that enjoyment played an important role in increasing FL learners’ willingness to communicate (WTC). Dewaele and Alfawzan (2018), Y. Jin and Zhang (2018) and Li, Dewaele, and Jiang (2019) also identified the positive effect of enjoyment on FL performance and achievement. The vital role of enjoyment in FL learning is deeply rooted in the Broaden-and-Build theory put forward by Fredrickson (2004), itself an important foundation of Positive Psychology. Fredrickson (2001, 2003, 2004) argued that positive emotions can broaden peoples’ momentary thought-action capacities, build personal resources, and promote resilience in difficult times.

Recent years have seen a booming and flourishing trend in research on enjoyment in second language acquisition (SLA) (Jiang & Dewaele, 2019; Li, 2020). Generally, studies on enjoyment follow three strands, as follows.

The first focuses on the measurement of enjoyment. Based on the enjoyment subscale of Ryan and Deci’s (2000) Intrinsic Motivation Inventory (IMI), Dewaele and MacIntyre (2014) made an initial effort to create a 21-item foreign language enjoyment (FLE) scale covering various enjoyment-related factors, particularly learners’ subjective experience, teachers, and peers. Dewaele and MacIntyre (2016) carried out a principal components analysis of the same database and identified two further dimensions, FLE-Social and FLE-Private, containing 14 items from the original scale. Dewaele and Alfawzan (2018), Dewaele, Magdalen, and Saito (2019), and Jiang and Dewaele (2019) extracted 10 from the original 21 items to reflect the social and private dimensions of FLE, and measured FL learners’ FLE in Saudi Arabia, Spain, and China respectively. In the context of Chinese high schools, Li et al. (2018) modified the original version into an 11-item Chinese version of the FLE scale comprising three dimensions: FLE-Social, FLE-Private, and FLE-Atmosphere.

Besides the development of FLE scales, many researchers have applied an idiodynamic approach to measure dynamic fluctuations of FLE during FL communication and learning (Elahi Shirvan, Taherian, & Yazdannmehr, 2020; Elahi Shirvan & Talebzadeh, 2018). From an idiodynamic perspective, Elahi Shirvan and Talebzadeh (2018) identified rapid changes in individual FLE under different task topics. Elahi Shirvan et al. (2020) used an idiodynamic approach, together with other instruments such as enjoymeters, journals, and interviews, to depict the dynamic trajectories of individual FLE during an EFL course on different timescales. In contrast to previous studies that used the FLE-scale as a tool, the idiodynamic approach in these studies provides a deeper insight into the individual dynamics of FLE.

The second strand of research on enjoyment aims to identify the effects of learner and teacher variables on FLE. Using a sample of 1746 FL learners from multilingual contexts around the world, Dewaele and MacIntyre (2014) found that learners who were older, who had reached a higher level of education achievement, and who enjoyed higher levels of multilingualism and FL proficiency tended to experience more FLE. Dewaele and Dewaele (2017) and Dewaele, Witney, Saito, and Dewaele (2018) used data collected from 189 FL learners in two secondary schools in London to show that teacher variables, such as learners’ positive attitudes towards their teachers and teachers’ increased use of FL in class, were a significant source of FLE. Based on feedback from 750 FL learners in bilingual and multilingual context around the world, Dewaele and MacIntyre (2019) also observed that teacher variables were the most frequent source of FLE. Several recent studies further corroborate that teacher variables are a strong predictor of FLE, as in empirical research on EFL learners in Spain (Dewaele et al., 2019) and China (Jiang & Dewaele, 2019; Li et al., 2018). In addition, some researchers have also identified other important variables that can boost learners’ FLE—for example, higher levels of emotional intelligence (EI) (Li, 2020), informal digital learning activities, and stronger ideal L2 self-image (Lee & Lee, 2020).
The third research avenue centers on the relationship between FLE, foreign language classroom anxiety (FLCA), and FL performance. Learners reported more FLE than FLCA in FL learning (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2019; Jiang & Dewaele, 2019). Also, although FLE and FLCA were negatively correlated, they were separate dimensions (Dewaele et al., 2019; Dewaele & MacIntyre, 2019; Dewaele, MacIntyre, Boudreau, & Dewaele, 2016). Boudreau, MacIntyre, and Dewaele (2018) used an idiodynamic approach to show that the correlation between FLE and FLCA was generally negative, but it was also highly dynamic and changeable over time. In terms of the relationship between these two emotions and FL performance, many researchers have proven the positive effect of FLE on learners’ FL performance in various contexts including Saudi Arabia (Dewaele & Alfawzah, 2018), Japan (Saito, Dewaele, Abe, & In’纳米, 2018), and China (Jiang & Dewaele, 2019; Y.; Jin & Zhang, 2018; Li et al., 2018).

Up to the present, a large body of FLE-related literature has focused on traditional classroom learning with the involvement of a teacher (e.g., Li et al., 2018), or learners’ individual learning processes while they are finishing a task (e.g., Elahi Shirvan & Talebzadeh, 2018). However, no existing FLE research has touched on online collaborative learning, where shared knowledge construction and collaboration take place (Bakhtiar, 2019). Considering the importance of enjoyment in language learning, there is a need to explore how language learners’ enjoyment manifests and evolves in online collaboration. In addition, many researchers agree that emotions such as enjoyment are sociocultural products that are constructed and regulated by the social world through social interactions (Gross & Barrett, 2011; Swain, 2013). In online collaborative learning, emotions are not stable individual mental states; rather, they are regulated in interpersonal interactions to overcome challenges and create enjoyment (Jarvenoja & Järvelä, 2009). The use of emotion regulation reflects human agency and adaptiveness to social situations (Hadwin, Järvelä, & Miller, 2018), and therefore understanding how learners regulate emotions to achieve enjoyment in groups is essential for exploring how learners coordinate their group processes into an enjoyable and successful experience of language learning.

