

# A qualitative inquiry into Chinese learners' emotions in technology-enhanced L2 education

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**ABSTRACT:** The use of technology in second language (L2) education has long been supported in the literature. However, the emotional experiences of learners when integrating technology into L2 learning have received insufficient scholarly attention. To fill this gap, the present study took a qualitative approach to examine Chinese English as a foreign language (EFL) students' perceptions about their technology-induced emotions and their impacts on learning English. A semi-structured interview was conducted with 38 EFL students. The results of thematic analysis showed a range of positive and negative emotions experienced by the students. In particular, 'enjoyment', 'engagement', and 'excitement' were the most frequent positive emotions, while 'anxiety', 'stress', and 'fear' were repeatedly mentioned by respondents as negative emotions. Furthermore, it was found that technology-induced emotions affected three areas of Chinese EFL students' L2 learning, namely their attention, motivation, and classroom behaviors. The findings are discussed, and implications are suggested to EFL students, teachers, and teacher educators to expand their knowledge about the link between technology-based L2 education and learner emotionality.

**Keywords:** Educational technology, EFL student, learner emotions, L2 education

## Una investigación cualitativa sobre las emociones de los aprendices chinos en la educación de segunda lengua (L2) potenciada por la tecnología

**RESUMEN:** El uso de la tecnología en la enseñanza de segundas lenguas (L2) ha sido ampliamente respaldado en la literatura académica. Sin embargo, las experiencias emocionales de los estudiantes al incorporar tecnología en el aprendizaje de L2 no han recibido suficiente atención en los estudios. Para llenar este vacío, el presente estudio adoptó un enfoque cualitativo para examinar las percepciones de estudiantes chinos de inglés como lengua extranjera (EFL) sobre sus emociones inducidas por la tecnología y su impacto en el aprendizaje del inglés. Se realizó una entrevista semiestructurada a 38 estudiantes de EFL. Los resultados del análisis temático mostraron una variedad de emociones positivas y negativas experimentadas por los estudiantes. En particular, el "disfrute", el "compromiso" y la "emoción" fueron las emociones positivas más frecuentes, mientras que la "ansiedad", el "estrés" y el "miedo" fueron mencionados repetidamente como emociones negativas. Además, se encontró que las emociones inducidas por la tecnología afectaron tres áreas del aprendizaje de L2 en los estudiantes chinos de EFL: su atención, motivación y comportamientos en el aula. Los hallazgos

son discutidos y se sugieren implicaciones para estudiantes de EFL, profesores y formadores de docentes, con el fin de ampliar su conocimiento sobre la relación entre la enseñanza de L2 basada en tecnología y la emocionalidad de los aprendices.

**Palabras clave:** Tecnología educativa, Estudiante de EFL, emociones del aprendizaje, educación de L2

## 1. INTRODUCTION

The advent of innovative educational technologies has engendered interactive learning opportunities, which exert substantial influences on diverse domains of education (Liu & Wang, 2024), among which technology-enhanced language education has garnered noticeable attention during recent years (Derakhshan et al., 2025; Kaur et al., 2023). In the quest for enhancing language learning, instructors have endeavored to use technology to usher in more effective language learning experiences (Li et al., 2021; Yu, 2022). Given the pervasiveness of technological advancements, an alluring body of research into the benefits and drawbacks of technology implementation (Ataefar et al., 2019; Qi & Derakhshan, 2025). It is ascertained that technological innovations in language education can provide various modes of communication and authentic interactions (Buddha et al., 2024). More importantly, technologies have the potential to tailor the learning process based on learners' needs and predilections (Shadiev & Yang, 2020). On the other side, leveraging technology into language education may bring about some setbacks for both teachers and learners, namely increased cognitive load, negative effects on their psychological factors, and the acute need for technology literacy (Buddha et al., 2024; Shadiev & Yang, 2020).

