Why does EFL learners' willingness to communicate, enjoyment and anxiety in an

online class fluctuate dynamically? Adopting an idiodynamic method

by

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Statement of Originality

I, LIU, Lin Lin, hereby declare that I am the sole author of the thesis and the material presented

in this thesis is my original work except those indicated in the acknowledgement. I further

declare that I have followed the University's policies and regulations on Academic Honesty,

Copyright and Plagiarism in writing the thesis and no material in this thesis has been submitted

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Abstract

China is widely recognized as having the highest population of English language learners globally, hence attributing significant importance to English language instruction within its school curriculum. However, despite the implementation of communicative approaches by university teachers to improve students' communication skills (Shi, 2006), students in language classrooms are often perceived as passive learners (Liu, 2002). This passivity can be attributed to the negative washback effects of prior learning experiences, wherein students rarely actively seek opportunities to practice English. In fact, it has been found that less than 1% of Chinese EFL learners are able to engage in conversational English (Smith, 2018). Therefore, the primary issues in the Chinese EFL environment revolve around enhancing learners' L2 WTC and improving their communication abilities and competency. Previous studies have extensively examined a range of factors that influence Chinese EFL learners' L2 WTC in classroom settings (Peng & Woodrow, 2010; Peng, 2016; Li & Liu, 2021). However, there is a limited body of research that has investigated the various elements that influence Chinese EFL learners' L2 WTC and the actual use of English in online class environments. Besides, although the dynamic nature of L2 enjoyment and L2 anxiety has been studied in a face-to-face setting, little is known about how these two emotions interact in an online class.

Underpinned by MacIntyre et al.'s (1998) heuristic model, this study adopted an idiodynamic method to investigate fluctuations in the level of willingness to communicate in a second language (L2 WTC), L2 enjoyment and L2 anxiety in an online EFL class. Seven EFL university students participated in four sessions of an online class (each lasting 20 minutes).

Following the completion of each session, they rated their L2 WTC, L2 enjoyment and L2 anxiety while watching a video recording of their performance. Subsequently, stimulated recalls and semi-structured interviews were combined to identify factors affecting moment-to-moment changes in their L2 WTC and both emotions. Results showed that L2 WTC highly fluctuated during sessions 1 and 2 due to joint influences of trait-like (e.g., introverted) and state-like factors (e.g., technical issues). In contrast, a more stable pattern of L2 WTC was observed during sessions 3 and 4, mainly due to state-like factors, such as adequate support from a teacher. In some cases, both emotions operate in a seesaw relationship, with one rising and the other falling, while in others, they operate independently. A closer look reveals that the relationship between the two emotions is highly complex and dynamic as a result of independent or combined influences from learner-internal and learner-external factors. In addition, the statistical analysis revealed significant indirect effects of both L2 emotions on actual language use via L2 WTC. The findings indicated that students who had a higher level of L2 enjoyment or a lower level of L2 anxiety were more likely to engage in English language communication. This, in turn, had a positive correlation with their actual language use ability.

These findings suggest that EFL learners can become more willing to communicate in an online class through teachers' affective, technical, and pedagogical support. Methodologically, this study shows that an idiodynamic method is a useful analytical approach by which to understand the fluid and dynamic nature of L2 WTC in an online classroom—an emerging L2 learning environment. The findings also show that while EFL students experience an emotional roller coaster at the beginning of the online classroom, a teacher's affective,

pedagogical, and technological support can help students maintain optimal L2 emotional levels over time.

Keywords: Willingness to communicate in a second language, enjoyment, anxiety, idiodynamic method, online class

Acknowledgements

Over the past 25 of 36 years, I've pursued a tumultuous love affair with English language learning and teaching. I used to be a loyal fan of 'Crazy English' when I was committed to be an outstanding English language learner. After graduate, I embarked on a career as an English teacher. Addressing challenges in teaching English, adapting to educational reforms and transforming innovative technologies into my teaching methods to help students are my main sources of adrenaline, the truly addictive core of English language teaching.

First of all, I would like to express my gratitude to my supervisor, Dr. Lee Ju Seong, for his unending patience and support throughout all phases of my doctoral studies and the writing process. We collaborated diligently to conduct several studies and successfully published two articles in esteemed journals. These articles focused on the topic of willingness to communication in second language within online environments, which is also a component of this thesis. He acts as an inspiration and my role model to become a knowledgeable researcher and educator like himself. I count myself extremely fortunate to have been given the chance to become one of his students. In addition, I would like to express my gratitude to my associate supervisor, Dr. Xie Qin, for her timely feedback and support on my research projects. My gratitude also goes to my course coordinator, Dr. Mak Wing Wah, for her inspiring comments and unwavering assistance with my academic work. I would also extend my gratitude to committee member Dr. Siu Ho Tak who provided insightful suggestions during my tutorial and proposal defense.

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Personal Statement

Through four years of dedicated study under the guidance of esteemed scholars, I have not only strengthened my research abilities in the field of English language education, but also achieved notable success in my areas of interest. Specially, with great support from my supervisor, we collaboratively and successfully published one paper in the Journal of Multilingual and Multicultural Development (Lee, J. S., & Liu, L. (2022). Dynamicity of EFL learners' willingness to communicate in an online class. *Journal of Multilingual and Multicultural Development*, 1-19. https://doi.org/10.1080/01434632.2022.2039677) and one chapter in the book titled as Language Learning and Leisure: Informal Language Learning in the Digital Age (Liu, L., & Lee, J. S. (2023). Why does IDLE make EFL learners gritty? *Language Learning and Leisure: Informal Language Learning in the Digital Age*, *66*, 241-268. https://doi.org/10.1515/9783110752441-011). In fact, we have several additional publications that are presently undergoing the review process.

The inclusion of previously published papers in the present study is the primary cause for the relatively high similarity index (27%). Additionally, this aids in rendering the results and comments sections more concise and refined (the core sections of the dissertation consist of fewer than 50,000 words).

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Glossary

In this section, five constructs will be defined: willingness to communicate in a second language (L2 WTC), enjoyment in a second language (L2 enjoyment), anxiety in a second language (L2 anxiety), actual use of a second language (actual L2 use) and online class.

Willingness to communicate in a second language (L2 WTC): L2 WTC is defined as "a readiness to enter into discourse at a particular time with a specific person or persons, using a L2" (MacIntyre et al. 1998, p. 547), and has been considered as a key antecedent of L2 communication behavior (Shirvan et al., 2019). It is also worth noting that this study will examine the development of WTC in both oral and written forms in online classes. This includes using a microphone to talk and typing answers in the chatroom. This also echoes the suggestion pointed out by MacIntyre that the concept of WTC could be "broadened to include explicitly oral and other modes of communication" (MacIntyre et al. 1998, p. 558).

L2 Enjoyment: L2 enjoyment is conceptualized as a significant factor living a full life (Peterson, Park and Seligman, 2005) in positive psychology, has also emerging to be hot topic when relating positive psychology with applied linguistics. It is believed that feeling a sense of enjoyment in English learning could positively correlate with learners' language acquisition in classroom settings (Krashen, 1982, Dewaele and MacIntyre, 2014). Recently, researchers have begun to pay more attention to study the effect of enjoyment in language learning in digital settings given the wider affordance and more opportunities for language learners to acquire English supported by the dramatic development of information technology.

L2 Anxiety: L2 anxiety is defined as "the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning" by MacIntyre and Gardner (1994, p.284). L2 anxiety could be seen as an affective variable of L2 communication that has been intensively researched by CALL researchers (e.g., Arnold, 2007; Cooke-Plagwitz, 2008; Melchor-Couto, 2018). However, according to Kruk (2019), there is a lack of the investigation of the variations of the level of L2 anxiety throughout a time span. This study is of particularly interest to investigate changes and fluctuations in the level of L2 anxiety over specific time periods in online class settings.

Actual L2 Use: actual L2 use is referred to the length of students' speech and the number of words produced by students in both oral speech and written feedback in the online class in this study.

The idiodynamic method: the idiodynamic method is a somewhat cutting-edge research methodology for capturing the dynamic nature of authentic language communication. Based on the concept of 'idodynamic' which refers to 'the dynamic changes within an individual as an event unfolds' (MacInture, 2012: 362), this method is used to facilitate a comprehensive analysis of the temporal fluctuations in a variable at a per-minute level in this study.

Complex dynamic systems theory (CDST): CDST framework posits that "With CDST... the shape that language takes are deferred, always in process, ever-emerging dynamically from interaction" (Larsen-Freeman & Cameron, 2008: p. vii).

Broaden-and-build theory: broaden-and-build-theory posits that positive emotions (e.g., L2 enjoyment) can have the effect of expanding an individual's cognitive processes and

motivating them to participate in creative and experimental thinking and behaviors. This, in turn, facilitates the development of skills (Fredrickson, 2001).

Online class: online class is defined as a digital environment (e.g., Zoom) in which a teacher and students can interact with one another synchronously, for example, through live-streamed lectures or writing in a chat window. In that regard, asynchronous online teaching that does not happen in real time (e.g., a pre-recorded video lecture) is not of interest in the current study. In the field of L2 teaching and learning, this type of online class has increasingly been implemented during the current COVID-19 pandemic period (Derakhshan et al., 2021; Moser et al., 2021).

Chapter 1: Introduction

This chapter describes the significance of English in modern China and challenges of English language teaching and learning in the New Era, as well as the significance of the thesis study.

English has significantly influenced China across multiple domains, including business, education, cultural exchange and media, following significant occurrences like China's accession to the World Trade Organization (WTO) and the hosting of the 2008 Beijing Olympic Games. Chinese EFL learners have demonstrated significant enthusiasm for acquiring English due to a multitude of factors, such as striving for academic achievement, fostering international business relationships, and gaining access to knowledge and many cultures through mass media and social media platforms. Acquiring English skills offers Chinese learners of English as a Foreign Language (EFL) the chance to engage in global communication. In 2020, Rios et al. carried out a study that examined the 21st-century learning skills required for professional performance. They conducted a comprehensive analysis of 142,000 job advertising that were gathered within one year, and provided an empirically rank-order skill demand list. The results clearly showed that oral and written communication skills were specifically highlighted among all the listed skills. They focused on how employers Consequently, higher education institutions must carefully consider the implications of the findings when establishing educational standards, particularly in the field of language learning. However, learning a second language (L2) is a profoundly affective endeavor that involves both positive (e.g., enjoyment) and negative (e.g., anxiety) emotions. Furthermore, these

emotional elements have been demonstrated to have a significant impact on the willingness to communicate in a second language (L2 WTC), which is widely recognized as a crucial antecedent of L2 communication behavior (Shirvan et al., 2019). Specifically, Chinese EFL learners, who are obligated to learn English within a formal educational framework, have been identified as passive language learners in the classroom (Liu, 2002). They have demonstrated the lowest levels of enjoyment in learning their second language (L2) and the highest levels of anxiety among L2 learners worldwide (Dewaele & MacIntyre , 2014). These factors have been shown to impact their perception of their own English proficiency and their actual English achievement (Li, 2020). Dong Yuhui, a highly prominent Chinese internet celebrity, obtained his degree in English from a foreign language university. He gained over 24 million fans on the Douyin platform (the Chinese version of TikTok). His English learning experience made him a representative example of Chinese English as a Foreign Language (EFL) learners. According to his recall on English learning experience:

"During the initial stages of my English learning in university, I consistently experienced anxiety and difficulty expressing my responses to the teacher's questions during class. Consequently, when responding, the teacher mistakenly presumed that I was employing the dialect of my place of origin, whereas in reality I was answering the question in English. My anxiety intensified as I struggled to come to terms with my inability to answer the teacher's questions. Additionally, I experienced a sense of guilt when attempting to express my thoughts and carried a fear of being ridiculed by my peer classmates. Subsequently, I experienced a sense of guilt due to my flawed pronunciation and accent. These external influences have the power to produce transformation in individuals, hence it is crucial to always remember the

challenges associated with growth. Both pain and anxiety are valid experiences. Their essence stems from discontent with the existing state of circumstances and from insufficiently rapid progress. Individuals who experience dissatisfaction are more likely to accomplish remarkable achievements. Disconnected poets can compose poems that have endured for millennia; discontented writers can produce works that are commercially successful and appreciated by people. When I observed fellow students who succeeded in professional courses, it appeared that they had likely accumulated extensive practical experience during their time in junior high school and high school, enabling them to attain a high level of proficiency. In contrast, I found myself with no direction, causing me to experience anxiety and distress. Therefore, I diligently improved my self-assurance and diligently engaged in rigorous daily English practice. Despite my persistent anxiety due to the sluggishness of the advancement, I noticed that English displays distinct accents across the globe. In the United Kingdom, variations in accents can be observed throughout different regions. Hence, I gradually came to understand that individuals have the ability to communicate in diverse ways using different accents, with the primary objective being the clear and fluid expression of their opinions. Upon attaining this understanding, I progressively developed a greater sense of ease, immersed myself more, and started deriving pleasure from the process of acquiring and using the English language. Ultimately, during the remaining years of study, when the teacher discovered that my proficiency in spoken English was exceptional, arrangements were made for me to host a foreign friend. Throughout this tour, my performance was exceptional, to the extent that the foreign friends went as far as expressing their gratitude to the university through written correspondence. Consequently, my self-assurance grew, and I derived even greater pleasure

from hosting international friends. Additionally, I became more willing to engage in English conversation. Such a whole experience marked a significant shift in my life. Upon completing my studies, I made the choice to pursue a career as an English teacher."

Dong Yuhui attributed his initial failure in English class to anxiety caused by the fear of "losing face" through the use of incorrect language or pronunciation. Nevertheless, upon acknowledging the existence of multiple accents in English, he ultimately came to the realization that individuals possess the capacity to communicate in various manners by employing different accents, with the major aim being the articulate and seamless expression of their viewpoints. He became more willing to communicate in English. In fact, he was so eager to use English that he even took a job as a Chinese-English translator for people from English speaking countries. He enjoyed this job and consequently, he gained more confidence and pleasure to engage in English conversations. His experience in learning English was by no means an exceptional to large number of English learners in China. Therefore, it is plausible to assume that even though Chinese EFL learners are quite vulnerable to experiencing anxiety in English class, they have the potential to cultivate a desire to communicate when they discover methods to derive enjoyment and confidence in learning English. Moreover, this is precisely why there is a need for further research in L2 WTC and L2 emotions from a dynamic perspective in Chinese context.

1.1 The development of English education in China

The development of English education in China is an ongoing endeavor marked by both obstacles and prospects, which can be broadly categorized into five different stages of growth.

1.1.1 English education in the early stage in China (1900 – 1949)

During this period, English education in China relied primarily on foreign missionaries (such as American and British) and private schools located in certain coastal cities, largely due to the impact of the feudal education system. The scope is limited, the scale is minuscule, and there is a lack of structured and comprehensive education. English is considered to be an important foreign language; however, it lacks widespread promotion.

1.1.2 English education after the establishment of New China (1949 – 1960s)

The establishment of the People's Republic of China has brought about significant changes in English education. The inclusion of English as a foreign language in school curricula led to the development of structured English teaching methods and the creation of educational materials specifically designed for the teaching of English. English education in China during this period primarily focused on the teaching of grammar and fundamental concepts. Specifically, in early 1956, the Ministry of Education responded to the "March to Science" initiative by introducing English classes to high schools in major urban areas. English classes were also reintroduced in junior high schools in numerous cities during the following

year. In 1960, language institutions were founded, and the teaching of English commenced in

the third grade of primary education. In 1964, China introduced its first foreign language

education initiative and published the "Seven-year Plan for Foreign Language Education",

which designated English as the primary foreign language in formal education (Mao & Min,

1949). There was a substantial increase in the number of individuals learning English.

1.1.3 English education during the Open-up Reform in China (1970s – 1980s)

The implementation of the reform and opening up policy has yielded significant

transformations in the field of English education in China. During this period, China started to

establish stronger connections with the international community, leading to a significant rise

in the demand for foreign languages. The English education system has undergone

diversification, covering junior high school, high school, and higher education institutions. In

1978, the Ministry of Education issued teaching syllabus for English majors in higher

education (Li, 2018) which was the first comprehensive and independent English teaching

syllabus specifically designed for English majors in Chinese colleges and universities. It

aimed to address the requirements that developed during the initial stages of the reform and

opening up policy, in accordance with the specifications for those proficient in foreign

languages. The requirement mandates that English majors enrolled in four-year programs at all

types of colleges and universities, including comprehensive universities, foreign language

colleges, and normal colleges, must get fundamental-level of training in the four essential areas

of listening, speaking, reading, and writing. The English professional level and skills are

elaborated upon, with specific standards pertaining to teaching content, teaching principles and methods, as well as tests. All college admission exams candidates were entitled to take the foreign language test. Applicants for foreign language colleges or majors were also required to take an oral examination in addition to the written test.

In that same year, the syllabus of English language teaching for primary and junior high schools was also issued to determine the direction of English education in secondary schools (Shi, 2001). In July 1982, the Ministry of Education released the "Opinions on Enhancing Foreign Language Education in Middle Schools", which emphasized the critical need of enhancing foreign language education. The document highlighted the importance of this endeavor in fostering international exchanges, nurturing individuals capable of contributing to socialist modernization, and improving the cultural, scientific, and technological strength of the country. It underscored the necessity and profound strategic significance of this initiative. The policy to promote English-based foreign language teaching at the middle school level was reaffirmed. During this period, the TOEFL test was introduced in China, leading to standardizing improvements in English examination in GaoKao. The Ministry of Education Examination Center was officially established in 1987 as the first dedicated educational examination organization.

1.1.4 English education in blossom in China (1990s – 2000s)

During this period, China experienced a significant growth in English education examinations, with a quick expansion in the number of schools and a sustained rise in the

popularity of English learning. English examinations, such as TOEFL and IELTS, have become as crucial determinants for students' subsequent academic pursuits and professional opportunities. Furthermore, there was a significant emergence of foreign language learning facilities throughout this period.

In fact, ever since a spike in Chinese individuals venturing overseas that began in the 1980s, there has been an exceedingly fervent interest among the Chinese people in acquiring proficiency in the English language. This is evident from the widespread popularity of "Follow Me" and "New Concept English" in China during that period. Beijing New Oriental English Training School was founded in 1993. In the same year, EF also made an official appearance in China, becoming the first foreign-funded language learning institution to receive approval for entry into China.   These specialized training organizations focused on providing training for English exams such as TOEFL, IELTS, and GRE. They served a crucial role in enabling a significant number of Chinese students to pursue overseas education and secure work opportunities in foreign companies. Simultaneously, the College English Test Bands 4 and 6, as well as the English Major Test Bands 4 and 8, have reached a new level of refinement. This had not only sparked the enthusiasm of teachers and students, but also facilitated the enhancement of college English education. Moreover, it had become a crucial factor for students to pursue further studies within the country.

1.1.5 English education in the Digital Age in China (21st Century – Present)

The rapid development of the Internet technology brought about in a new age for English education, enabling students to acquire English skills through online courses, applications on smartphones, and an extensive variety of educational resources. The China MOOCs for Foreign Studies Alliance was founded in December 2017 in Beijing. It was initiated by Beijing Foreign Studies University and established in collaboration with numerous foreign language colleges and universities nationwide, as well as institutions with exceptional foreign language programs. The development of the alliance signifies that China's higher foreign language education's advancement in informatization has now progressed to a new phase of enhanced implementation, integration, and innovation. Universities will collaborate in sharing educational resources via online platforms, co-develop curricular systems, foster instructional innovation, and advance the comprehensive progress of educational modernization in the realm of higher foreign language education in China.

In the meantime, China's global exchanges and collaborations are steadily growing, with English becoming as a widely used international language. According to Wang's (2018) review of the "High School English Curriculum Standards (2017 version)", the importance of the goal of fostering moral character and embodying the core socialist values was emphasized by the Chinese government, along with the importance to enhance learners' language proficiency, cultural awareness, critical thinking skills, and overall learning abilities, which are considered essential competencies in the field of English education. The "National Standards for the Teaching Quality of Undergraduate Majors in General Universities" (Foreign Language and Literature) (MOE, 2018) states that the objective of foreign language studies is to develop strong all around qualities, a firm foundation in foreign language skills, and expertise in

professional knowledge and abilities. This includes acquiring relevant professional knowledge and being adaptable to China's foreign policy. China is seeking individuals with expertise in foreign languages and a strong command of multiple languages for roles in communication, national and local economic and social development, various foreign-related businesses, foreign language education, and academic research.

1.2 The role of English in Chinese context in the New Era

China's initiation of its opening up and economic reform in 1987 has driven it to become the largest global economy, exerting substantial influence in international affairs (Li, 2020). English has played a pivotal role in facilitating communication with other nations and fostering global connections. English serves as a lingua franca in various domains, including business settings (Feng, 2021). It also holds significance in education, enabling Chinese students to pursue their educational objectives through English, and facilitating Chinese scholars in achieving greater worldwide influence in academia through academic discourse (Zhang, 2017). Given the important role of English as a lingua franca in various settings in contemporary China, the Ministry of Education in China mandated that Chinese students begin studying English at a younger age at the beginning of the century. In January 2001, the Chinese Ministry of Education issued a curriculum directive mandating the inclusion of English instruction in elementary schools, commencing from the third grade (Hu, 2005). Subsequently, Chinese students have been mandated to study English starting from the third grade in primary schools, making it one of the three core disciplines alongside Chinese and Math. Since 2011,

the Ministry of Education has actively promoted the dominance of English in foreign language learning in China. As a result, there has been a significant increase in the enthusiasm of Chinese people towards learning English, commonly referred to as the "English fever". Specifically, students begin to learn English at 3rd grade and persist in learning it for a minimum of 12 years in both formal school context and informal outside of school context (e.g., private English institutes). This rigorous preparation is undertaken in anticipation of the high-stakes college entrance examination, known as GaoKao, which determines a student's eligibility for admission into a university. As for university students, non-English majors are required to complete a minimum of 128 hours of study, equivalent to eight credits. They may also opt to continue studying English for specialized purposes throughout their bachelor's degree, but the number of hours and credits required may vary between universities.

1.3 The Promotion of online English learning in China

The rapid advancement of information technology necessitates adaptations in English language teaching and learning in China. In 2007, the Chinese Ministry of Education (MOE) released the College English Curriculum Requirements (CECR), which emphasized the use of modern technology to enhance teaching methods and support students' independent and personalized learning (2007, p.18). More recently in 2018, the Ministry of Education (MOE) issued a notification called "the Education Informatization Action Plan 2.0." This notification mandated that all schools at various levels should establish online platforms to support online teaching and learning. The purpose of this initiative is to ensure that students have access to a

wide range of data and resources and to encourage them to learn without being limited by time or location. Consequently, an increasing number of institutions began incorporating Massive Open Online Courses (MOOCs) into their curriculum and developing their own customized MOOCs on the platform. The data shows that there are currently 777 MOOCs available for English language learning on the "Chinese University MOOCs" platform, which is at the university and college level. Additionally, there are about 100 EFL MOOCs available on the "ICVE" platform, which is at the vocational and technical college level. Universities and colleges are utilizing MOOCs to demonstrate the successful transformation of English language teaching and learning. Furthermore, MOOCs have the potential to address the issues associated with the conventional approach to teaching and learning English in higher education. According to Wang (2015), incorporating MOOCs into English language instruction can supplement the monotonous way of teaching and learning which only characterized with teacher-centered model. Several scholars argue that a teacher-centered approach to teaching and learning is responsible for the lack of enthusiasm in language acquisition among students (Wu, 2015; Rong, 2016; Lv, 2016; Liu, 2016; Fan, 2016). According to Wang and Yang (2015), incorporating MOOCs into College English Courses can alter the dynamic between teachers and students by encouraging students to take on a more proactive and independent role in their learning. This can promote individual learning and lifelong learning as students gain the ability to access a wide range of online resources and materials to support their own learning. This is also consistent with the requirements outlined in the CECR issued by the government.

1.4 The challenges of English learning in Chinese context in the New Era

Although English holds significant importance in China and the government places great emphasis on English education, Chinese students who are learning English as a foreign language still have difficulties in effectively communicating in English. In a case study on three Chinese adult learners, Liu (2002) made the claim that Chinese students were frequently characterized as passive language learners in the classroom. Understanding their willingness to communicate from a dynamic perspective would be crucial to uncover the truth about Chinese EFL learners. Regrettably, there is a dearth of research on L2 WTC in digital settings from a dynamic system perspective (Kruk, 2021). This is surprising because L2 communication in digital contexts has been found to be highly dynamic and unpredictable (Kruk, 2019). Moreover, although past studies set efforts to explore L2 WTC in online learning platforms such as Second Life (Kruk, 2019, 2021), and proved it has the potential to help EFL learners develop communication skills, actual use of Second life as a learning platform by learners and teachers remains questionable due to several pedagogical challenges (e.g., high turnover rates in language partners and excessive teacher workloads) (Zhang, 2013). Furthermore, from a methodological perspective, Kruk (2019, 2021) collected self-reported data from advanced Polish EFL adult learners. Although the researcher collected the data shortly after the end of each session, the participants were vulnerable to recall bias (e.g., providing less accurate estimates about L2 WTC levels) because their responses relied solely on their memories (Bradburn et al., 1987). A limitation of this retrospective method can be addressed by adopting an idiodynamic method. According to MacIntyre and Legatto (2011), an idiodynamic method allows participants to watch a video recording of their L2 performance while self-rating their

levels of L2 WTC. Using a graph of L2 WTC self-ratings, researchers can also conduct a follow-up interview.