2.2. Emotion regulation

Emotion regulation is ‘a sequence of transactional emotional episodes within a social event or scene’ (Gross & Barrett, 2011). Here, the regulation exists in competing social rules and standards, and the unit of analysis should be the social context or episode where persons mutually influence each other, such as the online collaborative language learning setting in this study. Following the line of argument in the previous section that views emotion as a social product, emotion regulation and emotion are by nature a unity (Kappas, 2011), two sides of the same coin (Thompson, 2011; Von Scheve, 2012), and the same process (Campos, Frankel, & Camras, 2004). Although different in concepts, they both reflect a person’s adaptiveness to social culture (Campos et al., 2004; Mesquita, 2010).

In recent years researchers have begun directing their attention to emotion experience and regulation in collaborative learning situations (Naykki et al., 2014). The concepts of self-, co-, and socially shared regulation show how group members regulate themselves individually (self-regulation), assist each other’s regulation (co-regulation), and build on each other’s regulation for a shared purpose (socially shared regulation) to overcome emotional and cognitive challenges during group work (Hadwin, Järvelä, & Miller, 2011; Jarvenoja et al., 2013). Järvenoja and Järvelä (2009) found that group members adopted different types of emotion regulation including self-regulation, co-regulation, and socially shared regulation to overcome emotional challenges in collaborative learning. Naykki et al. (2014) revealed how the avoidance-focused emotion regulation strategies adopted during socio-emotional conflicts put collaboration at risk. Järvenoja et al. (2019) identified four typical emotion regulation strategies used in group-level emotion regulation, namely encouragement, increasing awareness, social reinforcement, and task structuring. Meanwhile, Mänty, Jarvenoja, and Tormanen (2020) explored the interplay of negative emotion and group-level emotion regulation in collaborative learning.

Although research on emotions and emotion regulation in collaborative learning is thriving, many studies only pay attention to the use of group-level emotion regulation such as co-regulation and socially shared regulation (e.g., Mänty et al., 2020), or to specific strategies (e.g., Järvenoja et al., 2019). Self-regulation in collaborative learning has not received enough attention. The self-regulation of emotions in group collaboration is both influenced by and influences the group’s emotions, with the consequence that self-regulation is also a social process functioning alongside co- and socially shared regulation in group contexts (Hadwin et al., 2018).

Thus, the co-emergence and interplay among self-, co-, and socially shared emotion regulation need to be explored. Furthermore, similar to the individual language learner, group language learners need group-level enjoyment to enhance shared knowledge construction in collaborative learning. Identifying the emotion regulation mechanisms underlying the enjoyment realized in groups is critical in promoting each individuals’ capacity to understand and regulate their own and others’ enjoyment in collaborative language learning (Malmberg, Järvelä, & Järvenoja, 2017). Therefore, we conducted this study to explore how emotion regulation, including self-, co-, and socially shared regulation, unfolds and supports group-level enjoyment in online collaborative language learning.

3. Research questions

Building on the above literature review, the present study explores how Chinese EFL learners’ enjoyment evolves and is realized via emotion regulation in an online collaborative language learning activity. The specific research questions are as follows:

3.1. Research question 1

How do Chinese EFL learners regulate their emotions, including self-, co-, and socially shared regulation, in online collaborative language learning activities?
RQ1: How does the participants’ enjoyment evolve at the individual and group levels?
RQ2: How do the participants regulate their group-level emotions to enjoy the collaborative learning process?

4. Method

4.1. Participants

To capture in-depth information about the research questions, a small number of participants (typically four to ten) is recommended for a case study design (Creswell & Plano Clark, 2011). In this study, six participants (two groups of three) were selected from a cohort of 108 English-major sophomores (34 groups of three to four students) who were enrolled in a mandatory group EFL writing program at a university in Taiyuan, China. The selection criterion for these two groups was maximal variation sampling (Creswell & Plano Clark, 2011), such that the three participants in each selected group were from the lower intermediate, intermediate, and higher intermediate English proficiency levels, based on their self-perceptions, their scores in the previous semester’s final exam, and their teachers’ comments. The English proficiency level range within the selected groups was consistent with that of the larger original population from which the participants were selected. The six participants’ ages ranged from 18 to 21 years, and the average was 19.8 years (SD = 0.98). The gender ratio was 1:5, one male (Participant Yue in group 2) to five females; this reflected the gender balance in the original cohort of 108 sophomores. All the participants were native Chinese speakers who had learnt English as their only FL for seven to ten years.

4.2. Instruments

4.2.1. WeChat app

WeChat, an instant messaging platform similar to WhatsApp or Line, is currently the most popular Mobile Instant Messaging (MIM) app in China, with over 1203 billion active users globally up to the first quarter of 2020 (Tencent, 2020). WeChat users can share messages in various forms such as texts, pictures, voices, videos, and even stickers. The social affordance of WeChat as a social-contextual facilitator for learners’ interaction and collaboration has been confirmed in SLA (L. Jin, 2018). In this study, the six participants self-formed two 3-member WeChat groups for exchanging and sharing their thoughts and ideas online, as they worked together to complete a task assigned by their teachers. With the aid of the screen recording function built into their mobile phones, we video-recorded participants’ WeChat group conversations and sent the recordings to them via email afterwards. Using the software detailed as follows, participants rated their FLE levels throughout their online conversations while watching the replay of the video recordings, and the ratings were used for further qualitative analysis.

4.2.2. Anion Variable Tester software for idiodynamic FLE rating

As enjoyment is a fleeting experience which may last only moments and dissipate very quickly (Boudreau et al., 2018), we chose the idiodynamic approach developed by MacIntyre (2012) to take a closer look at the dynamics of enjoyment on a moment-by-moment basis. Using Anion Variable Tester, a computer software program, this approach allowed participants to provide ratings of their FLE while watching the recorded video of their real-time collaboration (Boudreau et al., 2018). The rating scale in the software varied from +10 (very high level of FLE) to −10 (very low level of FLE). Participants used the computer mouse to score their reported enjoyment level second by second. With no input, the software went back to zero automatically. Once the ratings were finished, the software was able to export rating graphs which vividly presented the real-time dynamics of the participants’ enjoyment levels.