Seminal studies accentuate that language learners are at the forefront of academic contexts, and their psychological and emotional perceptions are believed to affect their educational experiences (Derakhshan & Bai, 2025; Li et al., 2025). Lee and Chei (2020) remark that technology-enhanced learning may engender more emotions as compared with conventional modes of learning (Lee & Chei, 2020). Given this, technology can affect language learners' emotional perceptions (Dewaele et al., 2019). It is contended that learners with positive emotions toward technology are more inclined to draw on technology in their language education, and learners with negative attitudes refrain from utilizing technology in their academic tasks (Truong, 2016; Yu, 2022). According to the control value theory of Pekrun (2006), learners may experience positive and negative emotions based on their perceptions of task difficulty, degree of control, and perceived value of the task. The core proposition of CVT pertains to the role of emotions in the success or failure of learning tasks and academic outcomes. As Loderer et al. (2020) note, CVT is an integrative framework for exploring emotions in technology-based education since technology-induced emotions are in accord with the control-value appraisals of emotions experienced in conventional modes of teaching. In other words, CVT helps understand the emotional aspects of technology-based learning because technology determines the control and value appraisals of the learners depending on the complexity of its adoption. Students may feel autonomous and positive if they have control over the process, but anxious with lower control. In contrast, learners in traditional education may have more stabilized emotions because control and value appraisals are less personalized. Therefore, CVT provides a structured lens for analyzing how emotions in technology-mediated learning vary from those in conventional settings.

Notwithstanding the potent role of emotions in the successful implementation of technology in language education (Wang & Zhang, 2023) and their impacts upon the language learning process, scant studies have endeavored to unravel learners' emotions in technology-assisted language learning through qualitative measures. Moreover, despite the context-specific nature of emotions in technology-mediated education (Loderer et al., 2020), few, if any, studies have aspired to explore technology-induced emotions among Chinese EFL learners. Hence, to bridge these gaps in knowledge, the present study aims to unveil EFL learners' perceived emotions in their technology-mediated L2 classes. This study is grounded in CVT of Pekrun (2006) since this approach facilitates investigation of whether emotional mechanisms of technology-based education align with emotions experienced in non-technology-mediated education (Loderer et al., 2020). The findings may yield practical implications for teachers on how to sustain learners' positive emotions and curb their negative emotions in technology-assisted L2 classrooms. Furthermore, the findings can contribute to research on learners' emotions by expanding the scope of CVT in relation to technology integration in L2 educational milieus.

## 2. LITERATURE REVIEW

### 2.1 Technology and L2 Education

The rapid growth of technology has brought unprecedented changes in education, given its functionality in influencing learners' attitudes and performances in academic milieus (Buddha et al., 2024). With the outbreak of COVID-19, technology integration into language education gained more prominence among researchers (Aghaei et al., 2022). Technology, as a medium that can enhance learning, is considered to serve a cardinal role in language education (Zhang et al., 2024). Seminal studies have underscored the pivotal effects of technology in language education (e.g., Chen, 2024; Otto, 2017), and a burgeoning body of research has focused on diverse facets of technology incorporation into L2 education during recent years (Ding & Zhao, 2020; Shadiev & Yang, 2020; Zhang, 2022). Otto (2017) contends that technology can be considered as a source of content and task provision through which educators can augment authentic language encounters, which culminate in tackling the adversities of the language learning process. In this sense, technology-assisted instruction highlights the undeniable significance of language production with the potent aim of fostering interaction in real-life contexts (Buddha et al., 2024). Technological advancements include numerous digital tools, namely the internet, intranet, chat rooms, audio/video conferencing, broadcasts, and the like (Liu et al., 2023). Inclusion of such technological innovations can create ample opportunities for teachers and learners (Zhang, 2022). In this regard, Derakhshan and Ghiasvand (2024) delineated that technology can aid language teachers in monitoring the progress of learners alongside their weaknesses and strengths, which can further help instructors to adapt their instructional practices based on learners' aspirations and requirements.