On the other hand, in tandem with the movement of positive psychology (Seligman & Csikszentmihalyi, 2000) as well as a recent 'emotional/affective turn' (Prior, 2019; White, 2018), L2 researchers have begun to recognize a vital role of both positive and negative L2 emotions (Boudreau, MacIntyre, & Dewaele, 2018; MacIntyre, Gregersen, & Mercer, 2019; MacIntyre & Mercer, 2014). Asian L2 learners, of which more than 75% were Chinese nationals and majority of them were adult learners, had the lowest levels of L2 enjoyment and highest level of L2 anxiety among L2 learners worldwide. In this regard, this study focuses on the individual differences among Chinese adult EFL learners to further investigate the common perception of their L2 emotions. Learning a second language (L2) is a highly emotional activity that involves both positive (e.g., enjoyment) and negative (e.g., anxiety) emotions. Since Dewaele and MacIntyre (2014) reported that L2 enjoyment and L2 anxiety were conceptually distinct constructs, numerous studies involving both L2 emotions have been conducted (Dewaele et al., 2019; Dewaele & Dewaele, 2020; Pan & Zhang, 2021). A growing body of research has shown that L2 enjoyment and L2 anxiety are not simply the result of stable trait-like factors such as gender, which are relatively consistent and long-lasting across time and circumstance (Boudreau et al., 2018; Kruk, 2022). Rather, both emotions are influenced by intricate interactions and a variety of momentary state-like factors in which the person is embedded, such as teachers, peers, and the classroom setting. In this regard, a more nuanced dynamic nature of L2 enjoyment and L2 anxiety has recently been captured using an idiodynamic approach (Boudreau et al., 2018), or "new approach to studying the affective or

cognitive states that accompany human communication" (MacIntyre, 2012, p. 361). Concurrently, as digital-mediated L2 learning becomes more common, recent research has begun to investigate positive (e.g., L2 enjoyment) and/or negative emotions (e.g., L2 anxiety) in online environments such as virtual reality environments (Kruk, 2022), automatic speech recognition-based websites (Bashori et al., 2021), and online class environments (Derakhshan et al., 2021).

Understanding L2 learners' emotions in an online class is both timely and critical, given the rapid rise of online learning in the field of L2 education (Derakhshan et al., 2021). However, a dynamic perspective on both L2 emotions in an online setting is still in its early stages (Lee & Liu, 2022). This is surprising because L2 emotions are highly dynamic and unpredictable in digital environments (Kruk, 2022). Understanding a dynamic view of L2 enjoyment and L2 anxiety could be improved methodologically. In Dewaele and MacIntyre's (2016) study, some respondents used a short timescale (e.g., a minute) to report L2 enjoyment and L2 anxiety episodes, while others used a long timescale (e.g., over an academic year). To address this methodological issue, Boudreau et al. (2018) conducted a study in lab settings where their participants performed the tasks without interlocutors. However, their participants were limited to advanced French learners. Although Kruk (2022) carried out an innovative online study on L2 emotions from the dynamic perspective, only two advanced EFL learners participated, and the self-reported questionnaire failed to examine L2 enjoyment and L2 anxiety together.

In view of these challenges, the current study lays its significance on: first, it aims to expand Kruk's (2019, 2021) studies by:

- investigating L2 WTC, L2 emotions, and actual L2 use in an online class, which is increasingly a common language learning environment but an unexplored territory in the area of L2 WTC (Derakhshan et al., 2021; Moser et al., 2021);

- recruiting more participants ($N = 7$) with various proficiency levels (ranging from intermediate to advanced) in a different EFL context (i.e., Mainland China); and

- employing an idiodynamic method to enhance data accuracy and reliability.

Second, theoretically, our findings are expected to extend the application of MacIntyre et al.'s (1998) heuristic model to an online classroom. Moreover, this study will deal with a methodological challenge regarding recall bias that has not been addressed in the existing research on L2 WTC and L2 emotions. Adopting such a more rigorous methodological approach will help build up more confidence about the findings and it could also compensate the previous research which used a cross-sectional approach to determine a general picture of Chinese EFL learners' WTC and emotions, since it could help further examine individual differences and offer more in-depth findings. Pedagogically, an analysis of the fluctuations in students' L2 WTC and L2 emotions can offer solid evidence for language educators and stakeholders to recognize the need of a learner-centered approach in L2 teaching.

Lastly, the findings of this study will offer language teachers new and timely insights into what kinds of support they can provide to help students become more active and positive during L2 learning in an online class. Considering the current pandemic influence on education, online class is overwhelmingly and massively adopted in teaching worldwide, not to mention EFL language education. Similar EFL contexts which shares the same obstacles with performing online class such as low levels of WTC and L2 enjoyment and relatively high levels

of L2 anxiety among adult EFL learners, could be benefited from the results and analysis of this study.

Summary of the Chapter

This chapter discussed the five different stages within the development of English education in China, the significance of English in modern China, as well as the challenges faced in reforming English instruction in Chinese context due to the rapid development of information technology. The next chapter will present previous literature on L2 WTC along with its antecedents and consequences.

Chapter 2: Literature Review

The definition of willingness to communicate in second language (L2 WTC) and enjoyment and anxiety in a second language were introduced in Chapter 1, and this chapter reviews the past research on willingness to communicate in second language including the definition, different types of measurements, and its applications in various settings. The definition of idiodynamic method in the EFL context will be discussed. Next, the antecedents and consequences of L2 WTC will be discussed. Specifically, previous researches suggested enjoyment and anxiety could be factors influencing L2 WTC (MacIntyre & Gregersen, 2012; Kruk, 2022). Besides, drawn upon the MacIntyre et al.'s (1998) model, L2 WTC can greatly affect L2 use. After, the context of this study namely the online class will be introduced. Then, the gaps of this line of research will be explained. The research questions will be presented. It is important to note that although the study gave equal importance to three main constructs - L2 WTC, L2 enjoyment, and L2 anxiety - there is a greater amount of literature discussing L2 WTC compared to L2 emotions. This is because L2 WTC is the final step in MacIntyre et al.'s (1998) model, which has been extensively studied over the past decades. On the other hand, there is relatively less literature focusing on L2 emotions, despite its growing emphasis in L2 learning research.

2.1 Willingness to Communicate in second language (L2 WTC)

Willingness to communicate (WTC) refers to a person's readiness to use a second language (L2) to communicate with a specific person or group in a given situation (MacIntyre

et al., 1998). MacIntyre (2007) found that both internal and external elements have been identified as interacting to impact an individual's willingness to communicate (WTC) in a second language. According to MacIntyre and Lagatto (2011), internal trait-like variables such as age and gender tend to exhibit consistency over time and across different settings. On the other hand, external state-like variables like instructors' pedagogy and classroom atmosphere are more likely to vary across different situations. An example of this may be observed in the study conducted by Lee and Liu (2022), where it was shown that teachers who cultivate a pleasant classroom atmosphere and select engaging and relatable discussion topics are able to encourage Chinese English as a Foreign Language (EFL) students who are often hesitant to participate in class to become more inclined to speak up. WTC vary across in-class, out-of-class, and digital contexts (Lee & Chiu, 2023). In the context of language learning, *in-class WTC* refers to a student's readiness to use their L2 in the presence of familiar classmates, particularly in predictable communication scenarios that occur within the classroom environment (Lee & Chiu, 2023). On the other hand, *out-of-class WTC* refers to a student's inclination to participate in discussions in unplanned and diverse circumstances beyond the confines of the classroom, frequently with interlocutors they are not acquainted with. *Digital WTC* refers to a student's propensity to use L2 in digital environments, regardless of whether they are interacting with others they are familiar with or unfamiliar with.

2.1.1 EFL learners' L2 WTC in Chinese context

Despite the fact that young Asian EFL learners have few opportunities to speak English and low level of motivation to do so due to various factors, such as group size, familiarity with interlocutors or topics, self-confidence, medium of communication, cultural background, proficiency level, anxiety and attitudes (Cao & Philp, 2006; Cao, 2011; Peng, 2012), a significant proportion of them have access to the internet and smartphones (Kiaer et al., 2021; Lee, 2022). Taking this into consideration, Asian-based researchers have begun to investigate how EFL students learn and use English while they are not in the classroom. For example, students may watch videos on YouTube, engage in online chats with other people, or play online games. Lee (2022), Soyoof et al. (2021), and Zhang and Liu (2022) are some of the researchers who have investigated how the out-of-class online method to English learning, also known as Informal Digital Learning of English, influences the learners' L2 WTC both inside and outside of the classroom. For instance, Korean EFL undergraduate and graduate students who practiced English online more frequently (for example, by interacting with other English users on social media) demonstrated greater levels of L2 WTC in face-to-face and digital communicative contexts (Lee et al., 2022). However, a more in-depth investigation revealed that Korean students only participated in online English learning activities once per week. As a result, the researchers, in accordance with the recommendations made by Henry et al. (2018) and Schurz and Sundqvist (2022), emphasized the significance of the teacher in bringing students' attention to online English learning activities and encouraging them to participate in them more frequently.

China is widely recognized as having the highest population of English language learners globally, hence attributing significant importance to English language instruction

within its school curriculum. In the educational context, it is observed that the acquisition of English language skills commences during the third grade of primary school. This learning process extends over a minimum duration of twelve years, encompassing both formal educational settings and informal extracurricular avenues such as private English institutes. The primary objective of this extensive English language education is to adequately equip students with the necessary linguistic proficiency to successfully navigate the high-stakes college admission exams, commonly referred to as the GaoKao. Due to the significant role of the GaoKao test scores playing in university administration, English teachers, especially those who teach the senior high school students, tend to use grammar-translation pedagogies that focus on forms of English rather than communicative approaches that focus on communicative skills. Consequently, a limited number of opportunities are available for students to engage in English verbal communication inside the classroom setting. In the context of university education, students who are pursuing majors other than English are typically required to fulfill a minimum of 128 hours of study, equivalent to eight credits, in the field of English. Subsequently, these students have the option to continue their English language education for specialized purposes throughout the duration of their undergraduate studies. It is important to note that the particular number of hours and credits required may vary across different universities. Despite the implementation of communicative approaches by university teachers to improve students' listening and speaking skills (Shi, 2006), students in language classrooms are often perceived as passive learners (Liu, 2002). Among various reasons of the students' limited participation in communicative activities, the most commonly mentioned one was known as the washback effects. This passivity can be attributed to the negative washback

effects of prior learning experiences, wherein students rarely actively seek opportunities to practice English.

Moreover, Chinese students are frequently observed to display a lack of will to communicate or even remain silent (Jackson, 2002; Liu & Jackson, 2011) in classes, thus diminishing their already limited opportunities for actual L2 communication. In fact, it has been found that less than 1% of Chinese EFL learners are able to engage in conversational English (Smith, 2018). Therefore, the primary issues in the Chinese EFL environment revolve around enhancing learners' L2 WTC and improving their communication abilities and competency. Previous studies have extensively examined a range of factors that influence Chinese EFL learners' L2 WTC in classroom settings (Peng & Woodrow, 2010; Peng, 2016; Li & Liu, 2021). However, there is a limited body of research that has investigated the various elements that influence Chinese EFL learners' L2 WTC and the actual use of English in online class environments. Lee et al. (2022) used a mixed method research design to conduct a comparative study between Korean and Taiwanese EFL university students regarding L2 WTC. According to the survey results, the Taiwanese group outperformed the Korean group on L2 WTC in extramural digital contexts. The interview data revealed that Taiwanese students attributed their higher L2 WTC online to their teachers' affective (e.g., encouraging students to befriend foreigners on social media) and meta-cognitive support (e.g., demonstrating how to interact with other English users on Facebook).

In a recent study, Zhou (2023) conducted a research to investigate the impact of online exchanges on learners' L2 WTC. The findings revealed that learners who use the Tandem language exchange application to engage in online communication with English speakers from

other countries reported a significantly elevated level of L2 WTC and speaking proficiency. However, the sample of the study was restricted to those pursuing postgraduate degrees with advanced English skills. Additionally, the learning environment was confined to an online platform devoid of instructor assistance, as opposed to an online course designed for formal language instruction involving interaction with peers and interlocutors.

2.1.2 Trait-like perspective of L2 WTC

The emphasis in language teaching and learning has shifted towards improving communication skills rather than solely focusing on grammatical structures. As a result, the concept of willingness to communicate (WTC) has gained significant attention as a prominent area of research in language education. The initial introduction of the concept of WTC was made by McCroskey and his colleagues as an extension of affective constructs for the purpose of investigating the communication patterns of learners in their first language (L1) (McCroskey & Richmond, 1987; McCroskey, 1992). Subsequently, MacIntyre and Charos (1996) further developed and applied this concept to the realm of second language (L2) communication. Numerous studies have provided evidence about the examination of individual variances in L2 acquisition and the efficacy of WTC in explaining learners' achievement or proficiency in L2 acquisition (MacIntyre & Charos, 1996; MacIntyre, Baker, Clément, & Donovan, 2003; Yashima, 2009).

The previous researches on L2 WTC primarily focused on examining the potential impact of WTC on L2 communication from a consistent and enduring trait-like perspective.

The study conducted by MacIntyre and Charos (1996) examined the impact of global personality traits on the frequency of L2 usage in everyday conversation. This investigation utilized a combination of Gardner's (1985) socio-educational model and MacIntyre's (1994) willingness to communicate model (p. 10). A group of 92 English-speaking individuals who were learning French as a second language were recruited to provide their subjective evaluations on the indicators of the Big-Five personality traits, frequency of communication, willingness to communicate, attitudes, and motivation in both professional and personal settings. The path analysis results revealed that multiple factors, such as social, personality, and emotional consequences, have a significant impact on willingness to communicate, motivation for language learning, and perception of competence. These findings highlight the complex dynamics of L2 communication. Although their work was limited to the context of beginning language learners, it successfully established a significant correlation between global personality traits and L2 learning and L2 WTC. In addition to personality, gender and age were also recognized as significant elements influencing L2 communication and other variables related to individual differences. Gardner (1985) found that female L2 learners had a more positive attitude towards language acquisition compared to male learners. This suggested that differences in attitudes may contribute to the observed disparities in accomplishment between males and females. MacIntyre, Baker, Clément, and Donovan (2003) conducted a cross-sectional study examining the impact of trait-level factors, such as gender and age, on L2 WTC during the initial stages of L2 acquisition. A bigger group of 268 junior high students enrolled in a French immersion program was recruited. The students were instructed to complete a questionnaire comprising eight scales, including willingness to

communicate, perceived competence, communication apprehension and language anxiety, communication frequency, integrativeness, motivation, attitude toward the learning situation, and attitude and motivation index. The findings revealed that the frequency of L2 communication among the young L2 learners increased, while the disparity between L2 WTC and L1 WTC reduced. This suggests that the young learners developed an increased willingness to make use of the L2 language for genuine communication. Nevertheless, when compared to older learners in the study, younger learners displayed a lower willingness to participate in L2 communication, with anxiety potentially playing a significant role in these matters. Their study corroborated previous research (e.g., Gardner, 1985; Clark & Trafford, 1995) which found that, unlike young boys who maintained consistent levels of willingness to communicate (WTC) and anxiety across all ages, girls experienced an increase in WTC and a decrease in anxiety as they get older. The insights gained from their research on the impact of gender and age on L2 WTC have the potential to inform pedagogical practices for young language learners. Subsequently, a significant portion of research in L2 WTC has been conducted, with a particular emphasis on examining trait-level aspects within various contextual frameworks. Yashima (2009) brought forth the notion of international posture, which elucidates the learner's inclination towards the international community, overall enthusiasm for international travel and engagements, as well as interest in foreign affairs. The study also examined the correlation between international posture and L2 WTC within the Japanese context. Mystkowska-Wiertelak and Pietrzykowska (2011) have highlighted the distinct attributes of the correlation between international posture and L2 WTC within the educational framework in Poland. Ghonsooly, Khajavy, and Asadpour (2012) conducted a

study examining the relationship between L2 self-confidence and attitudes towards L2 WTC in the Iranian setting.

MacIntyre et al. (1998) introduced a heuristic model, depicted as a pyramid in Figure 1, which has broadened the scope of the initial trait-like perspective on L2 WTC. The framework presented in this study reflects two distinct dimensions: trait-like, distal, stable dimensions (Layers VI, V, and IV) and situation-specific, instantaneous, dynamic dimensions (Layer III). Layer VI, at the bottom of the pyramid, includes stable and trait-like individual and social contextual factors such as personality and intergroup atmosphere. EFL students who are extroverted and resilient, for example, are more willing to communicate in English (Piechurska-Kuciel, 2018). Layer V manifests an affective-cognitive context, which is considered more situational and transitional than Layer VI. For example, EFL students who believe they are competent English speakers and who think they are in positive learning environments due to support from teachers and peers (Dewaele, 2019; Dewaele & Dewaele, 2020) as well as a positive classroom vibe (Dewaele, 2019; Khajavy et al., 2016; Peng, 2019) tend to initiate more conversation in English. Layer IV reflects motivational proclivities, which relate to L2 self-confidence, interpersonal motivation, and intergroup motivation. EFL learners who are confident in using English (MacIntyre & Wang, 2021) and who are familiar with interlocutors (Cao, 2014) are more eager to initiate English communication (Cao, 2014; MacIntyre & Wang, 2021). Layer III, which represents situated antecedents, is associated with one's communicative self-confidence and desire to communicate with a specific person in a particular context. EFL learners, for example, are more willing to communicate in English if

they gain confidence in speaking English through learning stimuli (e.g., pictures; MacIntyre & Wang, 2021) and interact with friendly interlocutors in virtual world settings (Kruk, 2022).

According to this concept, there are various enduring trait-like and transient state-like characteristics that work together to impact individuals' L2 WTC in Layer II, such as raising hands in the classroom. This, in turn, influences their communication in L2 in Layer I, for example, speaking up in class.

Figure 1

The pyramid model of L2 WTC (MacIntyre et al., 1998)
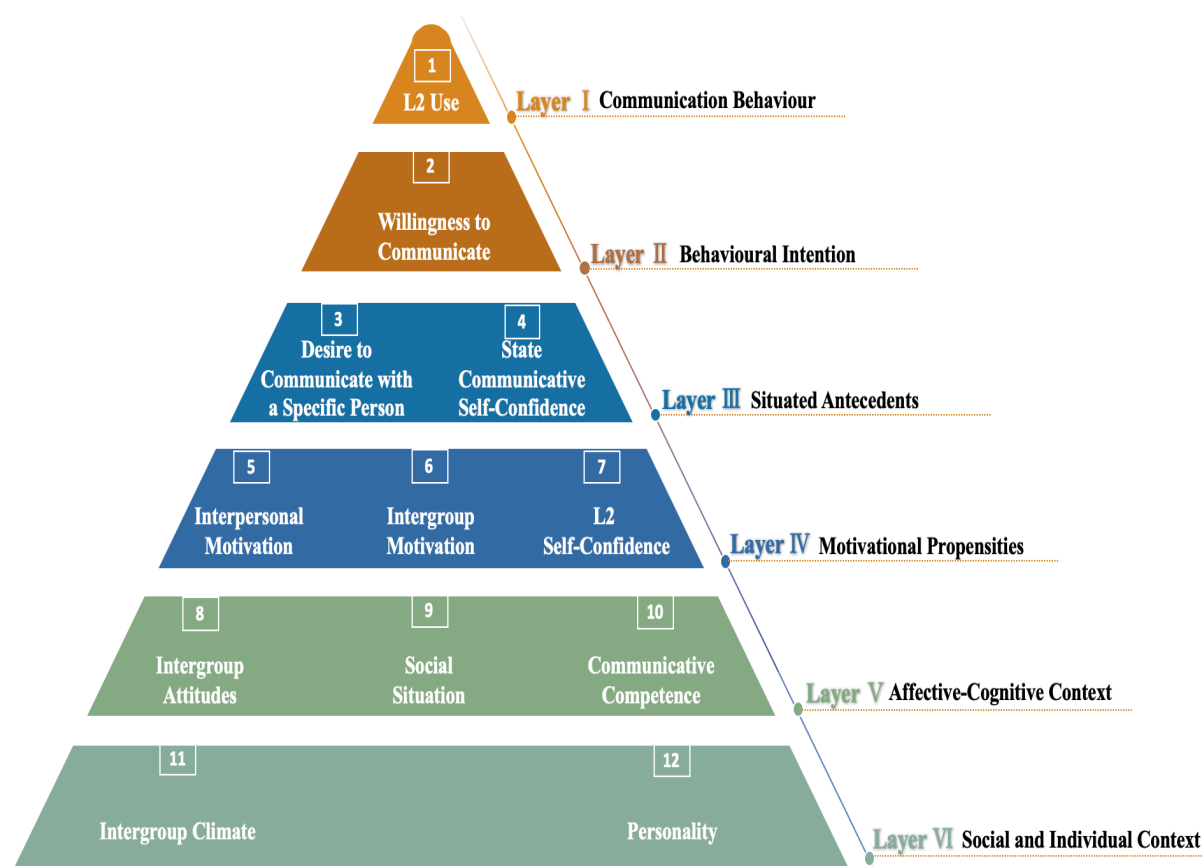
2.1.3 State-like perspective of L2 WTC

The attainment of authentic communication in L2 acquisition is widely regarded as a primary objective, leading to the prevalence of the communicative approach in L2 classrooms. It is evident that individual differences in L2 WTC are influenced not only by stable trait-like attributes such as gender, age, L2 confidence, international posture, and L2 anxiety, but also by situational and dynamic factors. In contrast to previous studies that approached the concept of WTC in L2 learning from a stable trait-like perspective, there has been a more recent shift towards examining L2 WTC from a state-like perspective. This shift can be traced back to MacIntyre et al.'s (1998) development of a pyramid-type model for understanding L2 WTC. In this study, MacIntyre and his associates provided a definition for L2 WTC, which refers to "a readiness to enter into discourse, at a particular time with a specific person or persons, using L2" (P.547). The framework serves as a conceptual representation of two distinct dimensions: trait-like, stable dimensions (e.g., personality and communicative competence, identified in the bottom three layers) and situation-specific, dynamic dimensions (e.g., inclination to communicate in L2 with a specific person, observed in the top three layers). This suggests that a complex set of factors contribute to the individual differences in second language learners' L2 WTC. This aligns with a recent study conducted by Subekti (2019) that employed a quantitative research design to investigate the correlation between L2 WTC and communication competence, communication apprehension, and L2 achievement. The findings of this study indicate the intricate and ever-changing nature of the WTC construct.

Based on the pyramid-type L2 WTC model, MacIntyre and Legatto (2011) further conducted a thorough examination of L2 WTC. They employed the idiodynamic method to demonstrate the intricate nature of L2 WTC constructs, such as communication tasks and

personal characteristics. Additionally, they explored the temporal dynamics of WTC, investigating self-rated changes in WTC during tasks, as well as individuals' accounts of their experiences and attributions for fluctuations in WTC. Thereafter, researchers have subsequently presented additional empirical support indicating that L2 WTC constructs possess a dynamic and fluid quality (Pawlak and Mystkowska-Wiertelak, 2015; Cao, 2013; Mystkowska-Wiertelak and Pawlak, 2017; Zhang et al., 2018; Mystkowska-Wiertelak, 2021). These research have offered valuable instructional recommendations to educators and learners in classroom environments.

Outside the classroom environments, many of EFL learners have access to the internet and smartphones despite they have few opportunities to speak English and low motivation for doing so (Kiaer et al., 2021; Lee, 2022). In this regard, Extramural English which is defined as "any type of contact that young people (learners) have with English outside the walls of the classroom" (Sundqvist, 2011, p. 107) gained popularity in research. Specifically, EE refers to learner-driven English activities in face-to-face and online settings, with broader implications for research and practice (Sundqvist, 2009; Reinders et al., 2022). As summarized in Lee's (2022) literature review (see Table 1), EE-oriented learners tend to gain more linguistic and pedagogical benefits in nine areas compared to formal English learners. These benefits include features, such as autonomy (Jeon, 2022; Soyoof et al., 2021), exposure to authentic L2 (Zhang

& Liu, 2022), intrinsic motivation towards learning and using L2 (Toffoli, 2020), engagement

with like-minded L2 users in online communities (Vazquez-Calvo et al., 2019), use of

multimodal sources for L2 content (Vazquez-Calvo et al., 2019), low affective filter (e.g.,

anxiety; Tsang & Lee, 2023), and comprehensive input (Lee, 2022). Moreover, EE learners

also tend to exhibit higher levels of investment in learning L2 (Liu et al., 2023) and grit in their

L2 learning efforts (Lee & Taylor, 2022).

Table 1

Extramural English's linguistic and pedagogical benefits

Areas	Benefits
Autonomy	Because they can choose their own learning materials and strategies, EE learners are more autonomous.
Authenticity	EE learners have a more authentic English experience because they are exposed to and interact with English usage and users in real-life situations.
Motivation	Because these activities are based on their needs and interests, EE learners are intrinsically motivated to learn and use English.
Community of Practice	In both face-to-face (e.g., book reading club) and online communities (e.g., fan fiction or gaming communities), EE learners feel closely connected to other like-minded English users.

Multimodality	EE learners u7sually consume and create English content that includes multimodal semiotic resources, such as text, image, music, video, and audio.
Comprehensive input	With topic familiarity and multimodal support, EE learners can effectively understand the meaning of English words, sentences, and contexts.
Investment	EE learners, who often act as active English users, devote a significant amount of time and energy to learning and practicing English.
Grit	Despite setbacks and challenges, EE learners continue to learn and practice English while remaining enthusiastic about the language.
Affective filter	EE learners often report high enjoyment and low anxiety in learning and using English due to learner-internal (e.g., fun and interesting topics and materials) and learner-external factors (e.g., linguistic and psychological support and the absence of strict teachers or competitive classmates), resulting in a low affective filter situation.