4.2.3. Open-ended questions for interview

The purpose of the interview is to add the participants’ voices to the statistical results (Boudreau et al., 2018). Immediately after the data collection of their enjoyment ratings, the first researcher conducted a one-on-one, face-to-face semi-structured interview with each participant. The open-ended questions were focused on participants’ explanations of the changes in enjoyment level and specific reasons for high levels (above 0) and spikes in their enjoyment rating data collected. Participants had the freedom to choose Chinese or English to express their thoughts and answer the questions in an honest way. In the Appendix, the interview protocol is provided in detail.

4.3. Context and data collection procedure

At the university where this study took place, all the participants joined in the group EFL writing program. The program used the WeChat app as an online platform for EFL learners to collaborate in finishing the writing task outside the classroom. Participants self-formed three-member groups on WeChat and were free to organize online meetings to complete the task assigned by their teachers within one week. The task was to finish an essay of more than 200 words, based on a theme discussed in a 200-word text and a written prompt of about 50–60 words. Teachers uploaded different theme-related writing tasks on WeChat every Sunday.
Given the possible anxiety-provoking impact caused by the final exam in the 18th teaching week of the winter semester of the 2019–2020 academic year (18 teaching weeks in total) in early January 2020. The theme of the writing task was ‘With intelligent machines to do the thinking, will our brains get lazy?’ Two online meetings related to the task, self-organized by the participants, were video recorded by us. There was no set time limit in advance, and the meetings were approximately 28–35 min in length. The recordings were then loaded into the Anion Variable Tester software that enabled the individual participants to rate their moment-by-moment enjoyment levels while watching the replay of their group work. Immediately following the idiodynamic data collection, the first researcher interviewed the participants one-on-one and face-to-face about the reasons for the changes in their ratings, particularly high levels and spikes. Each interview, approximately 20 min in duration, was recorded by a digital voice recorder and transcribed into written texts. For each participant, the data collection procedure lasted around 1 h.

Two weeks before the study, research permission and ethical clearance were granted by the university. We sent consent forms that included the content and purpose of the study to participants via email for their approval with e-signatures. To preserve the anonymity of the participants, they were pseudonymized as Ping (P1), Lin (P2), and Xuan (P3) in group 1, and Tian (P4), Jia (P5), and Yue (P6) in group 2. Considering the participants’ unfamiliarity with the Anion Variable Tester software, a detailed instruction and hands-on practice session was arranged before the study until they felt comfortable with the software.

4.4. Data analysis

An embedded mixed methods design was adopted in the study, in which the quantitative data were embedded within a qualitative approach (Creswell & Plano Clark, 2011). The data were analyzed using NVivo software.

In response to Research Question 1, instances of FLE were identified and coded at both the individual and group levels based on the graphs of quantitative idiodynamic enjoyment self-ratings. The coding protocol here was based on the coding criteria for emotional valence employed by Järvenoja et al. (2019). First, the particular intervals given positive ratings (above 0) by participants were coded as FLE-individual (Participant Name). Then, for the participants in the same group, their coded individual enjoyment intervals were grouped together for assessment. Any particular intervals with at least two positive ratings (above 0) and no negative ratings (below 0) were further coded as FLE-group (Group Number).

In response to Research Question 2, the data from the individual interview transcripts within the pre-coded FLE-group (1 and 2) intervals were coded into main emotion regulation categories. The same coding process was also applied to the data analysis of the video recordings of the group work in these pre-coded group enjoyment intervals. The two sources of analyzed data were then compared and combined to elicit a deeper interpretation of what and how emotion regulation was working behind the enjoyment realized in the group.

The coding protocol adopted in the study was based on the established literature related to emotion regulation (Hadwin et al., 2018; Järvenoja et al., 2013; Malmberg et al., 2017). Specifically, the codes were developed based on the division of emotion regulation processes (Winne & Hadwin, 1998) and the categorization of emotion regulation types (Hadwin et al., 2018). The coding process was implemented in two steps. First, we identified the specific regulation processes manifested. The regulation processes included task understanding, goal setting, planning, monitoring, evaluating, and strategy use (Winne & Hadwin, 1998). Because monitoring and evaluating, although theoretically different, are hard to differentiate in qualitative data (McCordle & Hadwin, 2015), these two processes were combined in the study. Table 1 presents descriptions and examples of the emotion regulation processes identified in the qualitative data. To check the inter-coder reliability of the coding process in this step, another researcher was trained and then independently coded 20% of the data from the interviews and videotaped group work already coded by the first author. The free-marginal kappa values were 0.80 and 0.75 for the interview and videotaped group work respectively, both reflecting good agreement (Fleiss, Levin, & Paik, 2013).

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td>Descriptions and examples of emotion regulation processes identified.</td>
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</table>

<table>
<thead>
<tr>
<th>Regulation processes</th>
<th>Planning</th>
<th>Monitoring and evaluating</th>
<th>Task understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Participants individually or jointly think about what arguments or ideas are needed, or how they may be organized to finish the task.</td>
<td>Participants individually or jointly monitor and evaluate what has been understood and what needs to be done, and summarize what has been done.</td>
<td>Participants individually or jointly think about the purpose, requirements, and difficulty of the task.</td>
</tr>
<tr>
<td>Examples</td>
<td>“I presented my own ideas about the positive effects the intelligent machines could bring to human life.”</td>
<td>“I think that idea is quite good and helpful. I will consider how to integrate it into the first passage of the essay.”</td>
<td>“Though the task is not easy at first glance, I think, it is not that difficult when discussion begins.”</td>
</tr>
<tr>
<td></td>
<td>“Others helped me identify the problem and made my ideas clearer.”</td>
<td>“Others showed their agreement to my thoughts with various emojis.”</td>
<td>“I find she misunderstood the topic, so I pointed it out and helped her make clear the purpose of the topic.”</td>
</tr>
<tr>
<td></td>
<td>“We discussed about what view we should hold generally and finally came to an agreement that human brains will not regress.”</td>
<td>“We finally summarized and organized our ideas previously mentioned into three general points.”</td>
<td></td>
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</tbody>
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We then categorized the coded regulation process episodes into specific types of regulation. In other words, we identified whether each coded regulation process episode was self-, co-, or socially shared regulation as defined by Hadwin et al. (2018). Because some episodes were related to multiple regulation types and were categorized differently, some overlapping coding did exist. Table 2 presents descriptions of the emotion regulation types identified in the qualitative data. Likewise, a similar process was applied to test the free-marginal kappa values for the 20% independently coded interview and videotaped group work data. The values here were 0.73 and 0.76 respectively, which again are indicators of good agreement in inter-coder reliability (Fleiss et al., 2013).