Moreover, technology utilization can provide learners with feedback based on their individual differences (Li et al., 2021). Given this, technology-enhanced learning customizes the learning procedure based on learners' needs and preferences, and teachers can utilize technology affordances to design diverse tasks based on learners' differences (Shadiev &

Yang, 2020). As pinpointed by Hsu and Lin (2022), technology embedding can accelerate language learning due to the accessibility of content to language learners regardless of time and place constraints. It should also be noted that technology can facilitate language development, students' performance, and language retention (Buddha et al., 2024). It is also postulated that technology integration can contribute to the language assessment process by providing learner-based assessments based on their test performance (Kaur et al., 2023). Similarly, technology-enabled education can augment learners' motivation and interest during language learning (Shadiev & Yang, 2020). On the other hand, technology inclusion can also create different setbacks in educational settings. One key challenge pertains to teachers' lack of digital literacy which can hamper teachers' inclusion of technology into their classes (Buddha et al., 2024). Relatedly, learners may also lack sufficient knowledge for drawing on technological affordances, which may induce negative emotions in learners (Buddha et al., 2024). Furthermore, inadequate technological facilities may be a hindrance to the successful implementation of technology in educational contexts (Ataefar et al., 2019).

## 2.2 Learner Emotions and Technologies

Notwithstanding the aforementioned benefits and challenges, technology incorporation in language classes has the propensity to induce diverse emotions in language teachers and learners (Wang, 2024; Wang & Derakhshan, 2025; Wang & Zhang, 2023). Prior research accentuates the cardinal role of psycho-emotional factors in teachers' and learners' classroom performance (Dewaele et al., 2018; Zhang et al., 2023), and an alluring line of inquiry has been conducted on the impacts and implications of such psycho-emotional variables within L2 educational settings (e.g., Deng et al., 2024). Positive emotions engender creative thinking and are interlinked with effort, and self-regulation, while negative emotions tend to diminish academic performance (Pekrun et al., 2011). Within this direction, it is ascertained that the success or failure of technology implementation in L2 education hinges heavily upon psycho-emotional variables (Dai & Wang, 2024). These emotional traits affect how learners can handle the demanding circumstances of technology-based education (Pan et al., 2022).

CVT provides an integrative framework to study emotions in learning and offers a foundation for research on emotions in diverse educational contexts (Loderer et al., 2020). According to this theory, emotions are prompted when learners believe they have control over the learning process and outcomes. In this sense, perceived control indicates learners' potential to handle a situation, which may lead to either success or failure (Pekrun, 2006). Moreover, perceived value pertains to the subjective significance that learners attach to learning activities (Pekrun, 2006). It is argued that perceived control and value arouse positive emotions in learners (Acee et al., 2010). In addition, appraisal patterns are deemed to be stable across different settings, academic disciplines, and learning contexts, which may be either traditional or technology-based (Loderer et al., 2020). Loderer et al. (2020) remark that control-value patterns during technology-based education may yield similar constellations to traditional instruction. Within this direction, positive emotions are associated with high control and effective evaluation of the task in technology-based education, and negative emotions are relevant to lower perceived control and negative value appraisals (Butz et al., 2015; Loderer et al., 2020).

The integration of technology into L2 education may bring about emotional impacts, and L2 students are prone to experience diverse emotions during technology-enabled language learning (Shao et al., 2023). As Pan et al. (2022) assert, positive emotions can generate positive outcomes while negative ones distort learning with novel technologies. Previous studies endorse that technology can induce negative emotions such as boredom, anxiety, and frustration, and positive emotions such as enjoyment and excitement in technology-based language learning (Ding & Zhao, 2020). Additionally, students' acceptance of technologies is contingent on their emotional perceptions (Ding & Zhao, 2020), with positive emotions promoting the acceptance and utilization of technology and negative emotions thwarting its acceptance. It is also posited that students' emotions can affect their self-efficacy in online educational settings by aiding learners in overcoming challenges by engendering higher self-confidence and self-regulated learning strategies (Ahmadipour, 2022). Likewise, technology incorporation serves cardinal features such as asynchrony, multimodality, and flexibility, contributing to learners' positive emotions, namely interest, satisfaction, and joy in academic contexts (Wu et al., 2021).