Asian-based researchers have also begun to investigate how EFL students learn and use English when they are not in the classroom, as students watch YouTube videos, chat with others online, and play online games. Researchers have also looked into how this EE online approach (a.k.a. Informal Digital Learning of English) affects their L2 WTC inside and outside of the classroom (Lee, 2022; Soyoof et al., 2023; Zhang & Liu, 2022). For instance, Korean EFL

undergraduate and graduate students who practiced EE online more frequently (e.g., chatting with other English users on social media) demonstrated higher L2 WTC in face-to-face and digital communicative contexts (Lee et al., 2022). Despite a considerable individual variation in Lee et al.'s (2022) sample, the majority of Korean students participated in EE online only once a week on average. This highlights the significance of teachers, as suggested by Henry et al. (2018) and Schurz and Sundqvist (2022), in raising students' awareness and promoting greater engagement in EE online.

In more recent years, scholars have conducted studies on L2 WTC across various settings, encompassing both English as a second language (ESL) situations (Cao, 2011, 2014; Kang, 2005) and English as a foreign language (EFL) contexts (Al-Murtadha, 2019; Khajavy et al., 2016; Pawlak & Mystkowska-Wiertelak, 2015; Wang et al., 2021). Thus far, scholars have presented substantial evidence indicating that L2 WTC is influenced by both trait-like internal factors, such as international posture, L2 confidence, and L2 anxiety, as well as state-like external factors, including teachers, classroom atmosphere, and social support (MacIntyre & Legatto, 2011). This assertion is supported by a meta-analysis conducted by Shirvan et al. (2019) and a systematic review conducted by Zhang et al. (2018).

2.1.4 A dynamic perspective of L2 WTC in digital settings

The increasing prevalence of technology and its enhanced capabilities have led to a significant rise in digitally mediated L2 communication, which has become a vital part of the everyday routines of modern L2 learners (Ebadi & Ebadijalal, 2020). In tandem with the evolving L2 environment, researchers in the field of Teaching English to Speakers of Other Languages (TESOL) and Computer-Assisted Language Learning (CALL) have endeavored to investigate the potential impact of digital technology on the levels of learners' L2 WTC. For example, Reinders and Wattana (2014) have demonstrated that digital games, Ebadi and Ebadijalal (2020) have shown the effectiveness of virtual reality, and Tai and Chen (2020) have found that Google Assistant can significantly contribute to the improvement of L2 WTC levels among EFL learners from Iran, Japan, and Thailand. The findings of these studies indicate that the features of digital technologies, such as anonymous, asynchronous, and multimodal modes of communication, play a role in establishing environments with reduced affective filters for EFL learners. This, in turn, leads to a decrease in negative emotions associated with learning an L2 and ultimately enhances their L2 WTC. In contrast, such affective benefits are scant in conventional EFL classroom (Reinders & Wattana, 2014).

Although young Asian EFL learners have few opportunities to speak English and low level of motivation to do so, most of them have access to the internet and smartphones (Kiaer et al., 2021; Lee, 2022). In this context, researchers have begun to investigate how EFL students learn and use English while they are not in the classroom. For example, students may watch videos on YouTube, engage in online chats with other people, or play online games. For instance, Korean EFL undergraduate and graduate students who practiced English online more

frequently (for example, by interacting with other English users on social media) demonstrated greater levels of L2 WTC in face-to-face and digital communicative contexts (Lee et al., 2022). However, a more in-depth investigation revealed that Korean students only participated in online English learning activities once per week. As a result, the researchers, in accordance with the recommendations made by Henry et al. (2018) and Schurz and Sundqvist (2022), emphasized the significance of the teacher in bringing students' attention to online English learning activities and encouraging them to participate in them more frequently.

Lee et al. (2022) used a mixed method research design to conduct a comparative study between Korean and Taiwanese EFL university students regarding L2 WTC. According to the survey results, the Taiwanese group outperformed the Korean group on L2 WTC in extramural digital contexts. The interview data revealed that Taiwanese students attributed their higher L2 WTC online to their teachers' affective (e.g., encouraging students to befriend foreigners on social media) and meta-cognitive support (e.g., demonstrating how to interact with other English users on Facebook). Lee and Taylor (2022) conducted the first study on informal online English learning activities among young Asian EFL learners. They looked specifically at the relationship between informal online learning of English and L2 WTC in Hong Kong primary students between the ages of 6 and 13. According to the survey results, students who participated in online activities more frequently had higher levels of L2 WTC both inside and outside of the classroom. These online activities contributed to the creation of a rich environment for input and output in English, which helped these students become more eager to speak English inside and outside the classroom. Although extensive informal digital learning of English research has been conducted in Asia alongside L2 WTC, most research has been

limited to cross-sectional studies that have focused solely on online activities themselves, thereby preventing a causal link between online activities and L2 WTC from being established (e.g., Lee & Taylor, 2022). Moreover, previous research on L2 WTC only used a self-reported questionnaire, which likely caused recall bias (MacIntyre & Wang, 2021). In addition, although both trait-like and state-like factors influence L2 WTC during online activities, previous research has only looked at one of the two factors. Furthermore, most research in Asia has recognized the critical role that teachers play in helping students engage in online activities to improve their L2 WTC. Given Asia's distinct sociocultural and educational contexts, this implies that online learning with teacher support would be more effective for Asian EFL learners' L2 WTC (Lai et al., 2015; Lee & Sylvén 2021). However, no teacher-supported online learning program for L2 WTC has been proposed or rigorously tested yet. Hence, the current study set out to develop and evaluate one.

In accordance with the theoretical framework of a dynamic system (MacIntyre & Legatto, 2011; MacIntyre & Wang, 2021), Kruk (2019) conducted the initial investigation into the potential fluctuations in L2 WTC within the virtual platform of Second Life. In order to achieve this objective, Kruk enlisted the assistance of two Polish undergraduate students, Peter and Barbra, who were pursuing a degree in English. These individuals, aged between 20 and 21, had a commendable level of English proficiency, ranging from B2 to C1 according to the Common European Framework of Reference for Languages (CEFR). The study involved a series of eight sessions conducted on the virtual platform Second Life, with each session lasting from 30 to 120 minutes. During these sessions, the participants engaged in communication with other English-speaking users through either text-based chat or voice chat functionalities.

Following the conclusion of each session, the participants proceeded to assess their levels of L2 WTC by a self-rating process. This involved responding to the following question: "How willing to communicate in English were you at the beginning of your visit, in the middle and at the end of it? Use a scale of 1-7" (p. 26). As evidenced by the mean scores of L2 WTC at the beginning (4 for Peter; 4 for Barbra), midpoint (3.5 for Peter; 5.57 for Barbra), and finale (3.75 for Peter; 6.57 for Barbra) of the sessions, it is apparent that both individuals exhibited varying trends in L2 WTC during a singular Second Life session. Additionally, it was revealed that the levels of L2 WTC exhibited fluctuations across sessions for both participants. The analysis of qualitative data indicated that the levels of L2 WTC were consistently affected by both positive factors, such as the use of a personal avatar, and negative factors, such as encountering disagreeable interlocutors.

Kruk (2021) conducted a comparable study involving a single Polish student pursuing a degree in English. The female participant actively engaged in a total of 19 sessions on the virtual reality platform known as Second Life, with each session having an average duration of approximately 85 minutes. In accordance with the results obtained in his previous study conducted in 2019, Kruk (2021) reached the conclusion that the participant's levels of L2 WTC revealed a consistent pattern of fluctuation during their interactions in the virtual environment of Second Life. Various factors, both positive and negative, were identified as influencing the fluctuations in her L2 WTC. Positive factors included engaging with pleasant and friendly interlocutors, participating in discussions on intriguing subjects, and utilizing a personal avatar as a means of self-expression for introverted individuals. Conversely, negative factors encompassed interacting with users who possessed inadequate English language skills,

experiencing L2 anxiety due to technical difficulties, and encountering feelings of boredom. These factors collectively contributed to the dynamic changes observed in the participant's L2 WTC levels.

However, the exploration of a dynamic perspective on comprehending L2 WTC in digital environments is currently in its early stages (Kruk, 2019, 2021). This is rather unexpected given that previous research has shown that L2 communication in digital contexts is characterized by a high degree of dynamism and unpredictability (Lee, 2019; Kruk, 2019). Additionally, from a methodological standpoint, there is potential for enhancement in the research conducted by Kruk (2019, 2021) about the dynamic viewpoint of L2 WTC in online environments. The susceptibility to recall bias was evident in the self-reported data due to the participants relying primarily on their memories (Bradburn et al., 1987). The current research employs an idiodynamic method in order to effectively solve the methodological difficulty at hand (see the Method section for further details). Furthermore, it is imperative to broaden the scope of this research by including an emerging L2 learning context, such as an online class, which remains relatively unexplored within the realm of L2 WTC.

2.1.5 The idiodynamic method

The idiodynamic method is a somewhat cutting-edge research methodology for capturing the dynamic nature of authentic language communication. Based on the concept of 'idiodynamic' which refers to 'the dynamic changes within an individual as an event unfolds' (MacInture, 2012: 362), this method facilitates a comprehensive analysis of the temporal

fluctuations in a variable at a per-second level. The method enables an individual-focused investigation of the communication process. The procedure of this method can be deconstructed into four sequential steps (Figure 2, Boudreau et al., 2018). First, a communication task must be accomplished and the participant's performance on the task is documented by using a recording device. This allows for the playback of the participant's performance on the task to be supplied. Second, after the participant has examined the recording, he (she) need to use specialized software to indicate the ratings for the variables being investigated. Third, after the ratings are inputted into the software, an automated process would construct a graph illustrating the changes in the relevant variables. Subsequently, the researcher and participant had the opportunity to examine the graph and engage in a discussion regarding the factors that account for the observed fluctuations in the variables depicted on the graph. As a result, the researcher would acquire a more extensive comprehension of the reasons influencing the oscillations. Finally, the transcription is carried out on the entire session for additional analysis.

Figure 2

Four steps of the idiodynamic method (Boudreau et al, 2018)

01 Playback — A communication task is recorded for immediate playback.

02 Ratings — The recording is reviewed by the participant who completes moment-by-moment ratings of the variable under investigation using specially designed software.

03 Graph — A graph is produced showing fluctuations in the variable. The graph is reviewed and reasons for changes in the variable are discussed.

04 Transcription — The complete session is transcribed.

According to Fogel (2006), the affective and cognitive states of communicative behavior can experience continuous fluctuations over time due to changes in individual characteristics and situational factors. Thus, the idiodynamic method holds significant practical value in investigating dynamic systems and the dynamics of communication traits within the realm of individual differences research. The application of the idiodynamic method in examining the variability of cognitive factors, such as L2 WTC, and affective factors, such as L2 anxiety, in L2 communication has been the subject of growing scholarly attention. MacIntyre and Legatto (2011) were the first to identify and document the occurrence of rapid changes in WTC during a communicative event involving young learners. The performance of six adult females participating in second language communication tasks was recorded and reviewed. They were also asked to rate their levels of willingness to communicate (WTC) during these tasks. Based on their own reported explanations and observations in the field by an observer, cognitive processes like retrieving vocabulary from memory were found to be a significant process influencing their rapid changes in WTC over time. Affective elements, such as language anxiety, also played an important role. This study demonstrated the importance of considering WTC as a dynamic system and the efficacy of employing the idiodynamic method to examine the temporal fluctuations in WTC from a dynamic perspective. Mulvaney (2015) conducted a study on group interactions among adult learners and found that complexity and dynamics of WTC were also observed. The motivation of learners in an L2 communication task has been demonstrated to show complexity, situatedness, and dynamism across several timescales (MacIntyre & Serroul, 2015; Mercer, 2015). Additionally, it is influenced by individual learner characteristics (Ducker, 2020). According to Ducker

(2020), the application of the Complex Dynamic Systems Theory to the study of individual learner differences can greatly help teachers to examine the interconnected, fluctuating and context-dependent elements. Hence, in this study, the idiodynamic methodology was used to identify the elements that affected the changes of the students' involvement in the classroom. In the meantime, researchers in the field of L2 emotions have employed the method to conduct numerous studies examining the interconnectedness of emotion-related factors and the impact of their moment-to-moment changes on L2 communication. These factors include anxiety (Elahi Shirvan & Talebzadeh, 2017; Gregersen et al., 2018; MacIntyre et al., 2009) and enjoyment (Boudreau et al., 2018).

In contrast to the extensive body of research examining the utilization of the idiodynamic method to explore L2 WTC, L2 motivation, and L2 emotions within face-to-face educational contexts, there exists a scarcity of studies investigating these domains within online learning environments. Kruk (2019) conducted the initial investigation into the potential fluctuations in L2 WTC within the virtual platform of Second Life. Two advanced EFL learners participated in a series of eight sessions, with each session ranging in duration from 30 to 120 minutes. Following each session, the learners were instructed to assess their own levels of L2 WTC. The results of this study demonstrated that the levels of L2 WTC among students exhibited variations both within and between sessions. In a study conducted by Ardiansyah et al. (2020), a group of six students majoring in English were recruited to participate. The students were asked to assess their L2 WTC during a 30-minute online oral group conversation. This study discovered that the dynamics of students' L2 WTC were influenced by the mediating role of the internet, which accounted for their levels of

self-confidence. In their study, Garia and Appel (2018) examined the efficacy of an online course designed to enhance English speaking skills, with the use of the SpeakApps platform. This study involved a group of 15 adult EFL learners who participated in a 5-week online course focused on enhancing their speaking skills through the use of serious speaking activities. This study captured the fluctuating nature of L2 anxiety in online speaking situations, specifically focusing on the impact of individual learner variations. These studies have demonstrated the viability and advantages of implementing the idiodynamic method in the context of L2 WTC and L2 anxiety in online settings. However, these studies have not taken into account other emotion-related variables, such as enjoyment, and the dynamic relationship between L2 anxiety and L2 enjoyment, as well as their influence on L2 WTC and its outcomes, such as the actual use of English, in online environments. This will be the primary focus of the current study. In this study, the participants' performance will be recorded on a session-by-session basis, with each session lasting twenty minutes. Subsequently, the participants will be required to complete an online editable Excel document with their self-rated scores for three variables, including L2 WTC, L2 enjoyment, and L2 anxiety, while watching the video minute by minute after each session. Afterwards, semi-structured interviews will be conducted to further identify the factors that influence the fluctuations, based on the participants' self-ratings and the researcher's observational field notes (*more details will be presented in Chapter 4*).

2.2 Antecedents and consequences of L2 WTC

2.2.1 Antecedents of L2 WTC

According to McCroskey and Richmond (2007), the degree to which individuals are willing to communicate with one another in an L2 varies greatly from person to person due to a number of factors that are referred as "antecedents". These antecedents can be broadly classified into two primary categories: internal variables and external variables.

Internal variables include gender, age, personality, motivation and self-perceived communication competence (SPCC). The study conducted by Donovan and MacIntyre (2004) yielded results that suggest a significant influence of *gender and age* on WTC. It was found that males displayed an increased WTC as they age, which contrasted with the trend observed among females. Additionally, it was observed that females had a greater WTC when compared to males. The findings concerning the influence of gender is confirmed in extramural environments by Lee et al.'s (2020) study which found out that engaging in informal digital learning activities resulted in a decrease in anxiety levels among females, ultimately leading to an increase in WTC. The study conducted by Li and Li (2022) provided evidence in favor of the influence of age on L2 WTC. The results of their study indicate a negative correlation between student age and L2 WTC in meaning-focused activities. *Personality* is considered a significant antecedent of an individual's L2 WTC (e.g., Lin, 2019; Fatima et al., 2020). Such finding has been corroborated by Zhang et al. (2020), who conducted a research examining the association between personality and L2 WTC at both trait and state levels among Chinese adult EFL learners. The researchers discovered that L2 WTC didn't show a strong correlation with extraversion, but instead demonstrated an association with a different set of personality variables, mainly openness to experience. *Motivation* is proved by literature to have positive

impact on L2 WTC (e.g., MacIntyre et al., 2001; Hashimoto, 2002; Yashima, 2002). These studies demonstrate that students who are more motivated to acquire the language are more interested to use it. Peng (2007) examined the correlation between L2 WTC and integrative motivation by recruiting 174 Chinese university students. The findings of the study indicate that integrative motivation had a little impact on L2 WTC. However, it was observed that motivation emerged as the most influential factor in predicting L2 WTC. In a more recent study, Peng (2015) conducted research on the interrelationships between the three components of L2 motivational self system (ideal L2 self, ought-to L2 self, and L2 learning experience), international posture, L2 anxiety and L2 WTC among a sample of 1,013 Chinese university students. The findings revealed distinct factors influencing L2 WTC in both inside and outside the classroom settings. Specifically, it indicated that the in-class L2 WTC was affected by all variables, both directly and indirectly. However, one component of motivation, namely L2 learning experience was identified as the only factor that directly predicted the outside-class L2 WTC. *Self-perceived communication competence (SPCC)*, is another notable antecedent of L2 WTC. MacIntyre et al. (1998) define SPCC as an individual's perception of their ability to effectively communicate in a given situation. It is considered to have a significant and immediate influence, alongside communication apprehension (CA), on L2 WTC (MacIntyre, 1994). When individuals lack confidence in their ability to participate in communication, it is likely that they may have feelings of apprehension and show reduced willingness to engage in communication. Lv et al. (2021) conducted a study in Chinese context and concluded that SPCC as a predictor of WTC had a positive correlation with Chinese EFL learners' pragmatic comprehension.

External variables mainly include *content* and *context*. Kang (2005) found that students feel more comfortable chatting with individuals they are familiar with. Additionally, when the number of people engaged in a conversation increased, or the interlocutor was more fluent, student's security diminished. The study suggested that students felt more confident when their interlocutors listened attentively and offered favorable feedback. Moreover, they prefer to speak with interlocutors who can assist them enhance their English proficiency. Finally, it found topic was of major significance because students were found to be more engaged in discussions on topics they were interested in based on previous knowledge. Such factors concerning content and context including group size, familiarity with interlocutor, interlocutor's participation and topic familiarity were also confirmed by Cao and Philp (2006) in multi-national contexts including Chinese and Yashima et al. (2018) in Japanese context. In the study conducted by Cao and Philp (2006), a group of eight university students with diverse origins, including Chinese, Korean, and Japanese, were asked to complete questionnaires to assess their trait-level L2 WTC. Additionally, their situational WTC was observed through their classroom performance. Through an analysis of the contrasting attributes of L2 WTC, various aspects revealed as significant influences on the dynamic nature of L2 WTC. These elements include the level of familiarity with the interlocutors and the extent of their participation. In a similar study that sought to examine both trait and situated L2 WTC in a classroom setting, Yashima et al. (2018) recruited a bigger group of participants, consisting of 21 Japanese students from the same university, to participate in an intervention project that lasted one academic semester. Their findings confirmed a number of individual differences including personality and proficiency, as well as various contextual factors such as peer's

reactions and familiarity with interlocutors, can have influence on students' choice of engaging in or avoiding communication in class.

2.2.2 Positive Psychology in SLA: Broaden and build theory perspective

According to Fredrickson (2004), the broaden-and-build theory posits that positive emotions serve to "broaden peoples' momentary thought action repertoires and build their enduring personal resources" (p.1369). In accordance to this theory, the presence of positive emotions has three distinct consequences: first, it expands our thought-action repertoires; second, it builds resources for the future; and third, it undoes the undesired effects that are caused by negative emotions (Fredrickson, 2013). Positive emotions, such as enjoyment, has the capacity to expand an individual's cognitive processes and motivate them to participate in creative and exploratory thinking and behaviors, hence facilitating the development of skills. On the other hand, negative emotions such as anxiety have the potential to restrict attention and impede active involvement, thus impeding the development of skills.

Drawing upon this theory, it becomes evident that the implications of incorporating positive emotions into the process of L2 acquisition have the potential to broaden the cognitive scope of an EFL learner, hence enhancing his/her active involvement in L2 acquisition, as well as engagement in activities such as play and exploration in unfamiliar environments (MacIntyre & Vincze, 2017). This, in turn, may enhance EFL learners' ability to effectively perceive L2

information (Mackey, 2006), facilitating the development of linguistic competencies through interpersonal interactions that contribute to the accumulation of learners' social capital (Gregersen, MacIntyre, & Meza, 2016). Besides, positive emotions can potentially act as a preventive role agaisnt negative emotions, such as anxiety (MacIntyre, 2017). Therefore, adopting a broaden and build theory on positive emotions has the potential to bring about a shift in the pedagogical approaches used within the context of L2 instruction (Dewaele & MacIntyre, 2016). Specifically, it signifies a transition from a pedagogical focus on the teacher to a pedagogical focus on the learner (Ryan & Liu, 2022). This shift demonstrates a heightened emphasis on the active involvement and contributions of learners in their own learning processes. However, our understanding is limited in the role of positive emotions (such as enjoyment) in L2 contexts (Dewaele & MacIntyre, 2016) as well as the relationships between positive emotions (such as enjoyment) and negative emotions (such as anxiety) in L2 communication. Furthermore, even less is known about these issues in online settings.

Based on broaden and build theory, we propose that EFL students who have higher levels of enjoyment within the online class are more likely to engage in L2 communication in an online class (broaden), which over time can enhance language skills and actual use of English (build).

2.2.3 L2 Enjoyment and L2 Anxiety in L2 WTC

While cognitive perspectives have been the primary focus in the field of Second Language Acquisition (SLA) for the past few decades, there have been researchers that have

constantly dedicated their efforts to studying the role of emotions in second language learning (Barcelos 2015). Motivated by the principles of positive psychology that have gained prominence in mainstream education (MacIntyre & Mercer, 2014; MacIntyre et al., 2019), there has been a growing interest among researchers in the field of L2 acquisition regarding the concept of L2 enjoyment. L2 enjoyment refers to the psychological state in which an individual experiences pleasure and satisfaction while engaging in the process of learning an L2. This state is influenced by various personal and contextual elements, including the presence of an effective teacher and supportive peers (Botes et al., 2021). According to the broaden-and-build theory proposed by Fredrickson (2001), researchers in the field of L2 acquisition argue that individuals who experience positive emotions toward L2 learning are more likely to expand attention and engage in a wider range of L2 learning activities. This, in turn, leads to a greater receptiveness to novel ideas and experiences, as well as an enhancement of L2 skills (MacIntyre & Gregersen, 2012). The topic of L2 enjoyment has garnered significant interest among researchers conducting research in Asian EFL settings (Lee, 2022; Dewaele & Li, 2020; Jiang & Dewaele, 2019; Lai et al., 2015). For example, Jiang & Dewaele (2019) discovered the significant impact of teacher-related factors on Chinese EFL learners' L2 enjoyment. The study involved 564 Chinese university students who were learning English as a foreign language. These students reported a similar level of enjoyment in the classroom compared to the international sample in Dewaele and MacIntyre's (2014) study. The students' enjoyment of learning English as a second language in the classroom was primarily influenced by variables related to the teacher, such as their attitudes towards the teacher, the friendliness of the teacher, and the teacher's use of humor. In a comprehensive investigation, Lee (2022) examined a large

number of 647 Korean EFL learners across several educational institutions, including middle school, high school, and university. None of the participants had overseas experience. They were requested to complete a survey that investigates the correlation between their enjoyment and L2 WTC in a classroom setting. The hierarchical regression analyses revealed that the level of enjoyment in class had a predictive effect on students' participation in communication. Furthermore, the findings verified that teachers could significantly contribute to enhancing students' L2 WTC by establishing a mainly monolingual and monocultural classroom environment and cultivating a positive atmosphere. Besides the research in classroom settings, there is also a growing interest in examining EFL learners' L2 enjoyment and L2 WTC in out-of-class settings. For instance, in a groundbreaking study, Lai, Zhu, and Gong (2015) discovered that Chinese EFL learners from secondary schools who consistently participated in English learning activities outside of the classroom using technology also expressed a greater level of enjoyment in their second language acquisition. In a similar vein, Lee (2019) discovered a significant correlation between the frequency of IDLE activities and L2 enjoyment that Korean university EFL students who engaged in frequent IDLE activities had a greater degree of enjoyment in their L2 learning. Unfortunately, both Lai et al. (2015) and Lee (2019) adopted a single-item scale to measure L2 enjoyment. Lee and Lee (2021) have recently overcome this methodological constraint by creating a set of ten items for an L2 enjoyment scale, which is derived from Dewaele and MacIntyre's (2014) Foreign language enjoyment scale. In their study, Lee and Lee (2021) discovered a positive relationship between IDLE and L2 enjoyment among Korean EFL secondary and university students, using a

recently constructed L2 questionnaire. This discovery aligns with the findings of Lai et al. (2015) and Lee (2019).

According to Dewaele and MacIntyre (2014), it is logical to conclude that Asian L2 learners, predominantly consisting of Chinese people, showed the least amount of happiness in their L2 learning experiences compared to L2 learners from other regions. Figure 3 provides a comprehensive overview of several aspects, both learner-internal and learner-external, that are associated with L2 enjoyment.