5. Results

5.1. The dynamic evolution of language learners’ enjoyment

Fig. 1 presents the data for participants' idiodynamic ratings of enjoyment in the two groups, which exhibit the dynamic evolution of enjoyment at both the individual and group levels (for RQ1). As the participants in different groups were at liberty to self-organize online meetings on WeChat, the duration of their meetings was different, lasting 28.7 min in group 1 and 35.42 min in group 2. The idiodynamic software was programmed to provide data at 30-s intervals over their meetings in both groups. The horizontal axis provides the time points where the data were reported. The vertical axis represents the idiodynamic scale from +10 (very high level of enjoyment) to –10 (very low level of enjoyment).

The figure indicates that the enjoyment of all six participants fluctuated over the course of their group collaboration. Every participant reported some intervals in the high enjoyment zone, with idiodynamic ratings over 0. Though most participants (four out of six) had starting scores in the low enjoyment zone (below 0), all their final scores were in the high enjoyment zone (above 0). Of all participants, Lin (P2 in Group 1) showed the highest mean score for her dynamic enjoyment ratings (mean = 3.31). The mean scores for the rest of the participants fell within the range from 0.81 to 1.38. Moreover, although variability was noticeable for every participant, Lin (P2 in Group 1) exhibited the largest variability of all (standard deviation = 5.95). In general, all three participants in group 1 (standard deviations from 2.52 to 5.95) showed larger variability than those in group 2 (standard deviations from 1.63 to 1.93).

Table 3 summarizes the results of the quantitative data for each individual and group. An interval was counted and coded as FLE-individual (Participant Pseudonym), e.g., FLE-individual (Lin), each time there was a positive rating change (above 0) in the idiodynamic data. This process was conducted for each individual. The calculated frequencies of the identified FLE-individual intervals reflected that the participants dynamically experienced high-level enjoyment at least 10 times and up to 16 times over the course of their interactions.

Then, the duration and the proportion of these FLE-individual intervals were also calculated separately for each participant, to explore the time spent in the high enjoyment zone during their meetings. The results showed that all six participants had spent 41.18% (10.9 min) or more of their conversation time in the high enjoyment zone. It is worth noting that Lin (P2 in Group 1) and Yue (P6 in Group 2) spent approximately 70% of their time (over 21 min) in the high enjoyment zone. The results demonstrate that enjoyment is one of the most common and salient emotions experienced by language learners in FL learning (Jiang & Dewaele, 2019; Piniel & Albert, 2018). Our FL learners spent large portions of their time enjoying their learning and experienced enjoyment in a dynamic way during the learning process.

To explore how enjoyment evolved in each group, we calculated and coded the particular intervals as FLE-group (1 or 2) when there were at least two positive ratings (above 0) and no negative ratings (below 0). Similar to the frequencies of the FLE-individual intervals, the frequencies of the FLE-group intervals showed that both groups experienced overall high-level enjoyment several times across the whole learning process (frequencies = 8 times and 12 times respectively). Furthermore, results related to the proportion and duration of FLE-group intervals in both groups confirm that enjoyment is an indispensible part of group work, intertwining with group learning processes in a significant manner (proportion with duration = 37.98% with 10.9 min and 46.13% with 16.34 min respectively).

Table 2
Categories representing emotion regulation types identified.

<table>
<thead>
<tr>
<th>Regulation Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulation</td>
<td>One person thinks about what needs to be done, what has been done, and what he or she does not understand. Clear expression and emphasis on wording “I” can be identified.</td>
</tr>
<tr>
<td>Co-regulation</td>
<td>Group members help each other to contribute to collaborative learning. Group member may agree with another’s ideas but will not add new information. Clear emphasis on support to/from others can be identified.</td>
</tr>
<tr>
<td>Socially shared</td>
<td>Group members jointly think about what needs to be done and what has been done. Group members may agree with others’ ideas and add their own ideas or new information. Clear emphasis on “we” and co-emerging thoughts or ideas can be identified.</td>
</tr>
</tbody>
</table>
Fig. 1. Idiodynamic enjoyment ratings for the six participants in two groups.
5.2. Emotion regulation for enjoyment in online collaboration

In online collaborative language learning, positive socio-emotions are crucial for the success of collaborative thinking and communication processes (Mahn & John-Steiner, 2002; Swain, 2013). Thus, this section uses the group-level enjoyment intervals, identified in the previous section, as a window to explore how participants regulate their social emotions in groups (for RQ2). Data from the participants’ post-task interviews and WeChat conversations, focusing on the intervals coded as FLE-group (1 and 2), were analyzed and triangulated for a deeper and more comprehensive understanding of emotion regulation.

5.2.1. Types of emotion regulation in participants’ voices

The emotion regulation-related episodes were coded and grouped into three emotion regulation categories labeled self-regulation, co-regulation, and socially shared regulation. Self-regulation refers to the individual’s efforts to regulate themselves. Co-regulation is a process in which individuals intentionally affect or assist each other’s regulation. Socially shared regulation means that some or all the individuals in the group regulate themselves in a shared way for a shared purpose. Table 4 summarizes these three categories of emotion regulation and the frequency of mentions by six participants about each source. As a result of limited space, we selected typical sources mentioned by at least three participants to illustrate each category.