On the other side, students are susceptible to experiencing negative emotions more frequently due to the novelty of technology in educational domains. The challenges emanating from technology inclusion may pose extra pressure on learners, leading to the experience of negative emotions predominantly. Some may experience demotivation while learning through technology (Liu et al., 2023). Shadiev and Yang (2020) also contend that technology integration may invoke negative emotions and discomfort due to the cognitive load it creates for learners. Relatedly, students may experience nervousness and confusion while drawing on technology due to their lack of familiarity with technological advancements (Bailey, 2019). Nevertheless, despite the pivotal role of emotionality in technology utilization, a thorough review of the literature indicated that most studies on learners' emotions have been conducted in traditional language classes and there is a dearth of studies exploring learners' psycho-emotional factors in technology-based language education. Moreover, how Chinese learners experience emotions in technology-mediated language education is an uncharted territory of research. In response to these lacunas, the present study aspired to inspect Chinese EFL learners' emotions in relation to technology integration and the way such emotions affect their language learning process. Particularly, it sought to answer the following research questions:

1. What emotions do Chinese EFL students experience in their technology-mediated L2 education?
2. How do technology-induced emotions affect EFL students' language learning?

### **3. METHOD**

#### **3.1 Participants and Context**

Using a convenience sampling technique, a total of 38 Chinese EFL students aged between 18 to 25 years participated in this study. They were learning English in private English centers in which the four language skills were taught through an authentic textbook.

The curriculum in such institutes was communicative and learner-centered approach to L2 education. There were 20 male students and 18 female students in the sample. Among them, 23 students were BA students, and 15 were MA students. They majored in English (20), Economics and Management (12), and Chinese language (6). Regarding their proficiency, 17 students were proficient, 13 were at the upper-intermediate level, and the rest were intermediate learners of English. They all voluntarily took part in the study.

### **3.2 Instrument**

In this study, a face-to-face semi-structured interview was conducted during the students' free time. The interview was held in English, but the participants could ask for a Chinese translation of questions in case they found it difficult to understand. Each interview lasted about 25 minutes. There were four interview questions after the demographic information section (Appendix). The questions were open-ended and focused on the participants' perceptions and experiences of using technology in L2 education and their positive and negative emotions experienced in such situations. An audio-recording device was used to record the interviews. The type of emotions induced by technology and their associated impact on the L2 learning process of the participants were emphasized during the interviews.

### **3.3 Data Collection Procedure**

To collect the data for this qualitative study, the researchers first provided a consent form to be officially signed by all the participants. Then, a list of open-ended interview questions was prepared based on the research questions and previous studies on emotions and technology-based L2 education. Afterwards, five questions were provided and sent to two experts, who were experienced in qualitative research on positive psychology and L2 education in China. They suggested some language revisions and the exclusion of one redundant item from the interview protocol. A piloting phase was then carried out to locate possible problems in the interview protocol. Three students were interviewed. Language-related revisions were made in the items. After approving the feasibility of the interview questions, the next step was inviting willing EFL students to partake in the study. After a week, a group of 38 Chinese EFL students agreed to cooperate in the study and signed the consent letter. The goal and process of the study were fully explained to all respondents. No conflict of interest existed. The preferred time for having the interviews was discussed with the students. The interviews were interactive, and the respondents were encouraged to explain their views as much as possible using personal experiences and examples in support of their ideas. It took 10 days to complete the whole data collection phase for the study. On October 19th, 2024, the interviews were all held. The audio files were separately recorded for later analysis, which is explained in the subsequent section.

### **3.4 Data Analysis**

The current study took advantage of thematic analysis to analyze the interview data. Specifically, Braun and Clarke's (2006) model of thematic analysis was followed to generate

frequent themes regarding Chinese EFL teachers' emotions experienced in light of technology and their associated impacts (Figure 1). First, the researchers read the transcripts a couple of times to get familiar with the data. Next, a list of initial codes was provided after highlighting salient segments of transcripts. The codes were placed in a table. They were later connected to produce larger themes. For example, "focus, concentration, and attention" were combined to produce this theme "technology-induced emotions affect attention".