Figure 3

Learner-internal and learner-external factors linked to L2 enjoyment
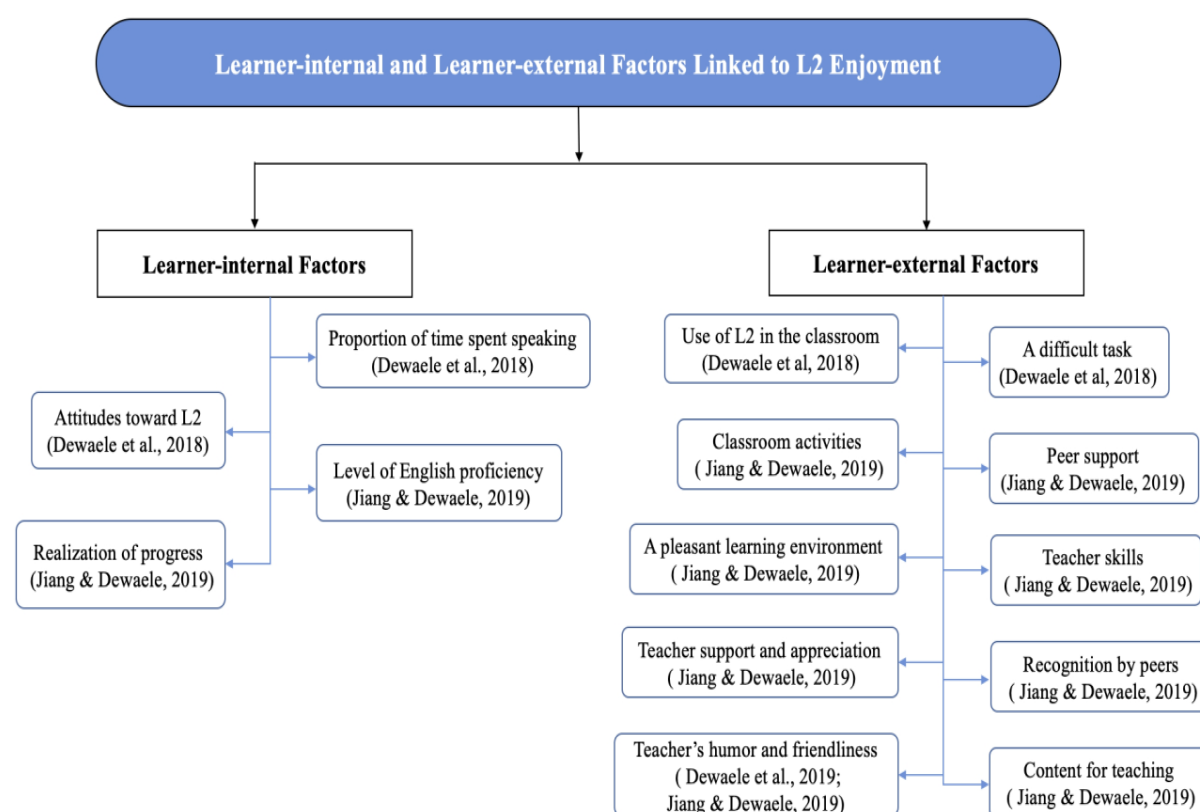
L2 anxiety has been extensively examined as a prominent emotion in L2 acquisition (MacIntyre, 2017). Horwitz, Horwitz, and Cope (1986) have provided a comprehensive

definition of L2 anxiety as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p. 128). The phenomenon under examination can be categorized into three distinct domains: the communication approach, which encompasses social anxiety related to interpersonal contact, even in the individual's native language (L1); test anxiety, which refers to performance-related anxiety stemming from a fear of failure in L2 assessments; and fear of negative evaluation, which pertains to the apprehension of receiving negative feedback on L2 mistakes from others. The findings of recent meta-analyses on L2 anxiety conducted by Teimouri et al. (2019) and Zhang (2019) indicate a negative correlation between L2 anxiety and L2 achievement. This negative relationship is observed in both subjective measures, such as self-assessed L2 competence, as well as objective measures, including course grades, language test scores, and GPAs. The observed correlation between anxiety and proficiency is consistently negative across various levels of proficiency and education. Figure 4 provides a comprehensive overview of several learner-internal and learner-external elements that are linked to L2 anxiety.

Figure 4

Learner-internal and learner-external factors linked to L2 anxiety

Learner-internal and Learner-external Factors Linked to L2 Anxiety

Learner-internal Factors

Personality traits
(Dewaele, 2013; Kelsen, 2019)

Perfectionism-oriented personality
(Dewaele, 2017)

Positive orientation
(Jin & Dewaele, 2018)

Willingness to communicate in L2
(Liu, 2018)

Attitudes towards the teacher
(Jiang & Dewaele, 2019)

Fear of failure and negative evaluation
(Jiang & Dewaele, 2019)

Speaking without preparation
(Jiang & Dewaele, 2019)

Speaking in front of a large group of people
(Jiang & Dewaele, 2019)

Frequency of L2 use
(Jiang & Dewaele, 2020)

Learner-external Factors

A difficult task
(Dewaele et al., 2018;
Jiang & Dewaele, 2019)

Questioning by a teacher
(Jiang & Dewaele, 2019)

Peer pressure
(Jiang & Dewaele, 2019)

Disapproval from the teacher
(Jiang & Dewaele, 2019)

Teachers' compliments
(Zarrinabadi, Lou, &
Darvishnezhad, 2021)

Teachers who use L2 infrequently
(Dewaele et al., 2019)

Teacher who are extremely strict
(Dewaele et al., 2019)

Researchers in the field of Second Language Acquisition (SLA) typically use a holistic perspective, which entails examining both positive factors such as L2 enjoyment, as well as negative emotions such as L2 anxiety (Dewaele & Li, 2018). For instance, Dewaele and MacIntyre (2016) discovered that the relationship between L2 enjoyment and L2 anxiety does not consistently show a reciprocal pattern, where one variable increases while the other decreases. Instead, these two variables operate independently of each other. In line with complex dynamic systems theory (CDST; Larsen-Freeman, 1997; Larsen-Freeman & Cameron, 2008), The dynamic perspective of L2 emotions is gaining popularity. Thus, the idiodynamic approach is employed in CDST research to track a specific phenomenon over a short amount of time (Hiver & Al-Hoorie, 2020). Boudreau et al. (2018) employed an idiodynamic approach to examine the self-assessment of per-second variations in L2 enjoyment and L2 anxiety among a sample of ten French learners residing in Canada. This investigation involved participants

watching a video recording of their photo story activities. Various types of interaction between L2 enjoyment and L2 anxiety were observed as a consequence of the dynamic relationship between these two variables. Consequently, current research employs an idiodynamic method in order to portray and document the dynamic, intricate, lively, and unpredictable pattern of L2 emotions (Hiver & Al-Hoorie, 2020).

2.2.4 Dynamic nature of L2 enjoyment and L2 anxiety in digital settings

In recent years, scholars have conducted studies to explore the presence of positive emotions, such as L2 enjoyment, and negative emotions, such as L2 anxiety, within online settings. These investigations have focused on various contexts, including virtual learning environments (Kruk, 2022), websites utilizing automatic speech recognition technology (Bashori, 2018; Bashori et al., 2020, 2021), online chat platforms (Yoshida, 2020), and game-based learning environments (Almusharraf, 2021; Li et al., 2019; Yang et al., 2021). Lee (2019) found that those who participated in out-of-class online English learning activities more frequently displayed greater L2 confidence and enjoyment. Lee's study was carried out with Korean EFL university students who had no international experience. However, those who participated in both form- and meaning-focused online activities exhibited higher levels of enjoyment, speaking ability and productive vocabulary knowledge. These findings contradict those reached in Nordic regions, which found a positive relationship between the frequency of informal online activities and learning outcomes (e.g., speaking and vocabulary; Sundqvist, 2009, 2019; Sundqvist & Wikström, 2015). Lee's (2019) findings were interpreted by Sauro

and Zourou (2019) as a promising direction for setting the stage for cross-cultural comparative research on informal digital learning of English and learning outcomes. Soon after, Lee and Sylvén (2021) conducted a cross-national study on the role of informal online learning of English in L2 WTC among Swedish and Korean secondary students. In line with previous findings (Lee, 2019; Sundqvist, 2009, 2019), the frequency of informal online activities was related to Swedish students' L2 WTC, whereas receptive and productive EE online activities concerned Korean students' L2 WTC. According to the researchers, Korean EFL students may benefit more from receptive and productive EE online activities for their L2 WTC than their Swedish counterparts, who live in more multilingual and multicultural Nordic regions in which communicative-oriented ELT pedagogy is employed. However, most of these research has been limited to cross-sectional studies that have focused solely on informal online learning of English itself, thereby preventing a causal link between informal online learning of English and L2 WTC and L2 emotions from being established (e.g., Lee & Taylor, 2022).

The utilization of digital settings for L2 learning offers psychological and pedagogical advantages to EFL students, in contrast to the conventional EFL classrooms. One instance of an educational tool that has been found to enhance students' engagement and curiosity, leading to a deeper comprehension of the subject matter, is Kahoot!, a game-based learning platform (Almusharraf, 2021). The study conducted by Kruk (2022) aimed to examine the presence of variability in positive factors such as willingness to communication and motivation, as well as negative factors such as boredom and anxiety, within the context of Second Life. The investigation employed a dynamic approach in order to gain a comprehensive understanding of these variables. Two English major students from Poland, who were at an advanced level of

proficiency, took part in a total of eight sessions on the virtual platform known as Second Life. During these sessions, they engaged in communication with other English speakers, utilizing both oral and written forms of interaction. At the conclusion of each session, participants provided self-assessments of their levels pertaining to four variables. The four variables of both individuals exhibited changes between consecutive sessions. Multiple factors, both internal and external to the learner, had an impact on the variables of the participants. These factors included learner-internal elements such as interesting themes, personal avatars, and the use of pseudonyms. Additionally, learner-external aspects such as interactions with pleasant or unpleasant interlocutors, as well as the presence of monotony, also had a role in influencing the participants' variables. These factors had both independent and combined effects on the participants' experiences. Table 2 presents a comprehensive overview of the essential terminology employed in the current research.

Table 2

Definitions of key terms used in this study

Terms	Definitions	Originated or adapted from
L2 WTC	A readiness to enter into discourse at a particular time with a specific person or persons, using a L2 This study will examine the development of WTC in both oral and written forms in online classes. This includes using a microphone to talk and typing answers in the chatroom. This also echoes the suggestion pointed out by MacIntyre that the concept of WTC could be "broadened to include explicitly oral and other modes of communication" (MacIntyre et al. 1998, p. 558).	MacIntyre et al. (1998)

L2 enjoyment	Self-perceived state-level pleasure in learning L2 as a result of personal and contextual factors such as the teacher and peers.	Botes et al. (2021)
L2 anxiety	Self-perceived state-level feelings related to (online) classroom language learning caused by social anxiety, test anxiety, or fear of negative evaluation	Horwitz et al. (1986)
Online class	A real-time online environment in which a teacher and students can interact via verbal, nonverbal, and/or written communication in a chat box (e.g., Zoom).	Lee & Liu (2022)
Actual L2 use	The length of students' speech and the number of words produced by students in both oral speech and written feedback in the online class in this study.	
Idiodynamic method	A research method for studying affective states that involves asking participants to self-rate their L2 emotional levels on a minute-by-minute basis.	MacIntyre (2012)
Complex Dynamic Systems Theory (CDST)	With CDST... the shape that language takes are deferred, always in process, ever-emerging dynamically from interaction.	Larsen-Freeman & Cameron (2008, p. vii)
Broaden-and-build theory	positive emotions (e.g., L2 enjoyment) can have the effect of expanding an individual's cognitive processes and motivating them to participate in creative and experimental thinking and behaviors. This, in turn, facilitates the development of skills.	Fredrickson (2001)

2.2.5 Consequences of L2 WTC

Communication behavior also known as L2 use was recognized as the consequence of L2 WTC (MacIntyre et al., 1998). It is generally believed that the use of the target language is both an indicator of and a necessary condition for successful acquisition of a second language. For many people who are learning a second language, the use of the target language is an aim in itself. As for learners who are learning English as a foreign language (EFL), the use of English as L2 for communication is one of the key purposes for many EFL learners, and it has been widely assumed that the use of English is also an indicator of and a necessary condition of successful second language acquisition (SLA). According to the findings of a study that Seliger (1977) conducted on adult English as a Second Language (ESL) learners in the United States, the usage of a second language was taken into consideration as a measure of successful language education and acquisition. The study indicated that students who actively engage in language interaction and, as a result, receive more feedback from their teachers have better improvements in their ability to speak a second language. This is in contrast to students who take on a passive role in the learning process. In addition, Swain (1995, 1998) placed particular emphasis on the function that the use of a target language plays in second language acquisition. He pointed out the differences between output from input in L2 learning and claimed that output is essential for the development of production including talking and writing, while on the other hand, input simply builds comprehension of listening and reading. Furthermore, three purposes that output serves in L2 learning were suggested by Swain (1998) including noticing, hypothesis testing, and metalinguistic functions. These functions are described in more detail below. The gap between the target language and the learners' own interlanguage, or the gap between what they want to say and what they are unable to say, is brought to the learners'

attention through the process of producing output, which may prompt learners to identify their linguistic difficulties. In addition, learners use their output as a means of testing hypotheses regarding the second language by experimenting with novel structures and forms in order to modify their L2 skills. In conclusion, output generates metatalk, which is a form of language that is used for the purpose of problem-solving and cognitive functions. Learners develop a heightened awareness of noticing, hypothesis testing, and other language learning processes through the utilization of metatalk communication. Unlike these studies that showed the frequency of use of L2 could positively connected with L2 proficiency, Day (1984), on the other hand, investigated whether or not the voluntary classroom engagement of adult English as a second language (ESL) students in the United States was significantly connected to competency. The findings concluded that the use of English in the classroom was not significantly related to students' L2 proficiency. However, the L2 use is certainly an essential role in the successful acquisition of English for EFL learners, despite the fact that it is likely that the use of English is not the only factor that influences the acquisition of it.

Reported L2 use such as the frequency of use of English as L2 for oral communication (FREQ) allows for the estimation of the output of L2 learners, and this output serves as an evaluation of the individuals' proficiency in English. By using FREQ, Hashimoto (2002) was able to measure the frequency of L2 use that was reported by Japanese ESL students in their classrooms. According to the structural equation modeling that was utilized in this investigation, perceived competence and anxiety regarding the second language were discovered to be the factors that led to WTC, which in turn led to increased use of the second language. Furthermore, significant positive paths were obtained that led from willingness to

communicate and motivation to the frequency of L2 communication. Students who are more

willing to speak and who have a higher level of motivation for language acquisition are more

likely to report using the language more frequently in the classroom, according to these paths.

However, this study was restricted to Japanese students learning English as a second language

in conventional educational environments and using reported L2 use. In addition, it should be

noted that there exists a lively debate over the use of self-reports in research on affective states

in language learning (Oller, 1981; Oller & Perkins, 1978; Gardner & Gliksman, 1982).

Therefore, with the help of observed L2 use, the current thesis study intends to broaden the

scope of the investigation to include online class settings in Chinese context.

Despite much of the research has demonstrated the influence of affective variables on

achievement and other behavioral measures, such as motivation (Ely, 1986), positive emotional

engagement (Dao & Sato, 2021), anxiety (Horwitz, 2001; MacIntyre & Gardner, 1991), and

personality (Ożańska-Ponikwia & Dewaele, 2012), L2 WTC is a recent addition to the affective

variables that can predict L2 use. Hashimoto (2002) conducted a study to explore the

association between L2 WTC and reported L2 use in Japanese classrooms with a lack of

opportunity for English language use. The results showed that students who are more willing

to communicate report using the language more frequently in the classroom. In similar contexts

where lack opportunity of English communication, Lee and associates (2022) identified that

Korean EFL learners are more willing to communicate in outside-class settings, while

Taiwanese EFL learners are more willing to engage in communication in digital settings, and

therefore tend to more frequently initiate English communication. In another comparative study

conducted by Lee and Sylvén (2021) on the impact of informal digital learning English (IDLE)

in Korean and Swedish EFL learners' communication behaviour, the findings also confirmed that L2 WTC can positively affected the frequency of L2 use through IDLE activities. Results suggest that by offering students sufficient digital learning opportunities, L2 educators can expect students to improve their levels of L2 WTC and hence report more frequency of L2 use. Compared to various researches on L2 WTC and reported frequency of L2 use in different settings, there is a scarcity of literature on L2 WTC and actual L2 use, which is one of the focus for the current study. Munezane (2016) conducted a research to investigate to what extend the elements such as motivation, ideal self and willingness to communicate influence the observed L2 use in the classroom by Japanese university EFL students. During the course of one academic semester, the data representing the students' oral performance were collected three times during the group discussions. In each of the discussions, the number of words that were produced by each individual student was counted. Self-reported L2 WTC was found to be a good predictor of actual L2 use in the classroom, according to the findings of structural equation modeling analysis. On the other hand, this study was restricted to merely analyzing the students' speech production, and it did not take into account their written output. The purpose of the current thesis study is to broaden the scope of the investigation to include both oral and written output simultaneously in order to determine the extent to which the L2 WTC of Chinese EFL learners accurately predicts their actual L2 use in an online classroom setting.

2.3 Online learning in second language education

2.3.1 Online class in L2 learning environment

The prevalence of online classrooms in educational settings has increased thanks to advancements in technology, as well as its increased accessibility and affordability for learning purposes (Jin et al., 2021). In this study, an online class is defined as a digital environment (e.g., Zoom) where an instructor and students have the ability to engage in synchronous interactions, such as participating in live-streamed lectures or communicating through a chat window. In that regard, asynchronous online teaching that does not happen in real time (e.g., a pre-recorded video lecture) is not of interest in the current research.   The implementation of online classes has become more prevalent in the domain of L2 teaching and learning, particularly in response to the ongoing COVID-19 pandemic (Derakhshan et al., 2021; Moser et al., 2021). Consequently, contemporary L2 learners commonly allocate a significant portion of their schedule, often exceeding 30 hours per week, to engage in instructional sessions and collaborative activities within a virtual classroom, such as Zoom, Microsoft Teams, Google Hangouts, and Tencent Meeting (Jin et al., 2021; Moser et al., 2021).

The significance of this matter lies in the fact that, similar to a traditional physical classroom setting, L2 learners who participate in an online classroom experience substantial influence from several elements (Derakhshan et al., 2021). Furthermore, thus far, there has been a dearth of research investigating L2 WTC within the context of an online classroom, particularly from a dynamic perspective. The study conducted by Van Le et al. (2018) involved the collection of interview data in order to examine L2 WTC of Vietnamese EFL students in an online instructional setting, specifically utilizing Skype as the platform. Nevertheless, the utilization of this qualitative approach was limited in its ability to capture the diverse range of

L2 WTC in an online classroom due to its inability to account for variability and the dynamic nature of the phenomenon. In a recent study, Derakhshan et al. (2021) conducted an investigation on Iranian EFL learners within the context of an online classroom, using a dynamic perspective. Regrettably, their attention was solely directed towards the trajectory of 'boredom' rather than L2 WTC. Given the existing gaps in research and the need to further explore this area, the current research aims to employ an idiodynamic method for examining the varying degrees of L2 WTC among Chinese EFL learners who are participating in an online class.

2.3.2 Online class in EFL Chinese university contexts

As stated in the College English Curriculum Requirements (CECR) issued by the Higher Education Department, Ministry of Education (2007), the integration of contemporary technology within educational settings is advocated to facilitate pedagogical advancement and foster students' autonomy and individualized learning (p. 18). In a more recent development, specifically in 2018, the Ministry of Education made an announcement regarding the Education Informatization Action Plan 2.0. As part of this plan, it was mandated that educational institutions at all levels should establish online learning environments. The primary objective of this initiative is to facilitate online teaching and learning, ensuring that students have access to a wide range of information and resources. Additionally, the plan aims to encourage unrestricted learning opportunities for students. Consequently, an increasing number of academic institutions started incorporating massive open online courses (MOOCs) into their

educational offerings, and some even developed their own customized MOOCs. According to Cao (2017), a broad variety of resources are made available by MOOCs, which can be used for implementing a new style of teaching and learning that may help solve the traditional limits of time and space in the field of education. MOOCs have recently made a significant impact on China's educational setting, and they have done so twice. The first instance occurred during the winter of 2016, when the majority of China was negatively impacted by severe environmental pollution and heavy smog, which resulted in the closure of schools. Since then, MOOCs have been seen as a means of fostering innovation in both teaching and learning. Another instance occurred at the beginning of the year 2020, when a pandemic caused by COVID-19 rendered MOOCs an urgent react to promoting online education on a national scale. At that time, all levels of schools were reminded to remain closed until the end of that year. Even while schools are closed, learning should continue. In light of the fact that online education is the only available choice, the deployment of MOOCs is an absolute necessity. After as much as ten months of MOOC application in teaching and learning, the establishment of high-quality MOOCs to assist efficient online teaching and learning has suddenly become a hot topic throughout China.

As implied by the name, MOOCs offer a network-based platform that grants equitable access to a diverse range of courses on numerous subjects, with the majority being free of charge. Since their introduction in China, universities and vocational and technical institutes have experienced a gradual rise in their popularity. In 2014, leading universities in mainland China established Chinese University MOOCs, which became the first platform for local MOOCs. Over 4,000 Massive Open Online Courses (MOOCs) are already accessible

nationwide, attracting a staggering enrollment of over 50 million individuals. MOOCs are currently being used in partnership with 749 institutions and universities. In 2016, the ICVE (Intelligent Center of Vocational Education) was introduced as a platform for local MOOCs. It took inspiration on Chinese University MOOCs and specifically targeted vocational and technical education in China. Presently, it engages in partnerships with 224 vocational and technical colleges, offering the general public a grand total of 2,925 MOOCs for no cost. Currently, the Chinese University MOOCs platform offers a total of 777 Massive Open Online Courses (MOOCs) that focus on English language study. These courses are available to the general public and are specifically designed for university and college level education. In addition, the ICVE platform provides close to 100 MOOCs that specifically target the teaching and learning of English as a Foreign Language (EFL) at the vocational and technical college level. Educational institutions, including universities and colleges, are using MOOCs to demonstrate the successful development in English language instruction and acquisition. Moreover, MOOCs possess the capacity to help address the difficulties linked to traditional approaches of English teaching and learning in the context of higher education. As to Wang's (2015) research, incorporating MOOCs into English language education can improve the traditional teacher-centered teaching approach, which is frequently criticized for its limited diversity and participation. A number of scholars contend that the teacher-centered approach to education is accountable for the dearth of motivation among language learners (Fan, 2016; Liu, 2016; Lv, 2016; Rong, 2016). According to Wang and Yang (2015), incorporating MOOCs into university-level English classes has the potential to redefine the relationship between teachers and students. This integration creates an atmosphere that motivates students

to take more ownership of their learning. As a result, this might potentially support personalized learning and encourage a dedication to continuous learning, since students would be able to make use of a wide range of online resources and materials to enhance their specific educational goals. This aligns with the standards established in the government's CECR. During the COVID-19 pandemic, teachers and students have extensively used MOOCs and online classrooms conducted through VooV Meeting, a platform similar to Zoom, to overcome the difficulties posed by the lockdown measures. According to statistical data acquired from *www.iresearch.com.cn*, the quantity of students participating in online classes on a weekly basis surpassed 1 million in 2019 and underwent a substantial increase to over 23 million in 2020. Online English as a Foreign Language (EFL) programs have become crucial within China's educational system.

2.4 Research questions

Despite an expanding body of knowledge about L2 WTC, L2 enjoyment and L2 anxiety in digital settings involving EFL learners, four research gaps are particularly noticeable. *First*, a dynamic system approach to understanding L2 WTC and L2 emotions in face-to-face settings is a topic of growing interest (MacIntyre & Legatto, 2011; MacIntyre & Wang, 2021). Regrettably, there is a dearth of research on L2 WTC in digital settings from a dynamic system perspective (Kruk, 2021). This is surprising because L2 communication in digital contexts has been found to be highly dynamic and unpredictable (Kruk, 2019). Besides, a dynamic perspective on both emotions in an online setting is still in its early stages (Lee & Liu, 2022). Understanding L2 learners' emotions in an online class is both timely and critical, given the

rapid rise of online learning in the field of L2 education (Derakhshan et al., 2021). *Second*, although Second Life has the potential to help EFL learners develop communication skills, actual use of Second life as a learning platform by learners and teachers remains questionable due to several pedagogical challenges (e.g., high turnover rates in language partners and excessive teacher workloads) (Zhang, 2013). *third*, understanding a dynamic view of both emotions could be improved methodologically. Kruk (2019, 2021) collected self-reported data from advanced Polish EFL adult learners. Although the researcher collected the data shortly after the end of each session, the participants were vulnerable to recall bias (e.g., providing less accurate estimates about L2 WTC levels) because their responses relied solely on their memories (Bradburn et al., 1987). In Dewaele and MacIntyre's (2016) study, some respondents used a short timescale (e.g., a minute) to report L2 enjoyment and L2 anxiety episodes, while others used a long timescale (e.g., over an academic year). A limitation of this retrospective method can be addressed by adopting an idiodynamic method. According to MacIntyre and Legatto (2011), an idiodynamic method allows participants to watch a video recording of their L2 performance while self-rating their levels of L2 WTC. Using a graph of L2 WTC self-ratings, researchers can also conduct a follow-up interview. Boudreau et al. (2018) conducted a study in lab settings where their participants performed the tasks without interlocutors. However, their participants were limited to advanced French learners. Although Kruk (2022) carried out an innovative online study on L2 emotions from the dynamic perspective, only two advanced EFL learners participated, and the self-reported questionnaire failed to examine L2 enjoyment and L2 anxiety together. *Finally*, despite the fact that in a large-scale global survey, Asian L2 learners, 76 percent of whom were Chinese L2 learners, were found to have the

highest level of L2 anxiety but the lowest level of L2 enjoyment (Dewaele & MacIntyre, 2014), little consideration has been given to their L2 emotions from positive psychological perspective (Dewaele & Li, 2020) and insufficient attention has been paid to time flow in a foreign language course to look into the variability of L2 emotions (Pan & Zhang, 2021). Moreover, its scope has not been expanded to online classes.

In view of these research gaps, the current study aims to expand Kruk's (2019, 2021, 2022) studies by:

- investigating L2 WTC along with its antecedents (L2 enjoyment and L2 anxiety) based on MacIntyre's pyramid model (1998) in an online class, which is increasingly a common language learning environment but an unexplored territory in the area of L2 WTC (Derakhshan et al., 2021; Moser et al., 2021);

- examining the consequence of L2 WTC (the actual use of English in an online class) via positive psychology factors;

- recruiting more participants (N = 7) with various proficiency levels (ranging from intermediate to advanced) in a different EFL context (i.e., Mainland China); and

- employing an idiodynamic method to enhance data accuracy and reliability.