Table 4 shows that participants in the two groups did use self-, co-, and socially shared regulation to realize group-level enjoyment. Among these types, socially shared regulation was the most commonly adopted, followed by self-regulation and co-regulation. Within the category of socially shared regulation, all six participants mentioned their joint efforts to plan out task-relevant ideas and arguments. Participants commented that the group planning process was conducive to expanding individual thought processes and making progress in task completion. It was also an effective process to overcome group challenges. When asked “What made you enjoy the collaborative process at the beginning?”, Ping (P1, female, 20) responded:

“At first, we didn’t have any clue about this topic … each one of us was in low spirits. However, when we truly started exchanging our thoughts, we found the breakthrough point … This group process was helpful and made us so happy to continue the discussion.”

The extract suggests that, in order to cope with the challenge, every group member actively mobilized themselves in the discussion, which enhanced the enjoyable atmosphere within the group. The resulting newly developed ideas and arguments seemed to ease the tensions caused by the challenge, and instill enjoyment and confidence in the group members to continue with their collaborative learning in an effective way.

In addition, all the participants jointly monitored and evaluated their learning process in a positive way. Both groups tended to summarize the discrete and raw ideas they had discussed previously into an organized arrangement, such as a complete essay structure, at the closing stage of their collaboration. When asked “Why did you rate high-level enjoyment when you made a summary of previous ideas?”, Lin (P2, female, 21) said:

“Finally, we summarized our discrete ideas into three detailed points … it is such a wonderful experience to see our efforts finally coming into a mature essay.”

We do not know whether this group monitoring and evaluating process was required by teachers or directed by the participants themselves. However, the above extract exhibits the group members’ positive attitudes towards the process.

Table 3
Quantitative data by participants and groups.

<table>
<thead>
<tr>
<th>Participants and Groups</th>
<th>Mean Dynamic Enjoyment Rating (SD)</th>
<th>Frequency of Intervals in High Enjoyment Zone (Above 0)</th>
<th>Minutes in High Enjoyment Zone (Above 0)</th>
<th>Time Proportion of Intervals in High Enjoyment Zone (Above 0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ping (P1)</td>
<td>1.38 (2.52)</td>
<td>10</td>
<td>13.75</td>
<td>47.91%</td>
</tr>
<tr>
<td>Lin (P2)</td>
<td>3.31 (5.95)</td>
<td>12</td>
<td>21.03</td>
<td>73.38%</td>
</tr>
<tr>
<td>Xuan (P3)</td>
<td>0.90 (2.70)</td>
<td>11</td>
<td>12</td>
<td>41.81%</td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td>8</td>
<td>10.9</td>
<td>37.98%</td>
</tr>
<tr>
<td>Tian (P4)</td>
<td>0.93 (1.63)</td>
<td>13</td>
<td>16.75</td>
<td>47.29%</td>
</tr>
<tr>
<td>Jia (P5)</td>
<td>0.81 (1.93)</td>
<td>16</td>
<td>16.25</td>
<td>45.88%</td>
</tr>
<tr>
<td>Yue (P6)</td>
<td>0.87 (1.72)</td>
<td>14</td>
<td>24.75</td>
<td>69.88%</td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td>12</td>
<td>16.34</td>
<td>46.13%</td>
</tr>
</tbody>
</table>

Table 4
Three categories of emotion regulation and the frequency of mentions by six participants.

<table>
<thead>
<tr>
<th>Category</th>
<th>Self-regulation</th>
<th>Co-regulation</th>
<th>Socially shared regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source (the frequency of mentions)</td>
<td>Self-monitoring and evaluating (5), Self-planning (4), Self-understanding of task (1)</td>
<td>Assisted planning (5), Assisted monitoring and evaluating (3), Assisted task understanding (1)</td>
<td>Joint planning (6), Joint monitoring and evaluating (6)</td>
</tr>
<tr>
<td>In total</td>
<td>10</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>
Through joint monitoring and evaluating, “a sense of achievement and happiness” (Ping, P1, female, 21) emerged among these peers.

Within the category of self-regulation, self-monitoring and evaluating and self-planning are the most frequently mentioned sources of regulation, followed by self-understanding of task. Self-monitoring and evaluating reflected participants’ individual positive judgments about others’ ideas. Most participants (five out of six) perceived others’ thoughts as reasonable, interesting, and helpful. When asked “How did you achieve high-level enjoyment in this interval, from 11 min 03 s to 11 min 28 s?”, Yue (P6, male, 20) explained:

“Here, her (Participant Jia’s) idea was interesting and funny, which aroused my own happy feelings.”

In this extract, Yue’s happiness comes from his appreciation of Jia’s ideas. His comment shows the importance of being open-minded and flexible in collaborative learning, which is an essential source of enjoyment.

Participants’ enjoyment also emerged from their individual efforts to have their own task-related plans or ideas heard by others. Some participants attributed their high enjoyment levels to the act of verbalizing their thoughts as a way of contributing to group work. When asked “Why did you experience high-level enjoyment in this interval, from 16 min 43 s to 18 min 28 s?”, Jia (P5, female, 18) replied:

“It was my turn to present ideas and plans about the topic in group, which could make me happy. … My ideas were quite helpful to the task completion.”

Jia’s description exhibits self-pride about her contributions to the group work. This statement suggests that, for the individual, active engagement in collaboration can generate enjoyment, which may further encourage more engagement. In this case, the learner could potentially be absorbed and concentrated in collaborative learning and even ‘totally lose the sense of time’ (Xuan, P3, female, 20) and self. This typical state of high engagement in task completing reflects learners’ flow experiences. As a key component of flow experiences (Csikszentmihalyi, 2008; Dewaele & MacIntyre, 2016), enjoyment gained through self-planning processes may trigger learners’ flow experiences in collaborative learning.