Figure 1. *Stages of Thematic Analysis*

In the fourth step, the generated themes were reviewed once more, considering reliability and validity measures. Subsequently, the themes were defined, refined, and labelled using simple and engaging phrases. Lastly, the final report was prepared using sample interview extracts related to each theme together with interpretations.

With respect to the trustworthiness of the findings (Lincoln & Guba, 1985), the researchers made different efforts. First, to establish credibility, member checking was carried out by asking the participating teachers to review the data, themes, and interpretations. Second, credibility was ensured by inviting an outsider researcher to carefully and critically examine all steps of data analysis. As for dependability and transferability, details of the method, context, tools, and data collection and analysis stages were thickly described to foster future replications of the present study in other settings. Transparency was established by preparing a notebook and a table for analyzing and categorizing codes and themes. Finally, it is important to mention that in this study an outsider positionality was taken to hold the interviews and provide an impartial interpretation.

## 4. FINDINGS

### 4.1. Type of Emotions Experienced by Students

To determine the type of emotions that technology has induced in Chinese EFL students, the third interview question was examined. The results indicated a range of positive and negative emotions, which are depicted in Table 1. As shown, the most frequent positive emotions experienced by the participants were 'enjoyment', 'engagement', and 'excitement'. In this regard, S3 stated that "*the use of technology in our L2 learning makes us enjoy the process of English language learning despite its challenges*". Moreover, the integration of technology was believed to "*engage the students in classroom tasks and activities to an*

extent that they are really immersed in both learning and technology” (S15). The diversity of tools, resources, and functions of technologies was also stated to “increase the rate of excitement in students in a way that they are passionate to make efforts in the class” (S30).

**Table 1.** *The Type of Technology-Induced Emotions among Chinese EFL students*

Type of Emotion	Frequency
<b>Positive</b>	Enjoyment
	31
	Engagement
	25
	Excitement
	22
<b>Negative</b>	Confidence
	16
	Curiosity
	13
	Interest
	10
<b>Positive</b>	Anxiety
	35
	Stress
	28
	Fear
<b>Negative</b>	21
	Boredom
	16
<b>Positive</b>	Dissatisfaction
	7

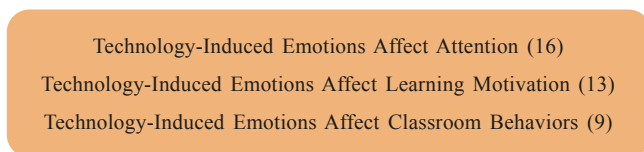
Additionally, it was found that technology utilization had made Chinese EFL students experience ‘confidence’, ‘curiosity’, and ‘interest’. In particular, it was declared by S13 that *“technology use makes us confident in ourselves because it engages us in innovation in the digital world. It is really enjoyable to see we are adroit in using such applications”*. The next positive emotion reported by the respondents was ‘curiosity’ in support of which S37 maintained that *“technology and L2 education are really vast and complicated. Hence, I think using technology raises our curiosity about how to apply them for a better outcome”*. Finally, it was argued that the use of technological tools in L2 classes “makes students interested in the whole process of learning and even the school atmosphere” (S20). Another person stated *“the use of technology is a novel and engaging way of improving the level of interest in students in EFL countries”* (S18).

With respect to negative emotions, the results revealed that ‘anxiety’, ‘stress’, and ‘fear’ had been the most frequently experienced ones among the students. As noted by S19, *“technology-assisted L2 classes are really anxiety provoking because we are not proficient users of many technological resources”*. Another student said *“when I am not able to use technologies like AI, I feel really anxious in the class seeing my peers laughing at me”* (S28). The second frequent negative emotion was ‘stress’, which was believed to emerge from *“students’ doubt in their own ability to use technology and teacher-student pressures to perform well in the class”* (S5). Such pressure was asserted to continue to a level that *“one really fears from technology as a whole”* (S10). Another student referred to *“technophobia in severe cases as such”* (S23). Boredom and dissatisfaction were other reported negative motions in this study. According to S37, *“sometimes the use of old or complicated technologies in the class makes us bored and dissatisfied with what is going on in the class”*. Another participant reiterated *“if I see myself lagging behind others concerning technology use, I feel dissatisfaction of myself and the school”* (S9). In sum, the results indicated a

range of positive and negative emotions in students as induced by technology integration in L2 classes. 'Enjoyment', 'engagement', and 'excitement' were the most frequent positive emotions experienced by the participants, while on the negative side 'anxiety', 'stress', and 'fear' emerged more repeatedly during the interviews.