To fill these gaps, the current study sets out to adopt an idiodynamic method to investigate fluctuations in L2 WTC, L2 enjoyment and L2 anxiety levels of Chinese EFL learners in an online class, and to examine the consequence of L2 WTC via affective influences of L2 emotions, guided by the following research questions:

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

RQ2: Is there variability in EFL learners' L2 WTC within a single session of an online class and between sessions?

RQ3: What factors may have influenced fluctuations in the participants' L2 WTC, L2 Enjoyment and L2 Anxiety in an online class?

RQ4: To what extent do L2 WTC affect actual English use among Chinese EFL university students via mediators (L2 Enjoyment and L2 Anxiety) in an online class?

Summary of the Chapter

This chapter presents the previous literature on L2 WTC, antecedents of L2 WTC, online learning, and the possible influence of L2 enjoyment and L2 anxiety on Chinese EFL learners' L2 WTC and actual L2 use. Idiodynamic method might be an effective approach for the Chinese EFL context to investigate the factors affecting learners' L2 emotions and L2 WTC. Online setting has the advantage of accessibilities of various functions and abundant resources and being widely used to cultivate self-learning abilities, improve EFL learners' motivation to learn and engagement in daily use, and promote life-long learning in English language.

Chapter 3: Theoretical Framework

This chapter discussed several important theoretical frameworks that inform the hypotheses and selection of research methodologies for the present study.

As previously discussed in the preceding chapters, L2 enjoyment (as a positive emotion) and L2 anxiety (as a negative emotion) have garnered an increasing attention in EFL contexts, where students experience both positive and negative L2 emotions that affect their L2 WTC and communication behavior (Dewaele & Li, 2020; Ito, 2020; Lee et al., 2021). With respect to the Asian context, researchers in Asia have consistently focused on L2 WTC, which is a crucial factor in predicting fluency and frequency of speaking English. This is because Asian EFL students have limited motivation and opportunities to practice speaking English despite its importance for personal growth, economic development, and global competitiveness (Jin & Lee, 2022). Moreover, some studies have employed the idiodynamic method to examine the experience of L2 enjoyment in both traditional face-to-face environments (Talebzadeh, Shirvan & Khajavy, 2020) and digital settings (Zhang, Liu, & Lee, 2021). These studies have revealed the fluctuations could be observed from time to time. However, there is a dearth of research on L2 WTC in digital settings from a dynamic system perspective (Kruk, 2021) and there is a need to enhance the methodological approaches employed to gain a better understanding of the dynamic nature of L2 WTC and its relationship with L2 emotions. Furthermore, previous research has been deficient in incorporating actual L2 use as a means to investigate the correlation between L2 WTC and communication behavior in real life situations, Instead, these studies mostly depended on subjective assessments (Lee & Dressman, 2018). In

order to explore the causes and patterns of fluctuations of L2 WTC and L2 emotions in an online English class, and the connection between students' L2 WTC and L2 emotions with their actual L2 use in a digital learning context, a theoretical framework (Figure 5) is essential.

Figure 5

Theoretical framework
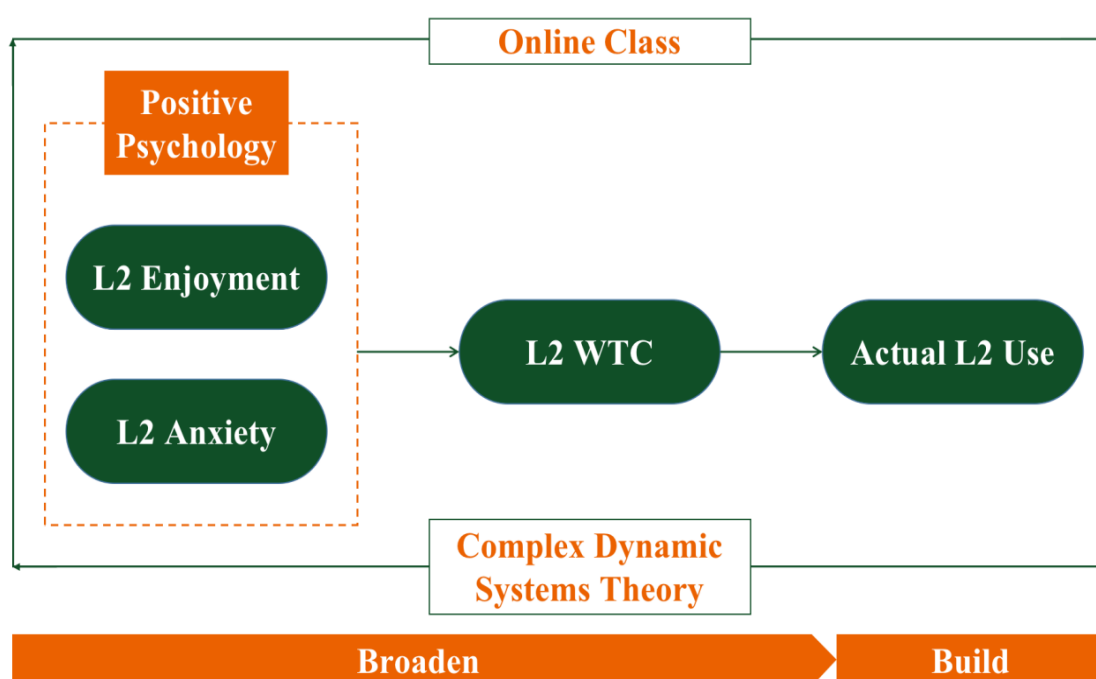
The current study adopts a dynamic perspective that is theoretically aligned with Larsen-Freeman's (2020) complex dynamic systems theory (CDST): "With CDST... the shape that language takes are deferred, always in process, ever-emerging dynamically from interaction" (p. vii). Based on the research conducted by Larsen-Freeman (2016) and Larsen-Freeman & Cameron (2008), the CDST framework posits that the language classroom can be conceptualized as a dynamic system that is constantly subject to spatial and temporal

fluctuations. This system comprises multiple interconnected subsystems relating to the teacher, the student and the learning environment. L2 WTC and L2 emotions were seen as key antecedent of L2 communication behavior (Shirvan, Khajavy, MacIntyre, & Taherian, 2020) and the link between numerous proximal and distal antecedents, which include both individual and intergroup tendencies, was found to be the cause of L2 WTC and L2 emotions. In this regard, numerous studies have been conducted to investigate the impact of situated, personal and context-related factors on L2 WTC and L2 emotions in the language classroom (Pawlak & Mystkowska-Wiertelak, 2015; MacIntyre & Legatto, 2011; Zhang et al., 2018; Lee, 2019; Kruk, 2019), including online classrooms which have been experiencing an explosion in use due to the rise in technological breakthroughs, along with enhanced accessibility and affordability for educational purposes (Jin, et al., 2021). L2 learners engaged in online classroom environments are subject to various factors that bear resemblance to those found in traditional physical classrooms (Derakhshan et al., 2021). Consequently, the process of acquiring an L2 in online settings may also be influenced by characteristics associated with CDST including "dynamic, complex, nonlinear, chaotic, unpredictable, sensitive to initial conditions, open, self-organizing, feedback sensitive, and adaptive" (Larsen-Freeman, 1997, p. 142). Thus, the current research aims to employ an idiodynamic method to explore the varying degrees of L2 WTC and L2 emotions among Chinese EFL learners who are participating in an online class.

Furthermore, the heuristic model proposed by Macintyre et al. (1998), which takes the form of a pyramid and focuses on second language willingness to communicate (L2 WTC), will be firmly regarded as a fundamental conceptual framework in the present investigation. This model contends that a wide range of stable trait-like and transient state-like factors act

conjointly to influence individuals' L2 WTC (Layer II; e.g., raising hands in the classroom), which subsequently prompts them to engage in communication in L2 (Layer I; e.g., speaking up in class). This study will provide a detailed explanation of the framework by juxtaposing the findings in line with MacIntyre et al.'s (1998) heuristic model in the Results and Discussion chapters.

Fredrickson's (2001) *broaden-and-build theory* posits that positive emotions (e.g., L2 enjoyment) can have the effect of expanding an individual's cognitive processes and motivating them to participate in creative and experimental thinking and behaviors. This, in turn, facilitates the development of skills. On the other hand, negative emotions (e.g., L2 anxiety) can have the potential to restrict attention and limit active involvement, so hindering the development of skills. Drawing upon this theoretical framework and existing research, we propose that EFL students who fulfill their tasks by effectively address technical challenges and making most use of digital resources within the online classroom are more likely to actively participate in online learning. The heightened level of involvement might potentially amplify L2 enjoyment and minimize L2 anxiety in English learning and speaking. Consequently, this can contribute to the improvement of L2 WTC in a more comprehensive manner (broaden), and over time, this can further enhance the actual L2 use (build), as evidenced by an increase in the number of words produced by students in both oral presentations and written responses within the context of this study.

Summary of the Chapter

This chapter presents the theoretical framework of the current dissertation study, including Larsen-Freeman's (2020) complex dynamic systems theory (CDST), Fredrickson's (2001) broaden-and-build theory and MacIntyre et al.'s (1998) heuristic model. More specifically, according to MacIntyre's pyramid model which suggested that as the last step toward the use of a L2, WTC could be affected by various factors at multiple levels, including positive and negative emotions, such as L2 enjoyment and L2 anxiety. In addition, based on Fredrickson's (2001) *broaden-and-build theory*, positive emotions such as L2 enjoyment can lead to the expansion of an individual's cognitive processes and encourage them to engage in innovative and experimental thinking and actions. Consequently, this enables the acquisition and refinement of skills. Conversely, negative emotions such as L2 anxiety might impede attention and restrict active engagement, so hindering skill development. Therefore, this study proposes to investigate the connections among L2 emotions, L2 WTC and actual L2 use in a highly complex and dynamic setting, namely an online class, by using idiodynamic method.

The next chapter will demonstrate the methodology used in this study.

Chapter 4: Methodology

To answer the research questions investigating the dynamicity of Chinese EFL learners' L2 WTC, L2 enjoyment and L2 anxiety, and their actual L2 use in an online class, an experimental study was conducted for a duration of four weeks within a Chinese college institution. This chapter provides a comprehensive account of the study's methodology, which is divided into six sections: (1) a detailed description of the participants involved in the investigation, (2) an overview of the research design employed, (3) a presentation of the instruments used to collect data, (4) an explanation of the procedure followed during the study, (5) a description of the data collection process, and (6) a discussion of data analysis methods employed.

4.1 Participants and instructional context

During the first semester of the 2020-2021 academic year, seven first-year students studying English as a second language at a public vocational college in China willingly participated in the research project (see Table 3) subsequent to their understanding and acceptance of the study's aims, benefits, and potential risks. They were all Chinese nationals who spoke Mandarin as their first language. They were recruited to participate in a pseudo online English class. The research was carried out within Tencent Classroom (Teng Xun Ke Tang in Chinese), a prominent digital educational platform in Mainland China as identified by UNESCO (n.d.). Five of the seven students (more than 70% of the sample) reported having below-average self-rated familiarity with an online class. They had received formal instruction

in the English language in school for a duration of 10 to 13 years and had no international experience. According to The Common European Framework of Reference, their English proficiency levels varied from intermediate to advanced, as assessed by the instructor's discretion and the participants' self-rated English ability.

Table 3

Participants' demographic data (Lee & Liu, 2022)

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

With respect to instructional context in China, English is a mandatory school subject in various levels of formal education. In the educational system, the acquisition of English language skills often commences during the third grade of primary school. This learning process persists for a minimum duration of twelve years in both formal school context and informal outside of school context (e.g., private English institutes). The primary objective of this extensive English language education is to adequately equip students with the necessary linguistic proficiency for the high-stakes college entrance examination known as GaoKao. The

prominence of GaoKao test scores in university admissions has led English teachers, particularly those instructing senior high school students, to prioritize grammar-translation pedagogies emphasizing English forms over communicative approaches emphasizing communicative skills. In the context of university education, students who are pursuing degrees outside of the English majors are often required to fulfill a minimum of 128 hours of English language study, equivalent to eight credits. Subsequently, these students have the option to continue their English language education for specialized purposes throughout their undergraduate studies. It is important to note that the particular number of hours and credits allocated to such studies may vary across different universities. Despite the implementation of communicative approaches by university teachers (Shi, 2006) and their focus on improving students' listening and speaking abilities, the impact of negative washback effects of prior learning experiences has resulted in students being perceived as passive learners in the language classroom (Liu, 2002), showing limited initiative in actively engaging in English practice.

4.2 Design of L2 tasks

An experiment was carried out in a Chinese university EFL course to assess the effectiveness of the L2 emotions in an online class on students' L2 WTC and their actual use of English language. The 4-week experimental tasks are depicted in Table 4. A total of four sessions, each lasting 20 minutes, were conducted for a fully synchronous online class (see Table 3). Each session followed a consistent structure consisting of three stages: (1) during the

pre-task stage, students engaged in a two-minute review of the prior session, specifically focusing on essential English expressions; (2) during the task stage, three or four activities were implemented in accordance with the topic of each session, and it lasts for a duration of 15 minutes. The study started by introducing simple tasks, such as describing pictures, followed by a combination of more challenging tasks, such as expressing personal opinions, and simpler tasks, such as reading aloud. Additionally, various conversation situations, including pair and group activities, were incorporated into the study design. The objective of this approach was to prompt fluctuations in L2 WTC and L2 emotions experienced during an L2 learning (MacIntyre & Legatto, 2011); (3) during the three-minute post-task stage, students engaged in the completion of a self-evaluation sheet and a reflection log.

Table 4

Topics and main activities (Lee & Liu, 2022)

Session	Topic	Main activities
1	Hometown	1. Talk about expressions that ask a question, such as "Where are you from?" 2. Discuss topics related to their hometown. 3. Listen to a narration about their hometown and retell what they hear. 4. Introduce to others famous food from their hometown.
2	Campus life	1. Describe images depicting campus life. 2. Listen to a short passage and retell it to their classmates. 3. Compare and contrast campus life in Mainland China and the United States.
3	Movies	1. Watch a conversation in front of a movie theater. 2. Retell the conversation to their peers. 3. Discuss their favorite movie(s) and why they like them.

4. Introduce their favorite film to the entire class.

4	Shopping	1. Analyze and explain conversation patterns about buying things.
		2. Practice asking information in order to buy things.
		3. Explain conversation patterns about saving and investing money.
		4. Practice talking about money savings and investments.

4.3 Procedure

A research announcement was published on the university website. The participants registered to participate and submitted their consent subsequent to being informed about the study's objectives, procedures, and the benefits and risks associated with their involvement in the research. An experiment was carried out by using the idiodynamic method with video recordings and self-reported ratings. Stimulated recall, interviews, and field notes were also used to confirm and expand on the findings of the idiodyanmic method. The 4-steps experimental procedure is depicted in Figure 6.

Figure 6

Procedures and steps of the idiodynamic method
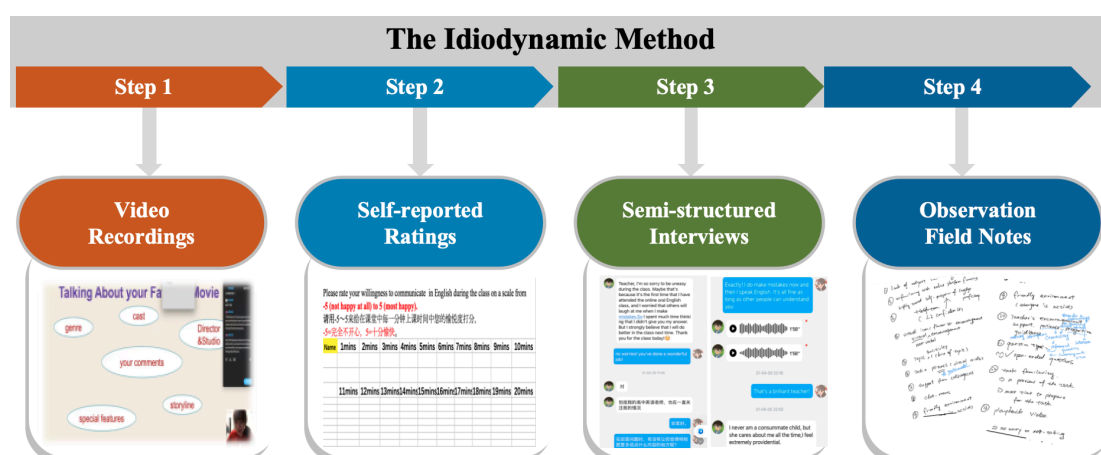
a. Video recordings: The oral and written performance of individual participants and the dyadic and group interaction between a teacher and students during pair/group work and impromptu speech were video recorded in all four sessions. The recordings would be uploaded to a QQ group, a virtual online chatting group on which the teacher and students exchanged messages and shared teaching materials and other resources. To avoid recall bias, the researcher will promptly send a reminder via social media platforms such as QQ and WeChat to each student immediately after the video recording has been uploaded to the QQ group. This reminder will prompt the students to prepare for reviewing their performances and providing ratings for L2 WTC and L2 emotions.

b. Self-reported ratings: Once participants ensured receiving a reminder, they would start watching the video recording of their own performances in an online class. In the meantime, they would also be reminded to rate their L2 WTC and L2 emotions levels on a scale from -5 to 5 and on a minute basis via an online editable excel spreadsheet. More precisely, the participants were instructed to pause the video every minute and promptly turn to the excel spreadsheet to record their ratings for L2 WTC and L2 emotions.

c. Stimulated recalls and semi-structured interviews: Once we discovered from both a pre-and-post trait WTC, enjoyment and anxiety survey and a real-time state WTC, enjoyment and anxiety survey that participants demonstrated notably greater improvement (see Results), we extended an invitation to the participants in stimulated recalls and semi-structured interviews for in-depth analysis and interpretation. Stimulated recalls, which aim to "prompt participants to recall thoughts they had while performing a task or participating in an event" (Gass & Mackey, 2002, p. 17) were conducted based on the recorded video data. Specifically, all videos

were uploaded to a learning management system (the QQ group). After the participants

watched the video recordings, they met the researcher and shared what they had felt and done

during each session. Participants were able to stop the video at any time when they believed

certain factors had affected changes in their L2 emotions and L2 WTC levels. In addition, the

researcher would refer to the observation field notes to determine if the pauses made by the

participants corresponded to the significant moments identified during the researcher's

examination of the video recordings prior to the interviews. Then, the researcher asked follow-

up questions for the purpose of elaboration (e.g., Can you tell me more in detail?) or

clarification (e.g., Is that what you meant?). Before conducting the individually semi-structured

interviews with the participants, the researcher and one EFL lecturer confirmed the content

validity of the questions.

d. Observation field notes: The researcher takes necessary notes while reviewing the video

recordings. The notes include sudden silence among students, hot discussions, and the number

of words each participant produced in either oral speech or written responses in the chatroom.

4.4 Research instruments

In order to answer the research questions, four instruments were employed. These

consisted of a pre- and post-test that assessed the participants' trait-like L2 WTC, L2 enjoyment

and L2 anxiety levels, a real-time survey that evaluated their state-like L2 WTC and both L2

emotions levels, a count of words referring to their actual L2 use in an online class, and semi-

structured interviews.

4.4.1 Pre-test and Post-test

Both pre-test and post-test adopted a same structured questionnaire examining students' L2 trait-level WTC, enjoyment and anxiety. Specifically, the questionnaire consisted of three parts (see Appendix A). Part One (L2 trait-level WTC) was used to measure participants' L2 WTC in in-class environments (5 items, e.g., "When you are given an opportunity to talk freely in an English class"), L2 WTC in out-of-class environments (5 items, e.g., "When you find your close foreign friend standing before you in a line at the café"), L2 WTC in digital in-class environments, (5 items, e.g., "When you are given an opportunity to talk freely during online English lessons") and L2 WTC in digital out-of-class environments (5 item, e.g., "When you have an opportunity to talk with non-native speakers of English (e.g., German and Chinese) on social media") on a five-point Likert scale ranging from 1 "Definitely not willing" to 5 "Definitely willing", based on Lee and Hsieh (2019), a study that had examined the L2 WTC in in-class, out-of-class and digital contexts among Chinese EFL learners. In Part Two, 10 items for the L2 enjoyment scale were selected and adopted from Dewaele and MacIntyre (2016) on a five-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("strongly agree"). Since it was used to measure EFL students' L2 trait-level enjoyment in digital in-class environment, some statements were modified to fit in the context, such as "*I enjoy learning English on TengXunKeTang (SPOC class)*". Finally, items of L2 anxiety (Part Three) were adapted from Dewaele and MacIntyre (2016), and employed to gauge participants' L2 trait-level anxiety in digital in-class environment by deleting two reverse-coded statements to avoid any logical misunderstanding, such as "*I don't worry about making mistakes in FL*

class", and by adding two statements that address the particular situations in online class, such as "*I would feel nervous when I'm going to turn on the microphone to talk*". A total of 8 items in this part were rated on a five-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("strongly agree").

The questionnaires were written in both English and the students' first language (Mandarin) to avoid misinterpretation. The researcher translated the original English questionnaire items into the participants' first language (Mandarin Chinese), and then three Chinese in-service TESOL lecturers retranslated those items back and checked the translation for accuracy. Seven participants completed the questionnaire, which consisted of three sections: L2 WTC, L2 enjoyment, and L2 anxiety in an online classroom. The questionnaire was administered twice, once at the pre-test and once at the post-test. The instrument reliability was calculated using Cronbach's Alpha in SPSS. Table 5 illustrates the instrument reliability for the questionnaire.

Table 5

The instrument reliability for the questionnaire

		N	*α*
Pre-test	L2 WTC	20	.97
	L2 Enjoyment	10	.82
	L2 Anxiety	8	.98
Post-test	L2 WTC	20	.93
	L2 Enjoyment	10	.81
	L2 Anxiety	8	.94

Note: N = number of items; $α$ = Cronbach's Alpha

4.4.2 Self-rated L2 state WTC, enjoyment and anxiety

The self-rated L2 state WTC, enjoyment and anxiety scale was developed by the researcher. Upon receiving a reminder after watching the video recording of their performances, participants utilized a QR code to access an online editable Excel spreadsheet (see Figure 7). This login process occurred at the end of each session. Participants were instructed to assess their willingness, enjoyment and anxiety in speaking English during the task using a scale ranging from -5 to 5. This assessment was done on a minute-by-minute basis and lasted around 22 minutes.

Figure 7

Online editable excel spreadsheet

4.4.3 Actual L2 use

As defined in the earlier chapters, the actual L2 use was referred to the quantity of words produced by the participants in an online class, including both spoken language and written remarks. Therefore, the actual L2 use was divided into two parts for analysis. To begin with, the researcher extracted the oral speeches delivered by each participants from the video recording of online class (see Table 6). Subsequently, the researcher counted the number of words produced by each participant for each session. Afterwards, the researcher thoroughly investigated the chatroom for each session (see Table 7), and carefully counted the quantity of words typed down by each participant. Finally, the total amount of words both spoken and written down by each participant would be accumulated on a session-by-session basis.