Within the category of co-regulation, participants experienced enjoyment in the groups mostly when they received help from others or purposely assisted others in planning task-related ideas. Participants like Jia (P5, female, 18) received others’ help, such as questions and explanations, to clear their own confusion about what to do next in task planning. Some participants like Tian (P4, female, 20) intentionally explained their own ideas to others and helped them develop their thoughts about the task. When asked “What was enjoyable in this interval, from 19 min 26 s to 20 min 18 s?”, Tian (P4, female, 20) stated:

“Our views were totally divergent. So, I tried to persuade her (Participant Jia) to make a change and accept our ideas in a heated discussion. … Persuading others was great fun.”

The example illustrates that coordinating others’ work in collaborative learning may be demanding and challenging, but it is also enjoyable. Given that the assisted planning is targeted at others, the process can boost others’ individual planning processes, which contributes to a positive social climate in the group and encourages a joint planning process (Hadwin et al., 2018). In other words, Tian’s comment demonstrates participants’ agency to adjust social context (others’ situations) into a favorable position.

Following assisted planning, assisted monitoring and evaluating is another typical process of co-regulation. Some participants reported that their efforts won others’ approval, agreement, and acknowledgement. When asked “What was the most enjoyable during the group process?”, Xuan (P3, female, 20) answered:

“Following the ideas I put forward, they (others) usually posted various unique emojis to show their approval, which made me think my ideas were meaningful. And I was quite happy about that.”

For Xuan, the positive feedback from others made her feel her efforts were worthwhile, which motivated her to make more contributions to the group work. Xuan’s description also suggests that, besides words, emojis can serve to co-regulate emotion by conveying others’ support to participants in online settings like WeChat.

From the interview data, the interactions between three types of regulation are notable. In socially shared regulation, as described by participants Ping and Lin, the group planning, monitoring, and evaluating processes in fact provided a platform where group learners could make use of collective resources to self-regulate themselves. In self-regulation, as reported by participants Yue and Jia, self-regulated activities simultaneously created favorable contextual conditions for regulation by others or the whole group. Also, from participants Tian and Xuan’s comments, it appears that co-regulation between learners facilitated their self-regulation and even set the stage for socially shared regulation through providing or receiving assistance. In this vein, self-, co-, and socially shared regulation are not totally separate and distinct dimensions, but co-exist and mutually support one another in online collaborative language learning.

5.2.2. Types of emotion regulation in real-time online conversations

Following the same coding principles as above, we identified and coded the types of emotion regulation adopted by participants in the FLE-group intervals. Excerpts have been selected to show what and how emotion regulation was realized in their real-time online conversations.

Fig. 2 shows an excerpt from the real-time conversion and its transcription. The excerpt, coded as FLE-group (1), was extracted from 9 min 07 s to 11 min 07 s in the videotaped collaborative conversation in group 1. It lasted 2 min in total.
<table>
<thead>
<tr>
<th>Line</th>
<th>Transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lin: I am so confused (about the topic).</td>
</tr>
<tr>
<td>2</td>
<td>Lin: Emoji (A cat hiding face)</td>
</tr>
<tr>
<td>3</td>
<td>Ping: Emoji (Dog face with annotation “looking naive” in Chinese)</td>
</tr>
<tr>
<td>4</td>
<td>Ping: That is</td>
</tr>
<tr>
<td>5</td>
<td>Ping: What Artificial Intelligence helps humans do.</td>
</tr>
<tr>
<td>6</td>
<td>Xuan: Technology makes people lazy and may make limbs regress.</td>
</tr>
<tr>
<td>7</td>
<td>Ping: is all low-level, repetitive and boring stuff.</td>
</tr>
<tr>
<td>8</td>
<td>Xuan: But the human brain is always looking forward to a better life.</td>
</tr>
<tr>
<td>9</td>
<td>Xuan: Isn’t that (brain) thinking?</td>
</tr>
<tr>
<td>10</td>
<td>Xuan: Artificial Intelligence has no emotions after all.</td>
</tr>
<tr>
<td>11</td>
<td>Lin: We can have time to do more things we want to do. Emoji (Naughty)</td>
</tr>
<tr>
<td>12</td>
<td>Xuan: Yes.</td>
</tr>
<tr>
<td>13</td>
<td>Ping: Yes.</td>
</tr>
<tr>
<td>14</td>
<td>Ping: can spend time with family.</td>
</tr>
<tr>
<td>15</td>
<td>Lin: Well, I don’t think anyone can help persons who are naturally lazy.</td>
</tr>
<tr>
<td>16</td>
<td>Lin: There used to be a lot of lazy guys when the technology was not advanced.</td>
</tr>
<tr>
<td>17</td>
<td>Ping: So, you agree with us?</td>
</tr>
<tr>
<td>18</td>
<td>Lin: Maybe I am not enterprising at all.</td>
</tr>
<tr>
<td>19</td>
<td>Xuan: What is true about humans is making progress and owning emotions. Not like robots which just keep repeating.</td>
</tr>
<tr>
<td>20</td>
<td>Lin: I reflect (on myself).</td>
</tr>
<tr>
<td>21</td>
<td>Ping: Yeah, laziness is most related to human beings themselves.</td>
</tr>
<tr>
<td>22</td>
<td>Ping: Artificial Intelligence is just an excuse.</td>
</tr>
<tr>
<td>23</td>
<td>Lin: Okk.</td>
</tr>
<tr>
<td>24</td>
<td>Lin: Emoji (Smiling face with annotation “A knowing smile” in Chinese)</td>
</tr>
<tr>
<td>25</td>
<td>Xuan: And passions for thinking about machine-relevant things makes human brains better developed.</td>
</tr>
<tr>
<td>26</td>
<td>Lin: All right. We all decided that human brains will not regress.</td>
</tr>
</tbody>
</table>

Fig. 2. Excerpt from the real-time conversation in group 1 and transcription.
Initially, faced with a writing task topic entitled “With intelligent machines to do the thinking, will our brain get lazy?”, Lin expressed her confusion in (1) with an emoji (2) showing a cat hiding its face, which usually signals avoidance. Ping and Xuan held the same view, namely that human brains will not get lazy with the development of intelligent machines. In (5), (6), (7), and (8), they justified their position from different perspectives. Under the direction of Ping and Xuan, Lin articulated her view that thinking made humans more capable in (11), implicitly showing approval of Ping and Xuan’s position. Then, from (15) to (25) the group further solidified their argument. In (15) and (16), Lin tried to explain that human laziness had nothing to do with technology. Ping understood her point and joined her efforts to rephrase the idea in a clearer way in (21) and (22). Taking a step forward, Xuan added that the development of technology made brains better developed in (25). All these efforts resulted in a shared understanding concluded by Lin in (26).