#### 4.2. The Effect of Technology-Induced Emotions on Students' Learning

The last interview question was analyzed to answer this research question. The results showed that technology-induced emotions affected the participants in three ways, represent in the following themes (Figure 2).



**Figure 2.** *Technology-Induced Emotions' Areas of Influence on EFL Students*

The most common way that technology-induced emotions influenced Chinese EFL students' L2 learning was through directing (in case of positive emotions) or distracting (in case of negative emotions) their attention in the classroom. In this regard, it was declared that *"when the use of technology in L2 classes makes us enjoy L2 learning process, we feel our attention is much more focused and higher"* (S18). Another student referred to the use of AI tools in the classroom that made them excited and *"highly concentrated on speaking skills and pronunciation tasks assigned by the teacher"* (S34). These responses show that attention is directly affected by learner emotions in technology-based L2 classes.

The next place of impact was influencing students' learning motivation. As noted by S29, *"the use technology in L2 classes is really interesting and we get encouraged and motivated to learn English more and more. This innovation enhances motivation in us"*. Moreover, it was claimed that *"motivation to learn is the outcome of a positive use of technology in L2 classes. If students feel positive, they become motivated to proceed the process"* (S36). The students perceived technology as a trigger of motivation in this theme. The third area of influence by technology-induced emotions was related to students' classroom behaviors. It was argued that *"students' classroom behaviors such as engagement, participation and even presence is affected by the type of emotions that they experience in light of technology-based L2 instruction"* (S27). Likewise, it was reported that the emotions may *"make students show nice or even aggressive behaviors in the class with their peers or teachers"* (S13). In sum, the results showed that technology-induced emotions affected three areas of Chinese EFL students' L2 learning, namely their attention, motivation, and classroom behaviors.

## 5. DISCUSSION

This study examined the type of emotions that Chinese EFL students had experienced in technology-based L2 education and their areas of impact. The findings revealed a range of positive and negative emotions induced by technology in Chinese EFL classes. Specifically, it was shown that the participants had most frequently experience positive emotions of ‘enjoyment’, ‘engagement’, and ‘excitement’ in their technology-assisted L2 classes. This aligns with CVT of emotions proposed by Pekrun (2006) in which the type of emotion was regarded as the outcome of value, control, and appraisal of an activity. Moreover, the findings agree with previous studies that reported positive emotions created in EFL students through technology-based L2 education (e.g., Dewaele et al., 2019; Yu, 2022). The novelty of technologies for students may explain the experience of such positive emotions. The participants’ positive attitude toward technology and their digital literacy are also possible justifications for experiencing positive emotions in this study. The students seem to be curious and open to diversity in their L2 learning, which made them welcome technology and enjoy it. The findings can be further attributed to the nature of technology-based education that is engaging and interesting for learners.

Concerning negative emotions, this study indicated that ‘anxiety’, ‘stress’, and ‘fear’ had been the most frequent feelings in technology-based L2 instruction. Again, these are reflective of CTV in the sense that the students’ lack of control and value for technology-mediated tasks and practices in the class may have caused them experience such negative emotions. Empirically, the findings are in line with Derakhshan et al. (2022), who argued that online L2 education through technology produces several negative emotions in EFL students including stress and anxiety. A justification for the findings can be the students’ high degree of technophobia and technostress. It is possible that their digital literacy had not been cultivated enough in Chinese EFL settings. Another reason might be their personality traits making them probe to negative emotions. The manner of injecting technology may have also been boring for students, a claim consistent with previous studies on technology-induced boredom (Derakhshan et al., 2022).