Table 6

Transcript of actual L2 use in spoken responses

Session No.	Spoken Responses	Name of Participants
1	Hello teacher I think in the western country the topics about age religion and the marriage situation should be avoided	Linda
	I heard medium sized market town quite near the mountains and maybe 10,000 People live here and most of people working in the sugar factory.	Emma
	I come from Chengdu City, and I think the most special food in my hometown is the hotpot. I think it's characterized by cooking while eating. You can add different soups and foods	Anne

		according to your preference. It's a good product in winter. I think it's very suitable for mountain climate and maybe that's all.	
		My hometown Luzhou city. The special local dish is Luzhou white cake. And the Luzhou white cake is famous as a cake snake of the Han nationality is famous in Bashu for its beauty, tenderness, aroma, sweetness and the refreshments it has become a good breakfast food for all ages. Luzhou white cake snacks select high quality rice, white sugar oz man masters sugar last as raw materials refined by sugar extraction method so the full name was masters law the sugar extraction white cake, okay, that's that's all.	Lucy
2		The first category refers to the people who are shy to strangers while the other quarters people and the latter refers to that some people may seem be easier to mingle with a new group of people	Anne
		Yeah, maybe we can call the former category as the Southwest I mean the Southeast Asia Culture? Yeah. A Southeast Asia well be very shy to talk to strangers sometimes happen in western country	Roy

	Hello. How's your life? Hi, how are you? very good. So do you have anything to do today? Yeah, and in afternoon I'll go into I go into the classroom who to go to the Translation Translation class. Only have the translation class. I don't know what means about as a compulsory and the translation course is our compulsory lesson.	Sophia
	we are having class in the classroom.	Roy
	We are in class to practices what we like. anything else? it is a club we are doing team project in the, maybe in the library. I'm not sure. Maybe it is in the computer room? Because a computer there.	Jacky
	hello teacher, can you hear me? I usually I usually have the holiday classes and I need to attend the apartment conference because I joined the broadcasting apartment. And let me think, I think I'm not satisfied with our school's canteen because I think it's not taste good. And I think because our school is too old we even don't have the air conditioner in our dormitory. Yeah Yeah, I have I have a lot group project that I need to do that I need to finish and usually in the library and sometimes in the dormitory. Maybe nothing else interesting. Sometimes I will. I	Emma

	will do jogging in the playground with my roommates. Because I wanna lose my weight.	
	In my college life, I have so many classes every day, sometimes I will be very busy with my class, and many tasks. But in my free time, I don't like to do the part time job, because I think it's so tiring. And it's unrealistic for me. Right? almost Every day I will rush to the canteen to eat down because I'm hungry. As a freshman of the college, I seldom do the experiments in the laboratory. And maybe I will go to the class to do the things what I like, and most of the time, I will do the team Project with my partners. And we always try my best. I always try my best to help them and finish a task perfectly. What's more, sometimes, I want to sign up for so many English contests, such as a national English competition for college students, because I love English so much. All in all, I think my college life is colorful, and we're really happy because there are so many friendly teachers and partners with me together. I have to rush to the canteen every day because if I'm late, the delicious food will die out.	Linda
3	Okay. How about we going out for a movie tomorrow night. emm, absolutely. So what time do you prefer to go? which time	Jacky

		suits you best. I think maybe 9 o'clock p.m. 9 o'clock in the evening. yeah. no it's not too late. What kind of movie do you want to watch. I like maybe I don't like emm. just American like Marval movies.	
		a good evening. emm. actually I don't know what kind of movie I like to watch. oh I'm not interested in Avatar. maybe I prefer movie on the screen called my sister recently. I like that one, we can go and watch that one. I like the star. I like the actress very much. Because she is a bit like me. How about we go tonight? yes of course. so what time? you think. maybe we should watch the movie at 7 thirty. oh I made a mistake. maybe I mean tomorrow. Ok?	Emma
		I prefer the home cinema. why? because it's cheaper. if we go the movie theaters we will spend so much money and sometimes I will think it's expensive and I can't afford it. It's quite expensive like My sister worth like 30 kuai. I think it's not convenient for us to go out, so I'll choose to stay at home and watch some movies.	Linda
		I will read sentence number 4. Okay. A movie that makes you scream is a hornor. oh, maybe I should pronounce it horror because it's pronounced horrible.	Roy

		oh yeah my favorite movie is wolf warrior two. it is a patriotic movie. Wujing is both the director and the star of this movie. and I think the most special thing about this film is that it has the strong educational significance, I think this movie makes me very moved. and also, I think this movie makes me love my mother land more. It is It is happened between china and Africa I think. emm some some some countries	Anne
4		I want to choose diamond. Yeah, please, please let me see. I think it's very difficult for me to choose because there are many beautiful clothes and dresses when I shopping, and I think it's very difficult to choose one of them. I, I always emm confused. emm Maybe this one is suitable and the other is also suitable. So it's very, it's very difficult to choose one of them. And secondly, I think I will feel very tired when I shopping. Because I must work for a long time. And I can't even have a rest. Yeah.	Emma
		I like shopping because I think maybe most of girls like shopping. And I think shopping can really make us be happy. I think so. And every time I'm in a bad mood, I like to go shopping and but something to Make myself to be happy. I think shopping is our best choice to change our our moods. I	Anne

		love shopping because because I think of no. I like shopping because I think shopping is	
		Hello, teacher. I prefer to challenge. I prefer shopping alone. Because I go shopping with others. Someone will say, Why do you buy these? Sometimes? I will by so many English books that they can't accept the fact that I like English so much. At least. So high level. Sometimes I will make them sad. Because they don't like English as me. But I like English so much. almost every time I go shopping, I will buy some books for me. Unless I go shopping with a friend just like me, if she likes English too. because we can talk about what to buy? And what about prices maybe we can have more choice. Sometimes when I go shopping alone, I will have more personal space to make my own choices.	Linda
		I think there are some differences between men and women in shopping is that we may well be that 90% of the stores in a shopping mall and compare with rock stars before making a decision, when they encounter the good they're like very much. While men will directly go to the stores. They have already liked to buy the good without any extra stop. Yeah. Thank you.	Jacky

	Oh, yeah, um, I will buy a, I will buy a T shirt and shoes. So may I know what kind of size you want. For the t shirt. It's just a small. The T shirt size is small. It's small size t shirt. Do you have any preferable color? I'm blue. You want blue t shirt? How about this one? Oh that's wonderful. I like it. Wow. is a wonderful? You like it is wonderful it is so. So it's worse like 289 qui is that okay. At 989 I'm sorry 200 Wow, I just think it's a little it's expensive for me. So can you give me a discount? Well discounts I'm sorry, we don't have the computing policy for discount right now. Maybe you can come around three days later to see whether we have a discount or not. Hold on, I can hear you clearly because my my network is not stable. Okay, so we don't have discount for now. Yeah, you can come back in three days to check if we have any compelling policy for discounts at that time. Okay, how about shoes? You I heard you want shoes? Which shoes do you like? Just sports though. sneaker. sneaker. sneaker? Yeah, right. Let me check Sneaker do you want this kind of sneakers? Yeah. All right. Okay. We don't have this time for now. I'm sorry. Okay. Well, do you want to buy anything else? Um, no, that's okay. You just go window shopping. That's all	Sophia

Table 7

Transcript of actual L2 use in written responses

Name of Participants	Session No.	Written Responses
Lucy	1	forbidden; I'm from…; yes; the traffic is terrible; yes
	2	I am in class; eat in the canteen; we do experiments in the laboratory; I go to the gym almost every day;
	3	I suffered poor internet connection; Third; because I can be more immersed in the movie when I see it in the cinema; A movie that makes you laugh is a comedy;
	4	A. supermarket B. Department C. convenience store D. outlet, E department store F. Retail shop; 精品店；
Emma	1	politics; maybe gender? I don't know; yes; yeah; people are friendly there; she feels comfortable and safe; entertainment sports facilities; yes;
	2	Chinese culture? people are always feel shy; I am answering my teacher's questions; temporary job; go to the canteen; we need to do the experiments; we do exercises in the gym;
	3	sorry teacher my apologies; I have trouble with my network; I'm not willing to;

	4	2-b; 5-g; 1-e 2-b 3-d 4-f 5-g 6-c 7-a; 3-e 7-d 5-a 4-b 9-c 1-f; 瓜子；零售店；
Linda	1	salary; I was born and grew up in; yes; sugar factory;
	2	talk with?; course; We're putting the books in order; we're waiting in line to choose food to eat;
	3	because the video said so; confirm: HD; yeah, I'm single too; oh my god, it's too complex;
	4	3D; 1E 2B 3D 4C 5G 6F 7A; I'm dizzy (emoj); 小卖部算不算？零售店；I also heard about retailers;
Sophia	1	yes; yeah;
	2	
	3	finally, 7%; 6 Sci-fi;
	4	4c; 1E 2B 3D 4C 5G 6F 7A; 4b 3e 5a 9c 1f 7d
Anne	1	I am from / I come from; yes; My hometown is Guangyuan city, the special local dish is "Liangmian". it's a food made of rice. It is steamed, polished and other steps. then plus some seasoning, especially garlic. we usually eat it and cook it as breakfast;
	2	join; the former shy to strangers;
	3	yeah; A film with cartoon characters is an animation; I've turned on my microphone already;
	4	7A; 1E 2B 3D 4C 5G 6F 7A; club?

Roy		1	I am from; yes;
		2	"hands up" button is not working for me; Answering the teacher's question; perform an experiment;
		3	HD; Cinema; Home; I think it's more convenient and flexible; single haha; 2 romance; The pursuit of happiness, let me learn to persist and dare to pursuit myself dreams; 当幸福来敲门；
		4	4c; 1e 2b 3e 4c 5g 6f 7a;
Jacky		1	I am/come from; Adele? yes; the old building is interesting; I come from Zigong. and the local specialty is spicy rabbit which is famous for its perfect color, taste and flavor; Ok
		2	Listen teacher and student's conversation; have dinner; eat in the canteen; café;
		3	yeah; ?; I can't hear you clearly; no?; HD; yep; my favorite movie is The Bold. It's a suspense drama; and, the film by HuiYinghong starred, told about the Tang House living in three different generations but the same understanding of the female people; by the Thang lady president over the over all situation, between the shuttle power and nobility, relying on excellent writhing and soft figure; and the complex political and business relations in the survival of profit

	4	1E 2B; I wanna choose spade of hearts but I want to have several minutes to prepare;

4.4.4 Interview

To elaborate the quantitative analysis, the researcher developed and improved a set of open-ended guiding questions, based on suggestions from previous studies on L2 WTC (Lee, 2019) and L2 emotions that simple questions were asked with avoiding ambiguous words. The interviews focused on understanding what factors would affect the ups and downs in students' L2 WTC and L2 emotions (Lee & Xie, 2023) in an online class. Therefore, the interviews elicited students' processes of engaging in an online class, such as: "Why do you feel anxious for about half of the time during the class?", "As revealed by your self-rated levels of L2 WTC, you were most/least willing to communicate from X minute to Y minute, could you give me your reasons?", "Tell me which part of the session you enjoyed most/least? and why?"; types of engaging with online class activities, such as "What type of tasks being initiated during the session would find you most/least anxious? and why?", perceptions of L2 communication in an online class, such as "Could you explain how the online class may have influenced your English ability positively or negatively? Any example?", "When and in what situation do you become willing to communicate in an online class?", and perceptions of L2 motions influencing on their L2 emotions in an online class, such as "When and in what situation do you enjoy speaking English in an online class?", "Can you tell me more in detail?", and "Is that what you meant?". Before conducting the individually semi-structured interviews with the

participants, the researcher and one experienced TESOL in-service lecturer confirmed the content validity of the questions. After obtaining participants' confirmation about the content of their interview responses, the researcher organizes the responses in a table and ask one experienced TESOL in-service lecturer to translate the original Chinese responses into English. The translation of their responses were further confirmed by corresponding participants before put them all together for further analysis.

4.5 Data collection

Prior to administering the survey, the researcher obtained ethical approval from the school research ethics committee. Next, the researcher informed the participants of the nature of the study, including its objectives, procedures and potential benefits and risks, during a virtual conference. In order to obtain more precise data on L2 WTC, L2 emotions, and actual L2 use in online class context, the participants were provided with a tutorial of the online teaching platform one week before the project. Only students who consented to participate in the study on a voluntary basis were permitted to complete the questionnaire.

4.6 Data analysis

4.6.1 L2 WTC

Four steps were taken to analyze the participants' trait-like L2 WTC by using IBM SPSS Statistics 25, through the measurement models. First, the normality of data distribution (the mean, standard deviation, skewness and kurtosis) was checked (see Table 17). Second, the loading values of each item for the corresponding construct and sub-constructs were examined for the reliability of individual items. Based on a principal axis factor analysis with the varimax rotation technique, seven latent factors with loadings of greater than 0.5 (ranging from 0.50 to 0.99) were identified through Exploratory Factor Analysis (see Table 9 and Table 10). To be precise, Factor 1 consisted of five items related to WTC in in-class practice. A specific example is, "When you are given an opportunity to talk freely in an English class." Factor 2 consisted of five items related to WTC in out-of-class practice, for example, "When you find your close foreign friend standing before you in a line at the café". Factor 3 consisted of five items concerning WTC in digital in-class practice in formal education, such as "When you are given an opportunity to talk freely during online English lessons". Factor 4 consisted of five items related to WTC in digital out-of-class practice for informal learning contexts, such as, "When you have an opportunity to talk in English with other game players online."

Third, values of Cronbach's alpha ranged from 0.81 to 0.93, indicating that the internal reliability of the L2 trait-level WTC questionnaire was acceptable (see Table 8 and Table 9). Fourth, values of Composite Reliability (above 0.8) and Average Variance Extracted (above 0.5) were observed, thereby verifying convergent validity (Fornell and Larcker 1981). Lastly, a paired samples test was performed to analyze the variability of Chinese EFL learners' trait-level L2 WTC between the initial and the final stages of an online English learning program (trail of four sessions).

Table 8

Construct validity and internal reliability of L2 trait-level WTC in pre-test

| Construct | Item | Sample (*N* = 7) | | | |
		Loading (>0.5)	α (>0.8)	CR (>0.8)	AVE (>0.5)
Trait-level L2 WTC	In-Class L2 WTC	WTC 1	0.94	0.90	0.91	0.67
		WTC 2	0.77			
		WTC 3	0.55			
		WTC 4	0.93			
		WTC 5	0.85			
	Out-of-Class L2 WTC	WTC 6	0.96	0.88	0.97	0.88
		WTC 7	0.97			
		WTC 8	0.94			
		WTC 9	0.94			
		WTC 10	0.87			
	Digital In-Class L2 WTC	WTC 11	0.87	0.92	0.94	0.77
		WTC 12	0.85			
		WTC 13	0.81			
		WTC 14	0.90			
		WTC 15	0.94			
	Digital Out-of-Class L2 WTC	WTC 16	0.97	0.81	0.94	0.77
		WTC 17	0.73			
		WTC 18	0.88			
		WTC 19	0.94			
		WTC 20	0.86			

Table 9

Construct validity and internal reliability of L2 trait-level WTC in post-test

| Construct | Item | Sample (*N* = 7) | | | |
		Loading (>0.5)	α (>0.8)	CR (>0.8)	AVE (>0.5)

Trait-level L2 WTC	In-Class L2 WTC	WTC 1	0.83	0.91	0.94	0.77
		WTC 2	0.95			
		WTC 3	0.91			
		WTC 4	0.84			
		WTC 5	0.83			
	Out-of-Class L2 WTC	WTC 6	0.63	0.92	0.95	0.80
		WTC 7	0.96			
		WTC 8	0.95			
		WTC 9	0.99			
		WTC 10	0.90			
	Digital In-Class L2 WTC	WTC 11	0.97	0.89	0.93	0.74
		WTC 12	0.98			
		WTC 13	0.75			
		WTC 14	0.93			
		WTC 15	0.59			
	Digital Out-of-Class L2 WTC	WTC 16	0.90	0.93	0.97	0.87
		WTC 17	0.92			
		WTC 18	0.94			
		WTC 19	0.93			
		WTC 20	0.97			

In terms of a state-level perspective, the participants' self-reported values of L2 WTC were analyzed session by session to determine the fluctuations in their L2 WTC in an online class. The calculations included the means and standard deviations. In order to gain an in-depth understanding of the dynamic nature of their L2 WTC, we implemented multiple measures to analyze the interview data. First, the researchers converted the stimulated recalls and interview data into written form using the English language. Second, the accuracy of the transcription was verified through member checking (Birt et al., 2016). Third, the transcribed data was

thoroughly examined by the researchers and an external coder using the method of open coding. The coder differences were thoroughly addressed and resolved through discussion until two coders achieved inter-coder reliability of 90% (O'Connor & Joffe, 2020). Fourth, the researchers chose commonly repeating themes for axial and selective coding, while eliminating irrelevant data. Fifth, we compared and contrasted the newly identified themes by applying the four principles outlined in MacIntyre et al.'s (1998) model. For instance, the sub-themes, which are secondary concepts, such as 'openness to a new online learning experience', were categorized into main themes (1st order theme), referred to as 'social and individual context.' Finally, the main themes, sub-themes and relevant excerpts were compiled and are displayed in Table 10.

Table 10

Main themes, sub-themes and relevant examples

Layers	Main themes	Sub-themes	Examples
VI	Social and Individual Context	1. Openness to a new online learning experience	I would like to try different ways to learn English.
V	Affective-Cognitive Context	1. Teacher's use of wait time	My teacher always gives me time to think and reorganize my ideas and words. It encourages me to think and talk more.
		2. Friendly and active learning environment	I want to talk more and become more active in involving myself in conversations when I find that everyone else is trying their best to answer questions.

		3. Playback video of each session	I don't need to worry about taking notes because I can watch the video after class. Hence, I can fully engage in talking or thinking about how to share my idea with others.
		4. Peer encouragement	My classmates' encouragement also drives me to talk in class.
		5. Gamification	Games attract my interest and playing games can help me get more involved in talking.
		6. Teacher recognition	What makes me feel most satisfied is when I heard my teacher view my ideas as good ones. This makes me want to engage more in talking in class.
		7. (Un)familiarity with the interlocutors	I don't want to talk when I am not familiar with the teacher and classmates.
IV	Motivational Propensities	1. Topic knowledge	I would like to talk more if the topic interests me.
		2. Task familiarity	I have more time to prepare for the task, as I can search for more information beforehand. So I can talk more confidently about the question.
		3. Inadequacy of vocabulary	I don't want to talk in class because I am afraid I cannot talk fluently due to the shortage of my vocabulary.
		4. Self-perceived L2 confidence	I love communicating with others because I am very confident with my English.

III	Situated Antecedents	1. Virtual and non-verbal affective support	Seeing flowers or thumbs-up icons can let me know that others like my ideas, and then I would like to talk more next time.
		2. Visual aids	I like pictures. Pictures help visualize my ideas, and I can have more to talk about.
		3. (Un)familiarity with online platform and its functions	I find no more ways to engage in talking or conversations due to technological difficulties since this is the first time for me to have an online class and I knew nothing about the platform before.
		4. Technical issues	I suffered a poor Internet connection when having the class and therefore I could not talk.

Note: Layers = Pyramid Model Layers

4.6.2 L2 enjoyment and L2 anxiety

Four steps were taken to analyze the participants' trait-like L2 enjoyment and anxiety by using IBM SPSS Statistics 25, through the measurement models. First, the normality of data distribution (the mean, standard deviation, skewness and kurtosis) was checked (see Table 20). Second, the loading values of each item for the corresponding construct and sub-constructs were examined for the reliability of individual items. Based on a principal axis factor analysis with the varimax rotation technique, seven latent factors with loadings of greater than 0.5 (ranging from 0.53 to 0.98) were identified through Exploratory Factor Analysis (see Table

11). To be precise, Factors 1 counted for the measurement of EFL learners' enjoyment in learning English in digital in-class environment, such as "I can express myself better in SPOC class", while Factor 2 consisted of eight items concerning learners' anxiety in learning English in the digital in-class environment, such as "Even if I am well prepared for the English class, I feel anxious about it". Consequently, the construct validity of the two different constructs was acceptable.

Third, values of Cronbach's alpha ranged between 0.82 and 0.98, indicating that the internal reliability of the L2 trait-level enjoyment and anxiety questionnaire was acceptable (see Table 11 and Table 12). Fourth, values of Composite Reliability (above 0.8) and Average Variance Extracted (above 0.5) were observed, thereby verifying convergent validity (Fornell and Larcker 1981). Lastly, two paired samples tests were performed to examine if the online learning program of English language class (trail of four sessions) can help Chinese EFL learners to increase their perceptions of enjoyment and reduce their levels of anxiety from trait-level perspective.

Concerning their L2 state-level enjoyment and anxiety shown in the online class, the statistical analysis involved calculating the means and standard deviations of participants' self-reported ratings on a session-by-session basis. This approach was used to demonstrate the dynamic nature of their L2 enjoyment and L2 anxiety levels in learning English an online class. A session-by-session correlation analysis was employed to investigate the fluctuations in the association between L2 enjoyment and L2 anxiety. The researcher transcribed stimulated recalls and interview data from Chinese to English to further explore the variables influencing the variations in L2 enjoyment and L2 anxiety. The translated transcriptions were distributed

to all participants for their consent. The researchers and an external coder, who is an experienced TESOL researcher, independently assessed the transcribed data using open coding. The purpose was to uncover the elements that influence fluctuations in L2 enjoyment and L2 anxiety. Both coders consistently selected recurring topics for axial and selective coding. Both coders continued to code until they achieved an inter-coder reliability of above 90% (Cohen's k = .90).

Table 11

Construct validity and internal reliability of L2 trait-level enjoyment and anxiety in pre-test

Construct	Item	Sample ($N = 7$)			
		Loading (>0.5)	α (>0.8)	CR (>0.8)	AVE (>0.5)
	Enjoyment 1	0.87	0.82	0.98	0.81
	Enjoyment 2	0.95			
	Enjoyment 3	0.89			
	Enjoyment 4	0.80			
Trait-level	Enjoyment 5	0.83			
L2 enjoyment	Enjoyment 6	0.95			
	Enjoyment 7	0.75			
	Enjoyment 8	0.98			
	Enjoyment 9	0.97			
	Enjoyment 10	0.98			
	Anxiety 1	0.96	0.98	0.98	0.90
	Anxiety 2	0.93			
	Anxiety 3	0.97			
Trait-level	Anxiety 4	0.93			
L2 anxiety	Anxiety 5	0.98			
	Anxiety 6	0.98			
	Anxiety 7	0.98			

		Anxiety 8	0.87			

Table 12

Construct validity and internal reliability of L2 trait-level enjoyment and anxiety in post-test

Construct	Item	Sample (*N* = 7)			
		Loading (>0.5)	α (>0.8)	CR (>0.8)	AVE (>0.5)
Trait-level L2 enjoyment	Enjoyment 1	0.83	0.81	0.97	0.79
	Enjoyment 2	0.91			
	Enjoyment 3	0.81			
	Enjoyment 4	0.94			
	Enjoyment 5	0.90			
	Enjoyment 6	0.70			
	Enjoyment 7	0.93			
	Enjoyment 8	0.97			
	Enjoyment 9	0.95			
	Enjoyment 10	0.90			
Trait-level L2 anxiety	Anxiety 1	0.79	0.94	0.95	0.72
	Anxiety 2	0.53			
	Anxiety 3	0.85			
	Anxiety 4	0.83			
	Anxiety 5	0.96			
	Anxiety 6	0.91			
	Anxiety 7	0.90			
	Anxiety 8	0.93			

4.6.3 Actual L2 use

The researcher quantified the number of words produced by each participant in both oral and written forms during each session. The process consisted of six parts. First, the spoken

responses were extracted from the video recordings and then submitted to *otter.ie* (an online service that converts voice into written transcripts; see Figure 8). This allowed for the generation of an initial transcript for each spoken response. Second, the researcher duplicated the original transcript and inserted it into a Word document, and then made corrections to any mistakes while simultaneously listening to the audio recordings in order to guarantee precision. Third, each transcript was submitted to the respective participant for their validation of its accuracy. Forth, after confirming the authenticity of the transcript, the researcher proceeded to measure the duration of each spoken response in seconds and determined the number of words uttered, as shown in Table 13. Fifth, the researcher counted the quantity of words produced in both spoken and written forms by each participant during each session along with the times of responses by each individual. The data were then verified by an external coder who is an experienced TESOL researcher, and then recorded in Table 14 and Table 15 respectively for future examination. Lastly, the recorded oral and written responses of each participant were used for AI assessment through an online application entitled *Reply* (see Figure 9). The AI served as an example for the students, who might acquire the skills to use such tools to enhance their own learning with the support of technology. The assessment focused on four aspects: composition, fluency, accuracy, and completeness. The AI assessment provided an average score, which was then used by the researcher and external coder to recode the results using a 5-point Likert scale (refer to Table 16). The scale ranged from 1 (indicating the lowest level of proficiency) to 5 (indicating the highest level of proficiency). In order to protect the privacy and anonymity of the participants, pseudonyms were used.