In this collective thinking process, self-, co-, and socially shared regulation functioned together to achieve and maintain group-level enjoyment, as demonstrated by the participants’ idiodynamic ratings during this coded FLE-group interval. The change in the use of emojis by Lin, from a cat hiding its face in (2), a naughty facial expression in (11), to a knowing smile in (24), exhibited the gradual emergence of her pleasure and excitement, resulting from self-reasoning, planning, and reflection on the topic. Also, Ping and Xuan showed self-pride in their own accomplishments when they verbalized their ideas with passion from (4) to (10) and from (12) to (25). Co-regulation may be found in Xuan’s approval and support in (12) towards Lin’s thought and pleasure in (11). Socially shared regulation in the group was apparent in the exchange of positive back-channels such as well, yeah, and all right, and in emojis and their accompanying thoughts in (11), (15), (21), and (26). These exchange processes showed their approval, respect, trust, and enjoyment to each other, ensuring a positive group atmosphere while they were sharing ideas and reaching agreement.

In addition, the interplay of the three regulation types is worthy of attention. Lin’s individual confusion and possible frustration in (1) and (2) set the stage for Ping and Xuan’s socially shared regulation by exchanging thoughts and positive emotions from (3) to (10), which in turn elicited Lin’s thought and pleasure in (11). Then, Xuan’s approval and support in (12) further strengthened (co-regulated) Lin’s individual thought and pleasure in (11), which activated the emergence of the subsequent socially shared regulation activity from (13) to (26). Hence, the collaborative conversation that Fig. 2 shows is a cognitively permeated set of emotional processes (Swain, 2013), in which self-, co-, and shared regulation emerge simultaneously and reciprocally to form and maintain enjoyment at the group level to enable successful collective thinking.

6. Discussion

With the aid of the idiodynamic rating software, the study observed moment-by-moment changes in participants’ enjoyment during WeChat-enhanced collaborative language learning, in order to address the first research question. The results of the participants’ idiodynamic ratings showed that enjoyment fluctuated at both the individual and group levels, which echoes the findings of a previous study (Elahi Shirvan & Talebzadeh, 2018). The means for the participants’ enjoyment ratings (0.81–3.21) indicated the generally enjoyable atmosphere that they all experienced during their conversation. Individually, the calculated total lengths of their individual enjoyment intervals (12 min ±24.75 min) and their proportions within the group conversation (41.81%–73.38%) showed that the participants spent a large portion of conversation time experiencing enjoyment. All these results further confirm previous arguments that enjoyment is one of the most prevalent and frequent emotions experienced by FL learners in FL learning (Jiang & Dewaele, 2019; Piniel & Albert, 2018). The calculated frequencies of the individual enjoyment intervals (10–16) reflected that each individual experienced enjoyment multiple times during the peer interactions, as they faced their own challenges. The frequent feelings of enjoyment may help participants stay on the right track and enjoy the collaborative learning process, even when they face multiple challenges. When their group work came to an end all six participants rated their enjoyment positively (above 0). This suggests that feelings of enjoyment can also be generated in the completion of a challenging task (Mierzwia, 2019).

For both groups, the frequencies of the group-level enjoyment intervals (8 and 10) demonstrated the dynamic existence of enjoyment shared within the group, which resonates with the views of Swain (2013) and Imai (2010) that language learners in groups will construct positive emotions together to ensure successful collaboration. More specifically, the study found that both groups spent over one third of their conversation time creating an enjoyable atmosphere within the group. This further illustrates the importance of building up the emotional Zone of Proximal Development (ZPD), within which learners co-construct emotional development through collaboration to enjoy the learning process (Holzman, 2017; Mahn & John-Steiner, 2002). In collaborative learning the challenges were experienced by all the group members and were higher than in conventional learning situations (Järvêla et al., 2016; Järvenoja et al., 2013; Järvenoja & Järvelä, 2009). As such, it is necessary to make particular efforts to produce enjoyment not only for the individual but, perhaps more importantly, for the whole group.

Considering the importance of group-level enjoyment in collaboration, the second research question focused on the coded FLE-group (1 and 2) intervals to observe the participants’ use of emotion regulation. Different from previous findings identifying teacher variables as the main factor influencing language learners’ enjoyment (Dewaele & MacIntyre, 2019; Jiang & Dewaele, 2019), this study suggested that participants operated different types of regulation, including self-, co-, and socially shared regulation, to develop group-level enjoyment during online student-led collaborative language learning. This illustrates that the existence of social types of regulation (e.g., co-, and socially shared regulation) does not imply the disappearance of individual regulation (Hadwin et al., 2018). Regulation at both the social and individual levels was important in the construction of social enjoyment during collaboration. In the interviews, joint planning, monitoring, and evaluating
were the most frequently mentioned processes that participants used to regulate emotions. This reflects the inseparable unity of emotion and cognition in learners’ FL development (Poehner & Swain, 2016; Swain, 2013). Emotion regulation does not only refer to a direct influence on group members’ emotions; it can also manifest as a regulation of their cognitive activities and social interactions (Mänty et al., 2020).

The analysis of the videotaped group work further illustrates the interplay of the three different regulation types. Co- and socially shared regulation guides and facilitates self-regulation. In the meantime, self-regulation boosts the emergence of co-regulation and socially shared regulation. In this way, the realization of group-level enjoyment was not solely through any specific type of regulation, but occurred via the mutual support and coordination of different types of regulation. A study by Malmberg et al. (2017) presents similar findings that different types of regulation may support each other in relation to task completion. Also, different from traditional face-to-face collaborative learning, emojis, in addition to words, play a role in emotion regulation in the online context. This reveals that emojis may function not only as social cues to identify interpersonal emotions (Riva, 2002), but also as a mediation technique to regulate emotions online.