In the second research question, it was found that technology-induced emotions affected three areas of Chinese EFL students’ L2 learning including their attention, motivation, and classroom behaviors. The finding agrees with previous studies on the contribution of technology to learner emotions and behaviors in L2 classes (Kaur et al., 2023; Shadiev & Yang, 2020; Yu, 2022). As postulated in CVT, in case technology integration brings about value, agency, autonomy, and positive appraisal in EFL students, its implementation would affect students’ inner states and classroom behaviors. The students here had shown a high understanding of the areas of technology impact despite their admission of negative feelings in such modes of education. These three areas are directly linked to one’s emotions, so it is contended that the use of technology is bonded with emotionality. If it is effectively employed, more positive areas of L2 learning are cultivated. This calls for re-orientation of technology-based L2 education highlighting the significance of attention, motivation, and behavior. The transmittable essence of emotions to other emotional aspects can justify the findings, as well. The type of technologies used by the participants may have also played a role in their perceptions. These ideas were not considered in the present research leaving rooms for future endeavors.

## 6. CONCLUSION AND IMPLICATIONS

This qualitative study aimed to unveil Chinese EFL students' emotional experiences of technology-based L2 education and the area of impact that such emotions had on their L2 learning journey. The study concludes that the emotions that EFL students experience in such contexts vary in terms of typology and area of impact. This means that emotions are multifarious in the context of technology-assisted L2 education. It can also be asserted that the use of technology in L2 learning is by no means emotion-free. Instead, it is driven by and drives students' emotions and behaviors in the class. Proper use of this mode of instruction can affect students' psycho-affective states and academic behaviors. The study expands theories related to educational technology and learner emotions by adding an emotive-technological element to them. Such theories have rarely considered emotions in technology utilization. Practically speaking, the findings inform EFL teachers in the sense that they get familiar with the emotional effects and consequences of technology integration in their class and take more effective measures. Their digital literacy also enhances in light of the obtained findings of this investigation. EFL students also benefit from the findings by understanding how important their emotions in technology-based classes are. They can change their views and practices to experience positive emotions more than negative ones in such modes of learning. Teacher educators can offer courses to EFL teachers to better equip them with both technological literacy and emotional literacy. In other words, they can highlight the connection between professional development and emotional literacy in L2 education (Ghiasvand et al., 2024). In such courses, common induced emotions and ways to regulate them effectively can be taught to novice teachers.

However, this study is limited in terms of sample size. Only 38 students constructed the sample; hence, future studies are invited to include more participants to reach generalizable findings. The use of a single data collection instrument without any triangulation of data is another drawback in this study, demanding future mixed-methods studies. Moreover, further research is recommended to explore the changes of such technology-induced emotions among EFL students. Nothing was said about the fluctuations of such emotions in this study. The non-random sampling technique used in this study also casts risks on the representativeness of the data and the ultimate interpretations. Future scholars are suggested to examine EFL teachers' voices along with those of students in comparative studies. The role of cultural context and digital literacy in experiencing such emotions is also a fresh line of thinking for future research. The causes of positive and negative emotions induced by technology can also be studied in the future. Their intra- and interpersonal regulation is also an engaging future direction for research. Instead of one-shot data collection and analysis, future researchers are recommended to use innovative approaches to researching emotions, including time-series analysis, ecological perspective, complex dynamic theory, and the idiodynamic method to showcase the dynamism and multifaceted nature of emotions. The study can be replicated using other educational psychology theories and schools, such as positive psychology, self-determination theory, sociocultural theory, and motivation theories. Finally, future studies are invited to focus on the emotional experiences of EFL students in the context of technology-based language testing and assessment.

## FUNDING INFORMATION

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## **8. APPENDIX**

### **Interview Questions**

#### **Part 1) Demographics**

1. Age:
2. Major:
3. Gender:
4. Academic degree:
5. Proficiency Level:

#### **Part 2) EFL Students' Perceptions**

1. What do you think of integrating technology into L2 learning process?
2. What areas of L2 learning do you think technology can influence? Please explain.
3. What emotions (positive and negative) emotions have you experienced in L2 classes mediated by technology? Please elaborate on your experience?
4. How do your emotions in technology-enhanced classes influence your L2 learning?