Figure 8

A screenshot of the sample use of transcript transfer tool (otter.ie)
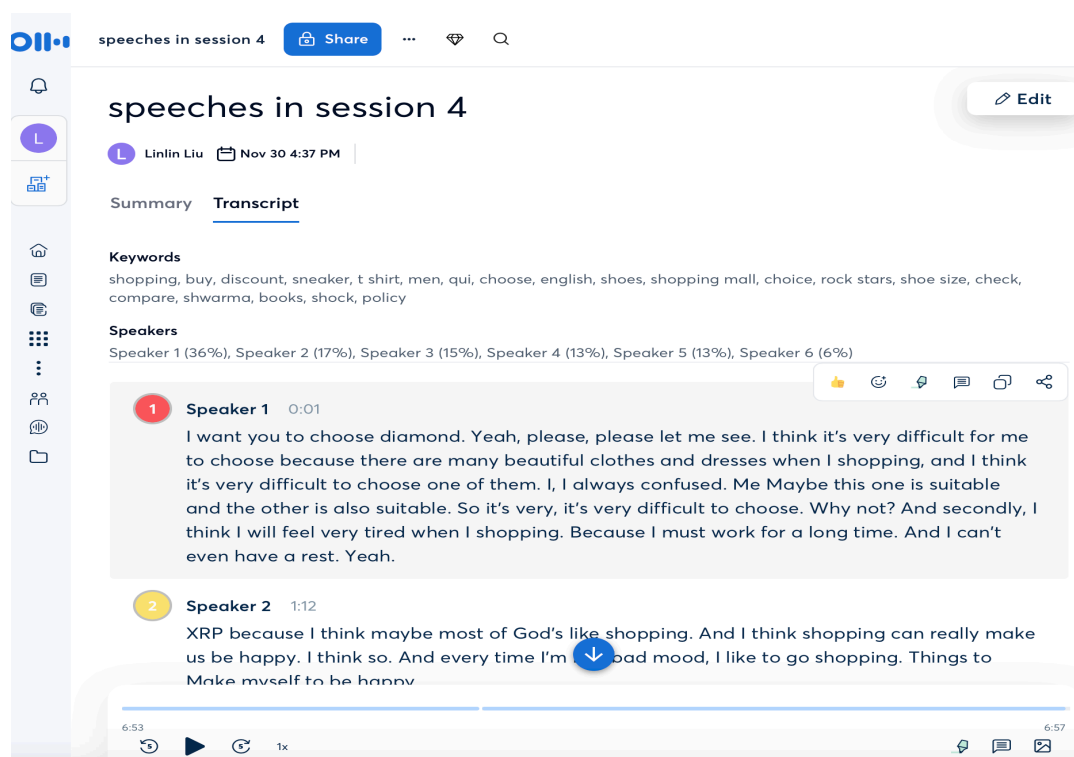
Table 13

Actual L2 use (spoken responses) in an online class

Session	Name of the Respondent	Length (seconds)	Number of Words
1 (Total: 125s; 189words)	Linda	14s	20
	Emma	22s	25
	Anne	36s	55
	Lucy	53s	89
2 (Total: 387s; 497 words)	Anne	18s	37
	Roy	25s	34
	Sophia	66s	60
	Roy	4s	7
	Jacky	31s	40

	Emma	98s	120
	Linda	132s	199
3 (Total: 279s; 328 words)	Jacky	34s	64
	Emma	112s	93
	Linda	41s	64
	Roy	27s	27
	Anne	65s	80
4 (Total: 378s; 625 words)	Emma	68s	98
	Anne	54s	76
	Linda	76s	131
	Jacky	53s	68
	Sophia	127s	252

Table 14

Actual L2 use (words in both spoken and written responses) in an online class (frequency)

Name	Session 1 Spoken	Session 1 Written	Session 2 Spoken	Session 2 Written	Session 3 Spoken	Session 3 Written	Session 4 Spoken	Session 4 Written
Emma	25	21	120	31	93	14	98	22
	2		**5**		**4**		**4**	
Sophia		2	60			4	252	14
	1		**3**		**1**		**5**	
Roy		4	41	15	27	36		8
	4		**3**		**3**		**1**	
Anne	55	47	37	6	80	15	76	9
	4		**2**		**4**		**4**	

Lucy	89	9		22		31		19

Lucy	89 9		22		31		19
	4		**1**		**2**		**1**
Jacky		32	40 12		64 79		68 17
	2		**3**		**5**		**4**
Linda	20 11		199 18		64 17		131 27
	2		**5**		**4**		**5**

Table 15

Actual L2 use (times of responses) in an online class (frequency)

Name	Session 1		Session 2		Session 3		Session 4	
	Times	Recoded	Times	Recoded	Times	Recoded	Times	Recoded
Emma	10	**3**	8	**3**	4	**2**	17	**5**
Sophia	2	**1**	1	**1**	3	**1**	15	**4**
Roy	2	**1**	5	**2**	10	**3**	8	**3**
Anne	5	**2**	3	**1**	4	**2**	10	**3**
Lucy	6	**2**	4	**2**	4	**2**	7	**2**
Jacky	5	**2**	1	**1**	8	**3**	4	**2**
Linda	4	**2**	5	**2**	6	**2**	13	**4**

Figure 9

A screenshot of the sample use of AI assessment on speaking proficiency
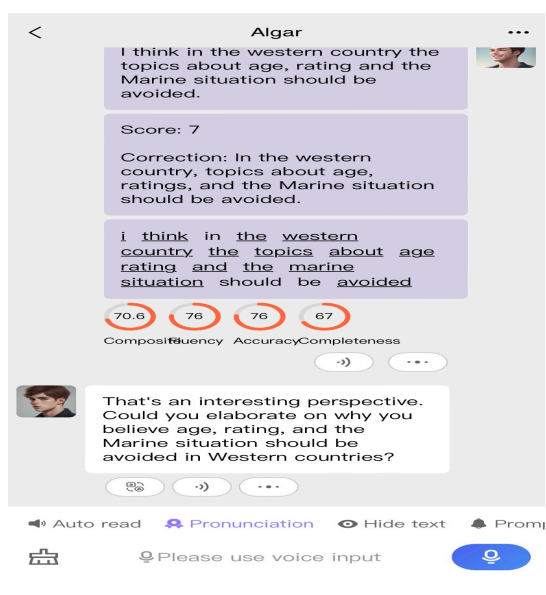
Table 16

AI assessed and recoded language proficiency of actual L2 use

Name	Session 1		Session 2		Session 3		Session 4	
	AI	Recoded	AI	Recoded	AI	Recoded	AI	Recoded
Emma	62.2	**3**	77.9	**3**	80.2	**4**	88.8	**5**
Sophia	17.1	**1**	30.1	**2**	43.2	**3**	52.1	**3**
Roy	15.4	**1**	28.5	**2**	30.2	**2**	33	**2**
Anne	50.3	**3**	58.4	**3**	67.6	**3**	73.2	**4**
Lucy	13.7	**1**	33.1	**2**	59.4	**3**	42	**3**
Jacky	37.8	**2**	49.4	**3**	67.8	**4**	72.7	**4**
Linda	72.4	**4**	78.3	**4**	87.4	**4**	92.6	**5**

Summary of the Chapter

This chapter outlines the methodology employed in the dissertation study. Details were provided regarding the participants, research design, materials, research procedure, data collection, and data analysis. The forthcoming chapter will present the results to address the research questions.

Chapter 5: Empirical Results

This chapter presents the results obtained for research questions. The study's findings are organized into three sections: (1) dynamicity of L2 enjoyment, L2 anxiety and L2 WTC in an online class; (2) factors influencing the fluctuations in L2 emotions (enjoyment and anxiety) and L2 WTC; (3) L2 emotions (enjoyment and anxiety) and actual language use via L2 WTC.

5.1 Dynamicity of L2 Enjoyment, L2 Anxiety and L2 WTC in an online class

5.1.1 Dynamicity of L2 Enjoyment and L2 Anxiety

This subsection presents statistical analysis of participants' L2 trait-level enjoyment and anxiety across the study and an account of participants' fluctuating levels of both L2 emotions as indicated by their self-reported data.

Descriptive data analysis (see Table 17) shows that participants reported above-neutral levels of Digital In-Class enjoyment ($M = 3.74$, $SD = .57$) and Digital In-Class anxiety ($M = 3.48$, $SD = 1.50$) in pre-test and Digital In-Class enjoyment ($M = 4.03$, $SD = 0.52$) and Digital In-Class anxiety ($M = 3.16$, $SD = 1.28$) in post-test respectively, as the mean scores were more than 3 (neutral agreement) on a five-point Likert scale. This indicates that speaking from their trait-level perspective, Chinese EFL learners had generally high levels of enjoyment and anxiety in English communication in digital in-class settings. In particular, compared to pre-test results, the value of L2 trait-level enjoyment in digital in-class settings ($M = 4.03$, $SD = 0.52$) in post-test show significant increase, on the other hand, the value of L2 trait-level

anxiety in digital in-class settings (M = 3.16, SD = 1.28) in post-test show slight decrease, which implies that the online class sessions could affect Chinese EFL learners' L2 trait-level emotions in digital in-class environment, such as online classes, by increasing their enjoyment while reducing their anxiety.

Table 17

Descriptive statistics of L2 trait-level enjoyment and anxiety

Stage	Constructs	Items	Skew	Kurt	M (SD)	M (SD) for all items
		1	0.00	-2.60	4.00 (1.00)	3.74 (0.57)
		2	0.76	-1.69	3.71 (0.95)	
		3	0.37	-2.80	3.43 (0.54)	
		4	1.40	3.00	3.00 (1.00)	
	Digital In-Class Enjoyment	5	1.40	3.00	3.00 (1.00)	
		6	-0.17	0.34	4.14 (0.69)	
		7	0.25	-0.94	3.29 (1.11)	
		8	-2.65	7.00	4.71 (0.76)	
		9	0.36	-2.09	3.29 (1.38)	
Pre-test		10	-2.65	7.00	4.86 (0.38)	
		1	-0.68	-1.15	3.57 (1.62)	3.48 (1.50)
		2	-0.56	-2.23	3.86 (1.46)	
	Digital In-Class Anxiety	3	-0.19	-2.65	3.57 (1.51)	
		4	-0.79	-1.30	3.71 (1.70)	
		5	-0.36	-2.09	3.71 (1.38)	
		6	-0.76	-1.69	3.57 (1.90)	
		7	-0.76	-1.69	3.57 (1.90)	
		8	0.26	-0.94	2.29 (1.11)	
		1	-1.12	0.27	4.43 (0.79)	4.03 (0.52)
Post-test	Digital In-Class Enjoyment	2	-0.35	-1.82	4.14 (0.90)	
		3	1.12	0.27	3.57 (0.79)	
		4	1.12	0.27	3.57 (0.79)	

	5	0.76	-1.69	3.71 (0.95)	
	6	-0.17	0.34	4.14 (0.69)	
	7	-0.77	0.26	3.86 (1.07)	
	8	-2.65	7.00	4.86 (0.38)	
	9	0.79	-1.28	3.14 (1.35)	
	10	-2.65	7.00	4.86 (0.38)	
	1	-0.38	-2.11	3.43 (1.72)	3.16 (1.28)
	2	-1.15	-0.06	4.14 (1.22)	
Digital	3	-0.31	-1.83	3.29 (1.60)	
In-Class	4	0.05	-2.16	2.71 (1.70)	
Anxiety	5	-0.68	-1.16	3.14 (1.57)	
	6	0.57	0.38	2.57 (1.40)	
	7	-1.00	-0.19	3.57 (1.51)	
	8	0.97	1.01	2.43 (1.40)	

According to the data presented in Table 18, the online English class, which consisted of four trial sessions, had a substantial positive impact on Chinese EFL learners' enjoyment within the online class environment. The statistical analysis showed a t-value of 3.29, indicating a significant effect. The p-value was less than .05, indicating statistical significance. The 95% confidence interval for the effect size was from .22 to 1.50. The students had an average increase in L2 enjoyment of 0.86 (with a standard deviation of 0.70) after completing all sessions over a period of four weeks. However, in contrast to the previous situation, the instruction and acquisition of English language in online class sessions can greatly reduce students' anxiety, as indicated by a statistically significant result (t (6) = -5.44, p<.05, two-tailed), with a 95% confidence interval ranging from -.3.32 to -1.26. The students witnessed an average reduction of -2.29 (SD = 1.11) in their L2 anxiety levels upon completion of the online

class. This implies that Chinese EFL learners are more likely to find the learning process enjoyable through online classes, while experiencing less anxiety when it comes to learning the English language.

Table 18

*Paired sample tests result for L2 trait-level enjoyment and anxiety*

	Pair	Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference		t	df	P (2-tailed)
					Lower	Upper			
Pair 1	Post-L2 enjoyment – Pre-L2 enjoyment	0.86	0.69	0.26	0.22	1.50	3.29	6	0.017
Pair 2	Post-L2 anxiety – Pre-L2 anxiety	-2.29	1.11	0.42	-3.32	-1.26	-5.44	6	0.002

Figure 10 presents the quantitative data obtained from participants' self-ratings of their level of L2 enjoyment and L2 anxiety for each session, measured on a one-minute basis. It is noteworthy that there are obvious fluctuations in both L2 enjoyment and L2 anxiety observed within and between sessions. Furthermore, it suggests that as sessions progress ahead, both the level of enjoyment and anxiety experienced in their second language become more and more stable. Upon closer examination, it becomes evident that L2 anxiety fluctuates more significantly during and between sessions, when compared to L2 enjoyment. This is a

compelling discovery that participants appear to account for more dynamicity of L2 anxiety in an online class.

Figure 10

Dynamicity of L2 enjoyment and L2 anxiety for four sessions across an online class
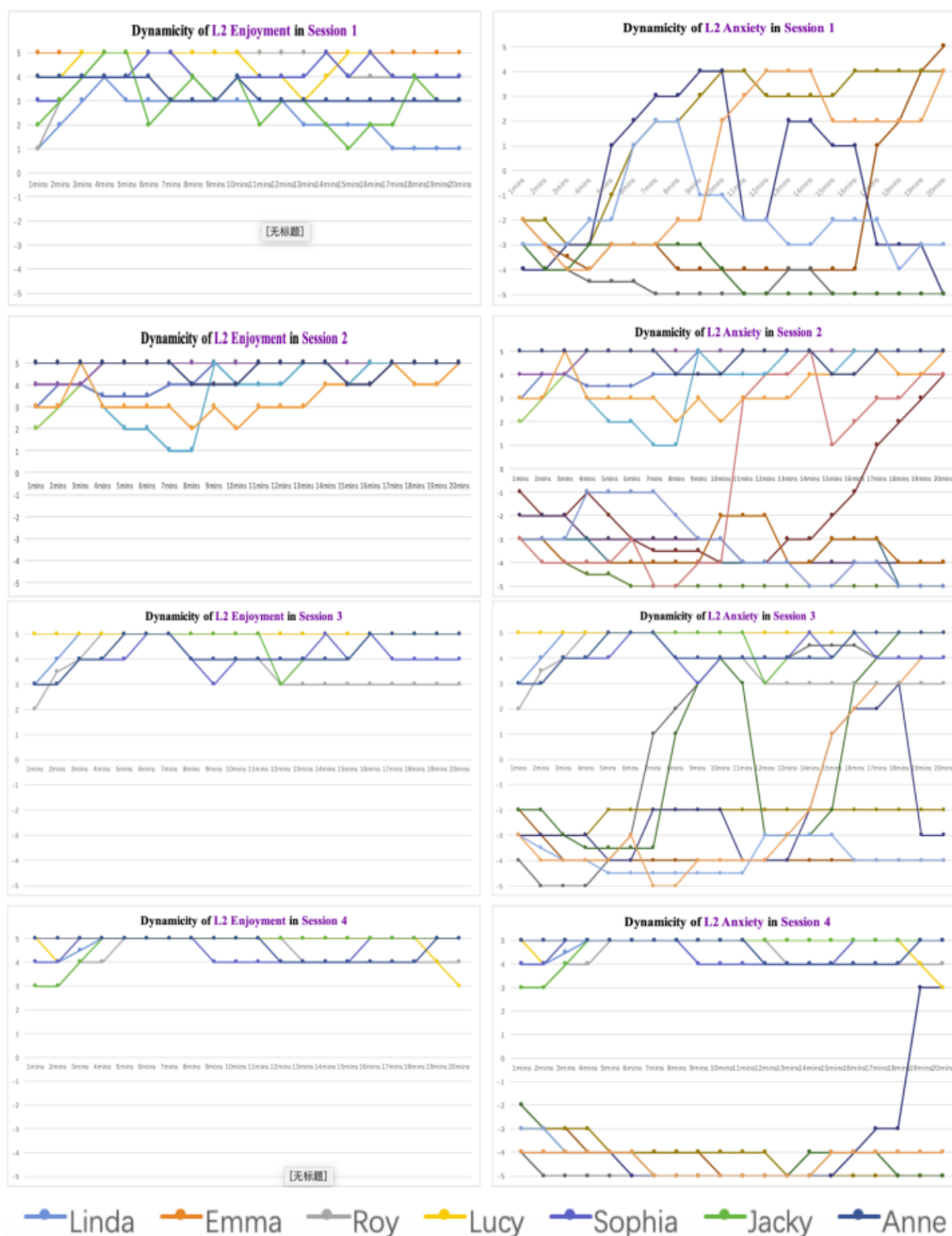
Descriptive results indicate that there are variations in L2 enjoyment and L2 anxiety both within and between sessions, as well as within and between individuals. As the sessions continue, L2 anxiety seems to decrease, while L2 enjoyment appears to increase.

With more thoroughly examination of the results, it becomes evident that the link between L2 enjoyment and L2 anxiety varied significantly among individuals. On one side, the variations in L2 enjoyment and L2 anxiety were inversely related, as observed in both Linda's and Jacky's cases. On the other hand, they were unrelated, as shown in the cases of the other five participants.

Figure 11

Linda and Jacky's L2 enjoyment and L2 anxiety mean scores for four sessions of an online class
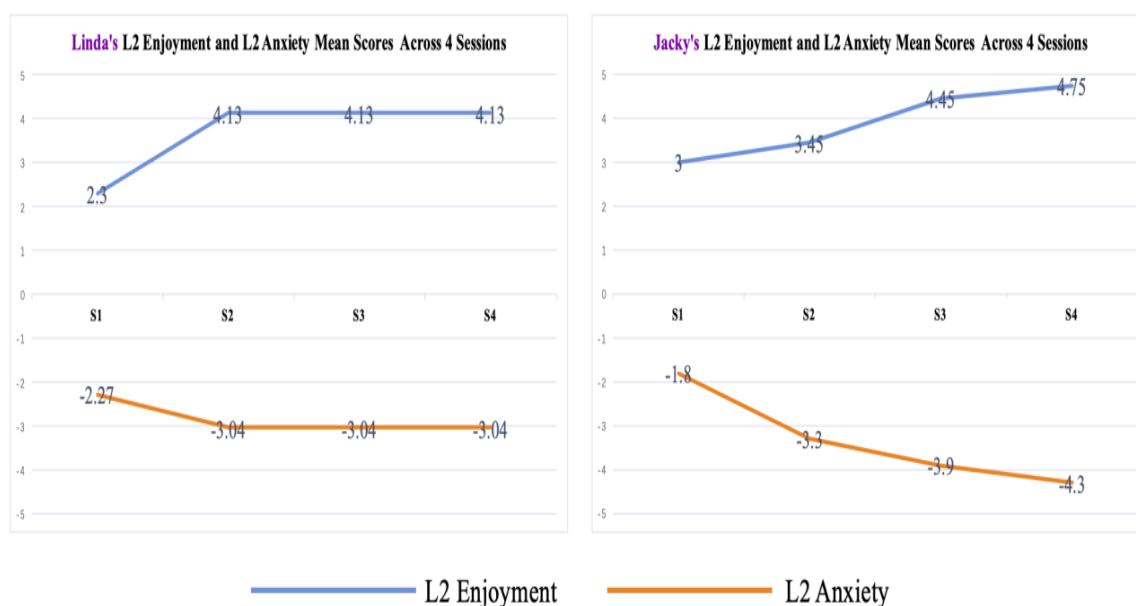
Note: S = Session

Upon further investigation, the level of enjoyment experienced by Linda and Jacky in their second language (L2) varies in sync with their level of anxiety in the same language (as shown in Figure 11). In contrast, the enjoyment levels of the other five individuals in their L2 fluctuate independently of their anxiety levels (as depicted in Figure 12).

Figure 12

Roy, Emma, Lucy, Sophia and Anne's L2 enjoyment and L2 anxiety mean scores for four sessions of an online class
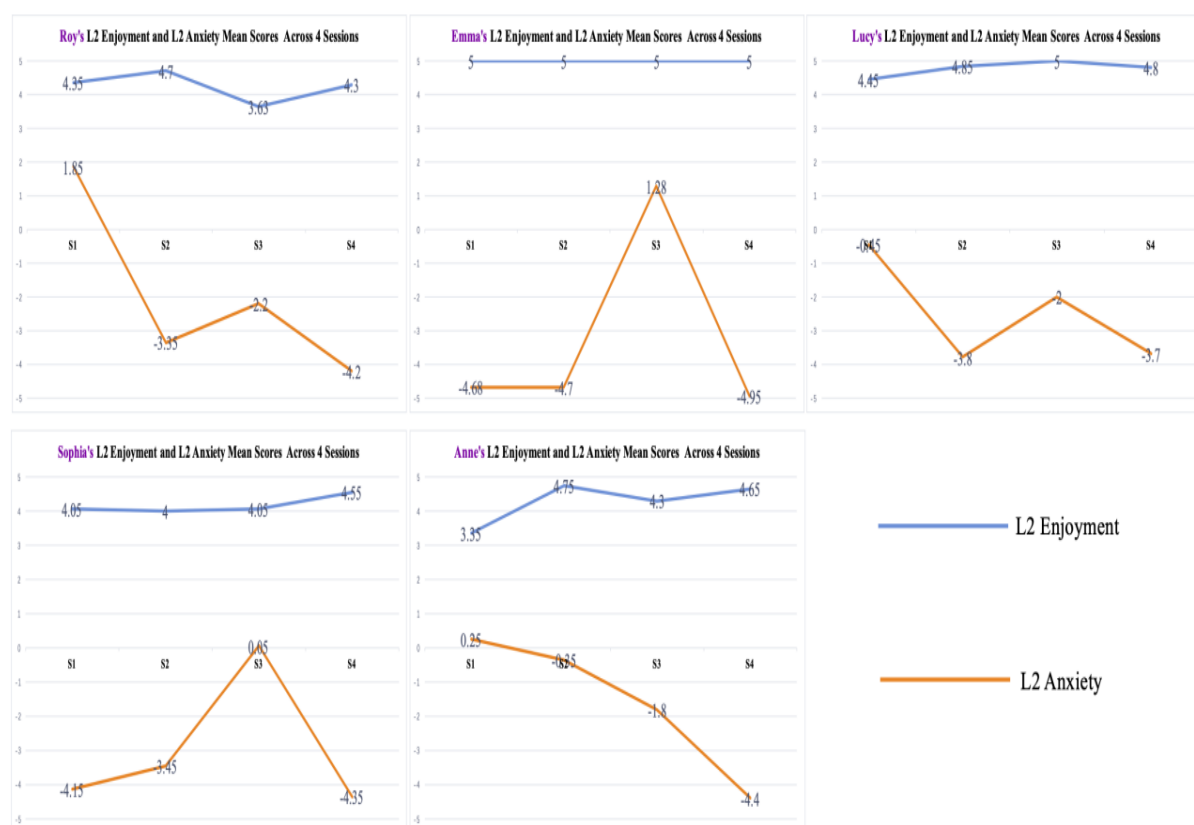
Bivariate Pearson correlations were computed using IBM SPSS Statistics version 26 to examine the relationship between L2 enjoyment and L2 anxiety for each participant throughout each session. The specific results can be seen in Table 19. Every participant demonstrates a significant correlation between L2 enjoyment and L2 anxiety in at least one

online session. Upon closer scrutiny, it becomes evident that there is a statistically significant correlation in 12 out of the 28 sessions, accounting for 43% of the total. Out of these 12 sessions, 11 show a negative correlation and one displays a positive correlation. This means that, with the exception of one positive correlational case, both L2 emotions reveal a seesaw relationship, where one increases while the other decreases. In other cases, they function independently.

It is worth mentioning that there are two cases that show a correlation in Session 1, three in Session 2, three in Session 3, and four in Session 4. This suggests that the associations between two emotions seem to grow more consistent and foreseeable as the session advances. Observational data indicate that various individual and contextual factors initially exerted a significant impact on participants' enjoyment and anxiety in their second language (L2), but had a diminishing effect on both L2 emotions as time progressed. Linda, for instance, was a sociable and confident individual seeking a novel opportunity, such as an innovative online class. Nevertheless, Linda's behavior during Session 1 was characterized by utter silence, which was corroborated by her self-rating data and subsequent interviews. Based on her accounts, she experienced frustration and anxiety during Session 1 due to her inability to locate a button in an online class that would allow her to indicate her desire to speak. When the first online session began at 9 a.m., her dormitory companions were still asleep, which posed a challenge for her to engage in communication through speech or typing. In addition, all Session 1 participants, except for Emma, expressed a disdain for fill-in-the-blank listening tests. This aversion stemmed from the fact that after completing the activity, their test results were displayed on the screen, allowing for comparison and therefore triggering anxiety related to their second language proficiency. During a ten-minute break in Session 1, the instructor

became aware of the noted concerns while engaging in informal conversation with students. The instructor rescheduled the class to take place at 11 a.m. and 3 p.m. Starting from Session 2, Linda was able to speak freely without being concerned about her dormitory mates. Furthermore, the listening task was modified to incorporate open-ended questions such as "What knowledge did you acquire from the listening?". Additionally, multiple choice with a short answer were included, such as "In the following situation, what is likely to happen? Can you explain why?". Specifically, the redesigned listening test does not have any objective right or wrong responses, which helps reduce the anxiety experienced by students learning a second language. Session 4 participants demonstrated a greater sense of ease and self-assurance, and they engaged more actively in the chatroom compared to their performances in Session 1. During Session 4, no technical issues were observed. During the interview, the term commonly employed to characterize Session 4 was 'pleasant'.

Table 19

Correlations between L2 enjoyment and L2 anxiety for each participant on a session-by-session basis

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

Note: ** = $p < 0.01$; * = $p < 0.05$

5.1.2 Dynamicity of L2 WTC

This subsection presents statistical analysis of participants' L2 trait-level WTC across the study and an account of participants' fluctuating levels of L2 WTC as indicated by their self-reported data.

Descriptive data analysis (see Table 20) shows that participants reported above-neutral levels of In-Class WTC (M = 3.94, SD = .93), Out-of-Class WTC (M = 3.91, SD = .79), Digital In-Class WTC (M = 3.89, SD = .89) and Digital Out-of-Class WTC (M = 3.71, SD = .78) in pre-test and In-Class WTC (M = 4.17, SD = .77), Out-of-Class WTC (M = 3.77, SD = .91), Digital In-Class WTC (M = 3.94, SD = .88) and Digital Out-of-Class WTC (M = 3.40, SD = .77) in post-test respectively, as the mean scores were more than 3 (neutral agreement) on a five-point Likert scale. This indicates that speaking from their L2 trait-level WTC perspective, Chinese EFL learners had generally high levels of willingness to communicate in English across different settings. In particular, compared to pre-test results, both the value of In-Class WTC (M = 4.17, SD = .77) and the value of Digital In-Class WTC (M = 3.94, SD = .88) in post-test show slight increase, which implies that the online class sessions could have positive influence on Chinese EFL learners' L2 trait-level WTC in different in-class settings.