7. Limitations and implications

Some limitations do exist in this study. First, due to the relatively small sample size, methods that allow large-scale exploration need to be employed in the future to deepen our understanding of FLE and emotion regulation in collaborative learning. Online questionnaires could be an ideal tool to do this, because of their advantages in large data collection (Dewaele, Gkonou, & Mercer, 2018). Second, the study focuses only on online student-led collaborative learning in a Chinese university. In the future, teacher-led collaborative activities in class or collaboration with participants from different places could also be studied, to provide a richer picture of FLE and emotion regulation. Third, as emotions are a fleeting experience (Boudreau et al., 2018), the idiodynamic approach may not be enough to catch all the subtleties of FLE and emotion regulation. Future research could manipulate physiological measures such as Empatica wristbands to capture language learners’ electrodermal activity and identify their emotions. A combination of this kind of data collection with an idiodynamic approach could be helpful to identify FLE and investigate emotion regulation (Dewaele, Gkonou, & Mercer, 2018).

Though these limitations do exist, the study has important implications for the improvement of online or face-to-face collaborative FL activities in China and the rest of the world. First, the dynamic existence of enjoyment during collaboration at the individual and group levels confirms the importance and prevalence of enjoyment in collaborative learning. In collaboration, teachers should not only focus on students’ knowledge building, such as correcting errors in their ideas or the appropriateness of expressions, but also give attention to their students’ emotional experiences, especially any changes in their enjoyment experience (Poehner & Swain, 2016). Considering the dynamic nature of emotion, teachers also need to make constant efforts to boost and maintain students’ enjoyment. Some regulation strategies adopted by the participants in the study could be a good choice for teachers, such as the use of positive backchannels, the adoption of different emojis, and intentional guidance in planning, monitoring, and evaluating.

Second, the interplay of three regulation types underlying group-level enjoyment reflects high levels of agency by students in their own emotion regulation. Thus, teachers should take measures to mobilize student agency for enjoyment regulation, such as being friendly, patient, encouraging, and supportive (Dewaele et al., 2019). Less structured and more interesting tasks should also be considered to create opportunities for the occurrence of student self-regulation. Third, it is currently a developing trend to apply learning analytics (LA) to give personalized feedback to students (Gasević, Dawson, Rogers, & Gasevic, 2016; Malmberg et al., 2017). Via LA, data about students’ enjoyment and emotion regulation in collaborative language learning, as reported in the findings of this study, could be sent back to teachers and students to raise their awareness of the importance of emotion and emotion regulation while they are learning.

8. Conclusion

Using the idiodynamic approach, this study presents a picture of the dynamic evolution of six Chinese EFL learners’ enjoyment at the individual and group levels during WeChat-enhanced online collaborative learning. Though the participants’ individual enjoyment traced different and unique trajectories, they all experienced enjoyment frequently in a dynamic manner during their collaboration. More importantly, we identified the dynamic existence of group-level enjoyment in both groups, reflecting the groups’ multiple collective efforts to create a social and enjoyable atmosphere during their collaboration. Focusing on the FLE-group intervals, the study reveals the co-existence of self-, co-, and socially shared regulation, which were all employed by participants to sustain their group-level enjoyment. The videotaped group conversation reveals more about the mutual support, coordination, and interplay of these three regulation types. Among them, participants reported slightly more use of socially shared regulation, such as joint planning, monitoring, and evaluating processes in collaboration. Furthermore, the study shows that emojis, along with words, worked as a means of emotion regulation for participants in online collaborative learning. To conclude, using an idiodynamic approach together with an analysis of participants’ descriptions and real group conversation, the study uncovers the broad and subtle processes that underlie enjoyment and emotion regulation during online collaborative language learning.
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CRediT author statement

Zhipeng Zhang: Conceptualization, Methodology, Software, Formal analysis, Writing, Project administration. Ting Liu: Conceptualization, Investigation, Resources, Writing, Project administration. Chwee Beng Lee: Supervision, Writing - review & editing, Validation, Visualization, Project administration.

Declaration of competing interest

None.

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Appendix. Interview Protocol for Emotion Regulation in Online Collaborative Language Learning

Thank you for agreeing to participate in this important interview. The interview is to know how you regulate enjoyment in online collaborative writing. Based on your idiodynamic self-rating graphs, I will ask you a set of questions about what you did behind your high ratings of enjoyment in graphs. There are no right or wrong answers as the aim of the study is to help the researcher understand more about emotion regulation types in your online collaborative language learning. You can answer either in Chinese or in English. During the interview, if something is not clear, please do not hesitate to ask for clarification. The questions are as follows.

(1) In general, what makes you enjoy the collaborative learning process?
(2) You have rated your enjoyment as particularly high in this interval, please explain why.
(3) There is a spike in your enjoyment ratings in this interval, please explain why.
(4) What did you do to achieve the high levels or spikes of enjoyment in this interval?
(5) What did others do to achieve the high levels or spikes of enjoyment in this interval?
(6) How do you evaluate your own efforts in terms of enjoyment in this interval?
(7) How do you evaluate others’ efforts in this interval?
(8) Did you do something like sharing your opinions or ideas to the group in this interval? If yes, what did you feel about your work?
(9) What did you feel about how others treated your work in this interval?
(10) What did you feel about others’ work such as opinions, ideas, etc. in this interval?
(11) What did you think of group work in this interval?
(12) Did others express emotions in this interval? If yes, what was the effect on your feelings?
(13) Did your feelings affect your interaction with others in this interval? If yes, in what way?

At the end of the interview, please fill in your background information as follows.

Name (Pseudonym): ____________________________ Class: ____________________________
Age: ____________________________ Gender: ____________________________
Years of Learning English: ____________________________

English Proficiency Level: Low/Lower-intermediate/Intermediate/Higher-intermediate/High (please tick one option showing your current English proficiency level).

References