Table 20

Descriptive statistics of L2 trait-level WTC

Stage	Constructs	Items	Skew	Kurt	M (SD)	M (SD) for all items
Pre-test	In-Class WTC	1	0.37	-2.80	3.86 (1.07)	3.94 (0.93)
		2	0.00	-2.60	4.00 (1.00)	
		3	-0.76	-1.69	4.29 (0.95)	
		4	0.24	-1.23	3.57 (1.13)	

		5	-0.65	-1.70	4.00 (1.29)	
	Out-of-Class WTC	1	-1.23	-0.84	4.71 (0.49)	3.91 (0.79)
		2	0.35	-1.82	3.86 (0.90)	
		3	0.00	-1.20	4.00 (0.82)	
		4	0.22	-1.72	3.43 (1.27)	
		5	0.24	-1.23	3.57 (1.13)	
	Digital In-Class WTC	1	0.35	-1.82	3.86 (0.90)	3.89 (0.89)
		2	0.00	-2.60	4.00 (1.00)	
		3	0.00	-1.20	4.00 (0.82)	
		4	-0.25	-0.94	3.71 (1.11)	
		5	-0.41	-1.53	3.86 (1.22)	
	Digital Out-of-Class WTC	1	-0.41	-1.53	3.86 (1.22)	3.71 (0.78)
		2	0.28	0.04	3.43 (0.98)	
		3	-0.77	0.26	3.86 (1.07)	
		4	-1.58	3.17	3.57 (1.27)	
		5	0.35	-1.82	3.86 (0.90)	
	In-Class WTC	1	-0.60	-0.35	4.29 (0.76)	4.17 (0.77)
		2	0.00	-1.20	4.00 (0.82)	
		3	-1.12	0.27	4.43 (0.79)	
		4	-0.91	-0.15	4.00 (1.16)	
		5	-0.35	-1.82	4.14 (0.90)	
Post-test	Out-of-Class WTC	1	-1.15	-0.06	4.14 (1.22)	3.77 (0.91)
		2	0.00	-1.20	4.00 (0.82)	
		3	0.76	-1.69	3.71 (0.95)	
		4	0.68	-1.10	3.29 (1.25)	
		5	0.76	-1.69	3.71 (0.95)	
	Digital In-Class WTC	1	0.76	-1.69	3.72 (0.95)	3.94 (0.88)
		2	0.37	-2.80	3.86 (1.07)	
		3	-1.12	0.27	4.43 (0.79)	
		4	0.03	-2.07	3.71 (1.25)	
		5	-0.91	-0.15	4.00 (1.16)	
	Digital	1	0.24	-1.23	3.57 (1.13)	3.40 (0.77)

Out-of-Class	2	0.73	-0.74	3.43 (1.29)
WTC	3	-0.71	-0.33	3.29 (1.38)
	4	0.00	0.31	3.00 (1.29)
	5	0.76	-1.69	3.71 (0.95)

Based on the data provided in Table 21, the four-session online English class project demonstrated a significant impact on students' willingness to communicate within the online class environment, with *t*-value of 3.29 and a *p*-value of less than 0.05 (two-tailed). The 95% confidence interval for this effect ranged from 0.22 to 1.50. The students' willingness to communicate, on average, displayed a mean increase of 0.86 (standard deviation = 0.70) following the completion of the project. It implies that students might demonstrate greater willingness to engage in English language communication inside an online classroom setting.

Table 21

Paired sample tests result for L2 trait-level WTC

	Pair	Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference		*t*	*df*	*P* (2-tailed)
					Lower	Upper			
Pair 1	Post-L2 WTC – Pre-L2 WTC	0.86	0.69	0.26	0.22	1.50	3.29	6	0.017

Figure 13

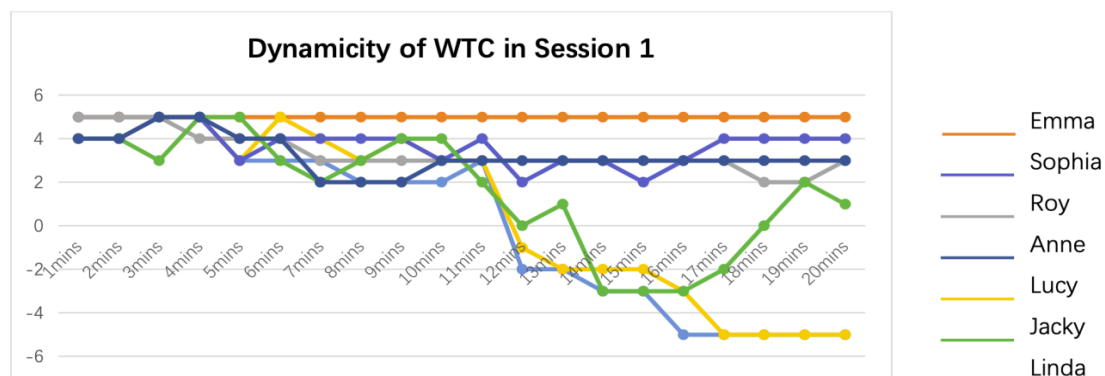*Fluctuations in the levels of L2 WTC in Session 1*

Figure 13 depicted the fluctuations in the levels of L2 WTC among the seven participants during the initial online class session. The changes in patterns for Lucy and Linda were particularly evident, as both participants initially showed high levels of L2 WTC, which then decreased to -5 point, the lowest level of L2 WTC. Interestingly, the majority of the individuals experienced a decline in their L2 WTC to different extents during a timeframe of 11 to 17 minutes.

Session 2

Figure 14

Fluctuations in the levels of L2 WTC in Session 2
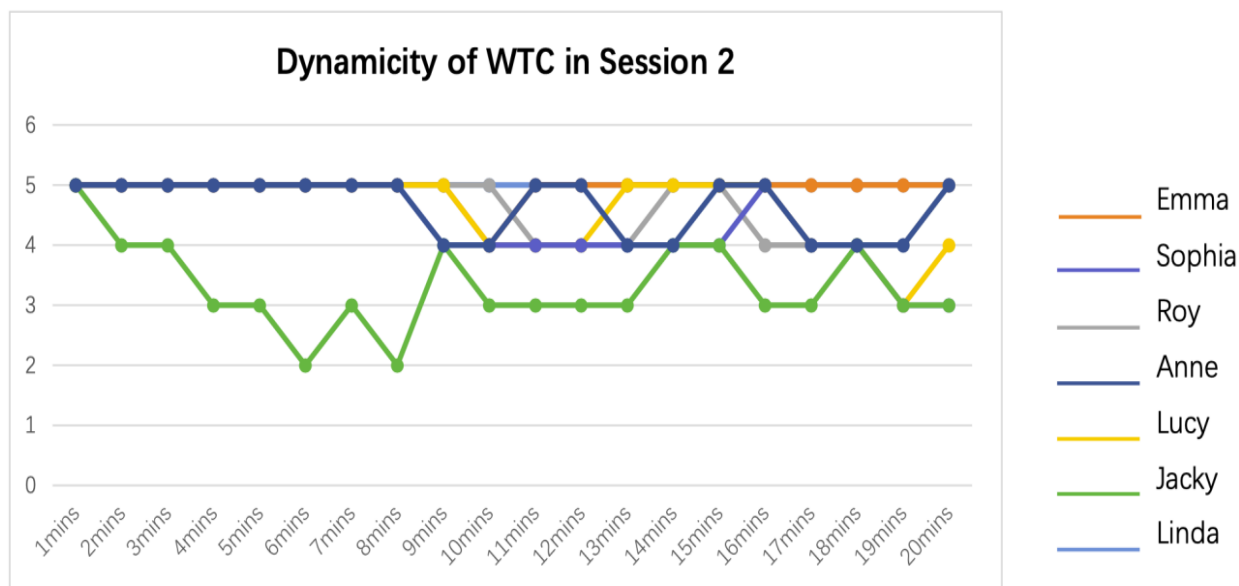
Dynamicity of WTC in Session 2

Figure 14 demonstrates that the majority of subjects (n = 6) displayed varying patterns of L2 WTC levels during the second session. However, unlike Session 1, none of the participants had a rating below zero on an L2 WTC level. Moreover, all indexes had a range of movement between 2 and 5, demonstrating more stable patterns compared to the first session where the range was between -5 and 5 points. These findings indicate that the trajectory of L2 WTC in the second session revealed more stability and reduced turbulence compared to the previous session.

Session 3

Figure 15

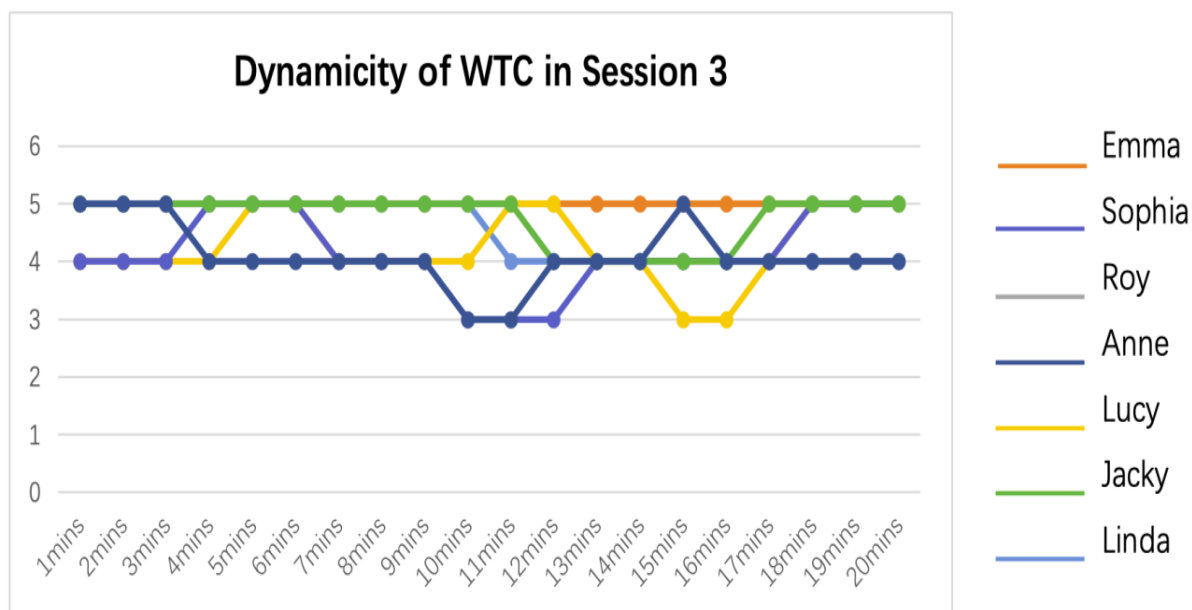*Fluctuations in the levels of L2 WTC in Session 3*

Figure 15 demonstrates that during the third session, all participants consistently maintained elevated levels of L2 WTC. Upon initial observation, the L2 WTC levels of Lucy, Sophia, and Anne showed fluctuating patterns. Upon closer examination, the fluctuation patterns observed in the first and second sessions, ranging from -5 to 5 and 2 to 5 respectively, were less stable compared to the fluctuation trends observed in the current session, which ranged from 3 to 5. Remarkably, Jacky exhibited higher and more stable levels of L2 WTC during the third session, ranging from 4 to 5. This was in contrast to the fluctuating levels observed in the first session (-3 to 5) and the second session (2 to 5).

Session 4

Figure 16

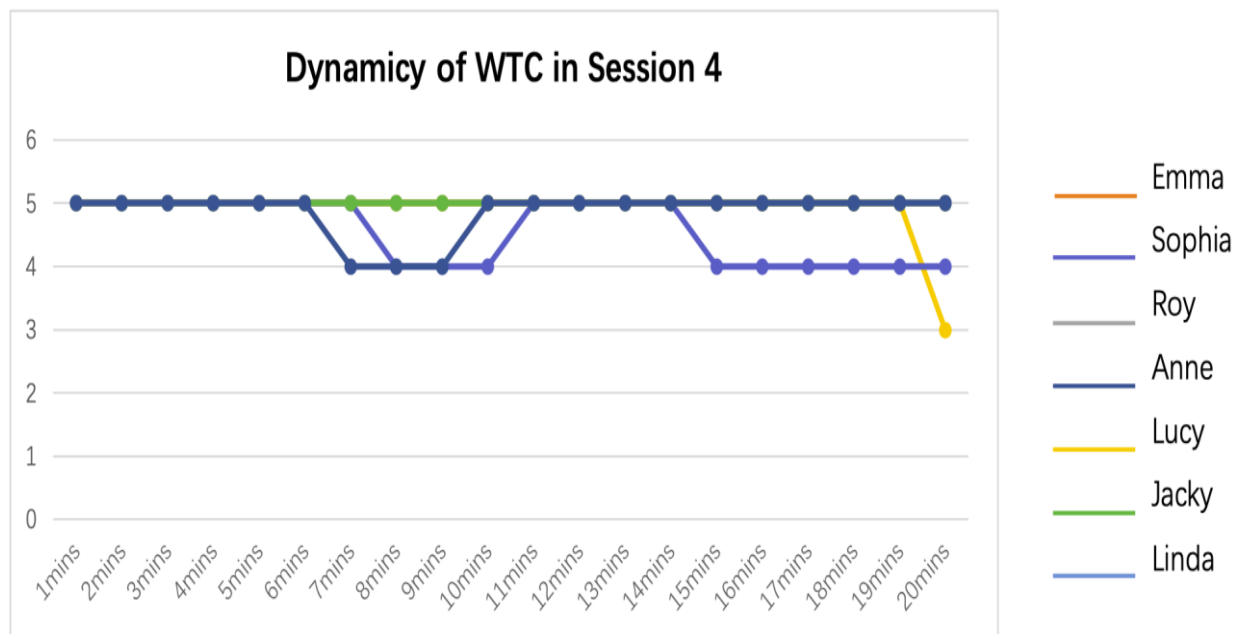*Fluctuations in the levels of L2 WTC in Session 4*

Figure 16 illustrates that the L2 WTC levels generally fluctuated between 4 and 5 points throughout Session 4. The participants showed the most consistent patterns of L2 WTC during Session 4, which was the final session out of the four.

5.2 Factors influencing the fluctuations in L2 emotions (enjoyment and anxiety) and L2 WTC

5.2.1 Factors influencing fluctuations in L2 emotions (enjoyment and anxiety)

Through the examination of the cases of Linda and Anne, we explore the factors that impact the fluctuations in L2 enjoyment and L2 anxiety. Both students primarily learned English within the Chinese formal school system and had no previous overseas experiences. When they began this study, they had limited experience with online classes. Figure 17

presents a word cloud generated by an online tool, displaying the most frequently mentioned keywords by participants and their corresponding frequencies. The analysis reveals that tasks and topics were the most commonly mentioned factors, which influenced changes in both participants' L2 enjoyment and L2 anxiety. Several other factors, such as confidence, classroom atmosphere, teacher's feedback, peers' reactions, the use of wait-time, over-focus on tasks, uncertainty, and unfamiliarity with the environment were also documented. Additionally, Table 22 demonstrates that both participants experienced dynamic changes in L2 enjoyment and L2 anxiety during the online class due to a combination of learner-internal (n = 17) and learner-external factors (n = 20).

Figure 17

Word Cloud depicting the frequency of factors influencing Linda and Anne's changes in L2 enjoyment and L2 anxiety

Upon closer examination, a discernible and dynamic pattern of interaction between Linda and Anne became apparent. At the beginning of the online class, both participants experience an emotional roller coaster. Specifically, in Sessions 1 and 2, the levels of L2 enjoyment and L2 anxiety fluctuated between 1 and 5, and between -4 and -5, respectively. However, in Sessions 3 and 4, Linda's levels of L2 enjoyment and L2 anxiety became more consistent, ranging between 3 and 5, and between -2 and -5, respectively. In contrast, Anne's L2 enjoyment (between 3 and 5) and L2 anxiety (between -5 and 5) fluctuation trends in Sessions 1 and 2 were as dynamic and unstable as those of L2 enjoyment (between 3 and 5) and L2 anxiety (between -5 and 4) in Sessions 3 and 4.

Table 22

Factors influencing Linda and Anne's changes in L2 enjoyment and L2 anxiety

	Learner-internal factors	Learner-external factors
Linda		
L2 enjoyment	-An interesting topic related to her personal experiences	-Task-based stimuli
	-Overanalyzing the response's construction	-Teacher's feedback
	-Looking for a new experience	-Teacher's encouragement
	-Increased participation	-Disliking the nature of the task
		-A safer classroom environment
		-Unpredictability of game elements

L2 anxiety	-Fear of making mistakes	-Unfamiliarity with platform
	-Over-focus on peers' responses	functions
	-A high risk-taking task	-Familiarity with the teacher and
	-A low risk-taking task	peers
	-Increased participation	-Unfamiliarity with the topic
		-Uncertainty-inducing game
		elements
		-A safer classroom environment
		-A teacher's use of wait-time

Anne

L2 enjoyment	-A low risk-taking task	-Disliking the nature of the task
	-Confidence in using English	-An interesting topic
	expressions	-Familiarity with the topic
	-Gaining confidence in speaking	-Encouragement from peers
	English after participation	-Encouragement from a teacher
	-A high risk-taking task	
L2 anxiety	-Concerned about providing	-Typing answers in the chatroom
	incorrect answers	-A safer classroom environment
	-Being called to provide an	-A lack of state-like confidence in
	answer in the chatroom	speaking English

-Being called to speak on the
topic
-An interesting topic

Note: Codes that overlapped were combined.

The case of Linda

The idiodynamic evaluations of Linda in Sessions 1 and 2 are presented in Table 23, along with the explanations for the variations in her levels of enjoyment and anxiety towards L2. Linda attributed her fluctuations in L2 enjoyment to a combination of learner-internal factors (such as an interesting topic related to her personal experiences and overanalyzing the response's construction) and learner-external factors (including task-based stimuli, teacher feedback, teacher encouragement, and dislike of the task's nature). Linda's L2 anxiety was affected by both learner-internal (such as fear of making mistakes, over-focus on peers' responses, and high/low risk-taking tasks) and learner-external factors (such as unfamiliarity with platform functions and familiarity with the teacher and her peers). Significantly, excessive attention to peers' responses (ranging from -4 to 5) and engaging in a high risky task (ranging from -3 to 4) both led to a notable rise in L2 anxiety. According to Linda's accounts:

"Perhaps due to my lack of prior experience in attending online oral English classes, I harbored concerns about potential ridicule from unfamiliar individuals if I were to make errors. I spent a significant amount of time contemplating the fact that I hesitated to provide you with my response. In addition, I experienced anxiety due to

my lack of interest in the topic. Hence, I found it quite challenging to discuss the matter. However, I can clearly recall that following the first class, the teacher encouraged me to have confidence in myself and make the greatest amount of effort, regardless of any mistakes made. I made great efforts to discuss the subject matter based on my personal life experience. I felt great happiness at receiving the 'thumbs up' signs from both my teacher and classmates in the chat box. This boosted my confidence significantly, providing me with a sense of confidence and a strong desire to express myself in English. It strengthened my belief that I am capable of performing even better in future sessions."

In Chinese (Original Transcript):

"也许是因为我之前缺乏参加在线英语口语课程的经验，我担心如果我犯了错误，可能会受到不熟悉的同学或老师的嘲笑。我花了大量时间思考并且十分犹豫是否向您提供我的回复这一事实。此外，由于对这个话题缺乏兴趣，我感到很焦虑。因此，参与这个问题的讨论对我而言很有挑战性。然而，我清楚地记得，第一节课结束后，老师鼓励我对自己要有信心，无论犯什么错误，都应该要尽最大努力。所有，我很努力的根据自身实际情况来参与这个问题的讨论。当我在聊天框里收到老师和同学们的"竖起大拇指"的图标时，我感到非常高兴。这大大增强了我的信心，给我带来了自信，我也因此有了用英语表达自己的强烈愿望。这坚定了我的信念，我相信自己有能力在未来的学习和练习中表现得更好。"

Table 23

Linda's reasons for her fluctuating patterns of L2 enjoyment and L2 anxiety in Sessions 1 and 2
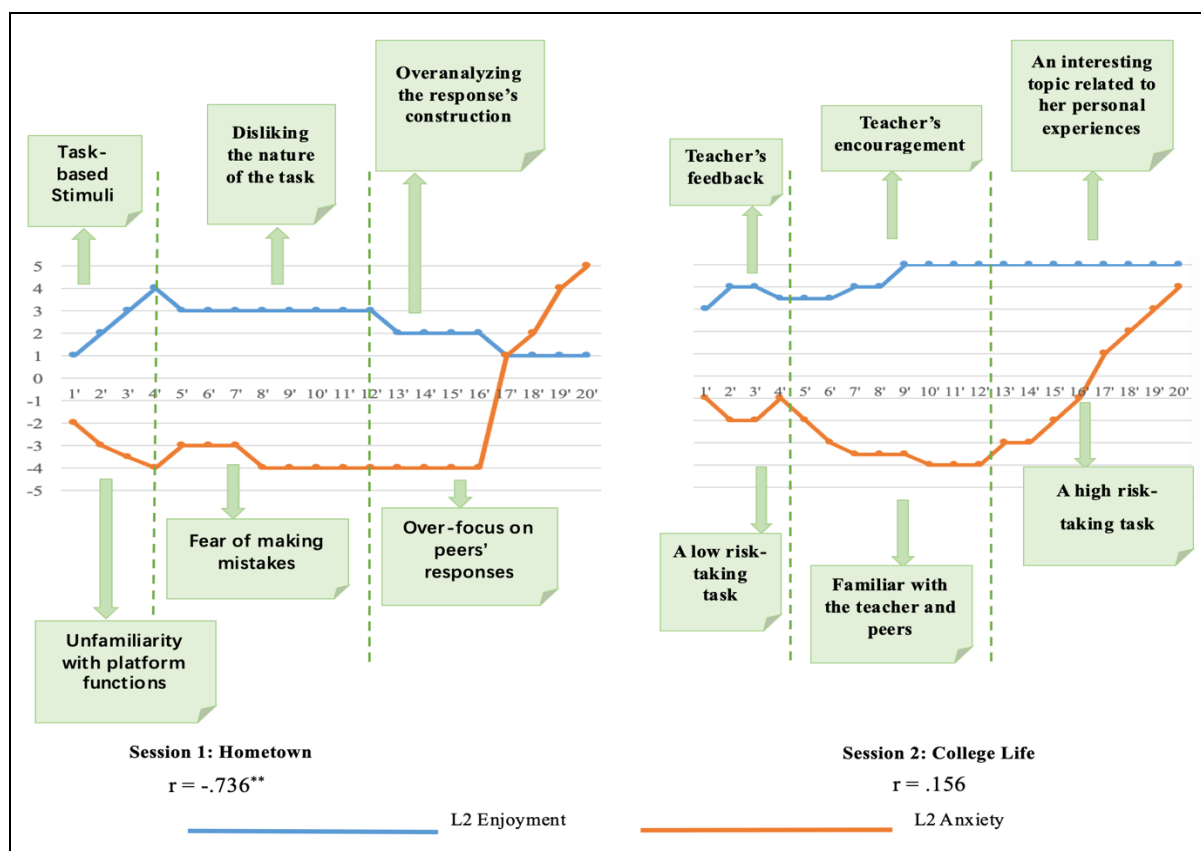
	Reasons for the fluctuating patterns of *L2 enjoyment* (Session, LE or LI)
(orange up arrow)	Task-based stimuli (1, LE)
	Teacher's feedback (2, LE)
	Teacher's encouragement (2, LE)
	An interesting topic related to her personal experiences (2, LI)
(green down arrow)	Disliking the nature of the task (1, LE)
	Overanalyzing the response's construction (1, LI)
	Reasons for the fluctuating patterns of *L2 anxiety*
(orange up arrow)	Unfamiliarity with platform functions (1, LE)

	Fear of making mistakes (1, LI)
	Over-focus on peers' responses (1, LI)
	A high risk-taking task (2, LI)
⬇	A low risk-taking task (2, LI)
	Familiarity with the teacher and peers (2, LE)

Note: LI = Learner-Internal factor; LE = Learner-External factor

Table 24 shows that in Sessions 3 and 4, the fluctuation trends of L2 enjoyment (between 3 and 5 points) and L2 anxiety (between -2 and -5) were more stable than in the previous two sessions. Linda attributes her increased enjoyment to both learner-internal (looking for a new experience and increased participation) and learner-external factors (a safer classroom environment and unpredictability of game elements). A close inspection revealed that individual factors such as openness to new experiences initially enhanced Linda's L2 enjoyment, while contextual factors such as a safer classroom environment and game-elements assisted in maintaining a high level of L2 enjoyment throughout the session. Changes in Linda's L2 anxiety were also influenced by a variety of learner-internal (increased participation) and learner-external factors (unfamiliar with the topic, uncertainty-inducing game elements, a safer classroom environment, and a teacher's use of wait-time). A detailed scrutiny of Session 3 revealed that a learner-external factor (unfamiliarity with the topic) initially increased Linda's L2 anxiety, whereas another learner-external factor (a safer classroom environment) had a positive impact on a learner-internal factor (increased participation), allowing Linda to maintain a low level of L2 anxiety for the remainder of the session.

As confirmed with Linda's interview data:

"With the online learning platform, I built a sense of familiarity with both the teacher and my students. As a result, I felt at ease when participating in class activities. I greatly appreciate the teacher's pedagogical approach as it significantly facilitates comprehension and acquisition of knowledge. I stopped experiencing anxiety after I got to realize that the class offers a wealth of knowledge for me to pick up. Above all, I experienced a strong sense of security while learning English skills in the online classroom setting. Contrary to experiencing high levels of anxiety in a traditional classroom setting, I experienced a sense of calmness in the online learning environment. Furthermore, following the previous sessions, I found that my classmates would not ridicule me for making mistakes. On the contrary, they would acknowledge and appreciate my efforts when I provided my replies. My teacher would demonstrate patience while awaiting my responses and provide positive feedback and comments on my participation in the class. All of these elements motivated me to become more involved in the online class by speaking more frequently."

In Chinese (Original Transcript):

"通过在线学习平台，我与老师和同学都越来越熟悉彼此的情况。因此，我在参加在线课堂的学习活动时感到很自在。我非常感谢老师的教学方法，因为它大大促进了知识的理解和获取进程。当我意识到这门课为我提供了丰富的知识后，我不再感到焦虑。最重要的是，当我在在线课堂学习英语知识和技能时，我感受到了强

烈的安全感。与在传统课堂环境中经历高度焦虑相反，我在在线学习环境中体验到了内心的平静和安宁。此外，在前几节课之后，我发现我的同学不会因为我犯了错误而嘲笑我。相反，当我回答问题时，他们会承认并赞赏我所作的努力。我的老师在等待我的回复时会表现出很多耐心，并对我的课堂参与情况提供积极的反馈和评论。所有这些因素促使我更频繁地发言，从而更多地参与在线课堂的学习活动。"

Table 24

Linda's reasons for her fluctuating patterns of L2 enjoyment and L2 anxiety in Sessions 3 and 4

Reasons for the fluctuating patterns of *L2 enjoyment* (Session, LE or LI)	
	Looking for a new experience (3; LI)
	A safer classroom environment (3; LE)
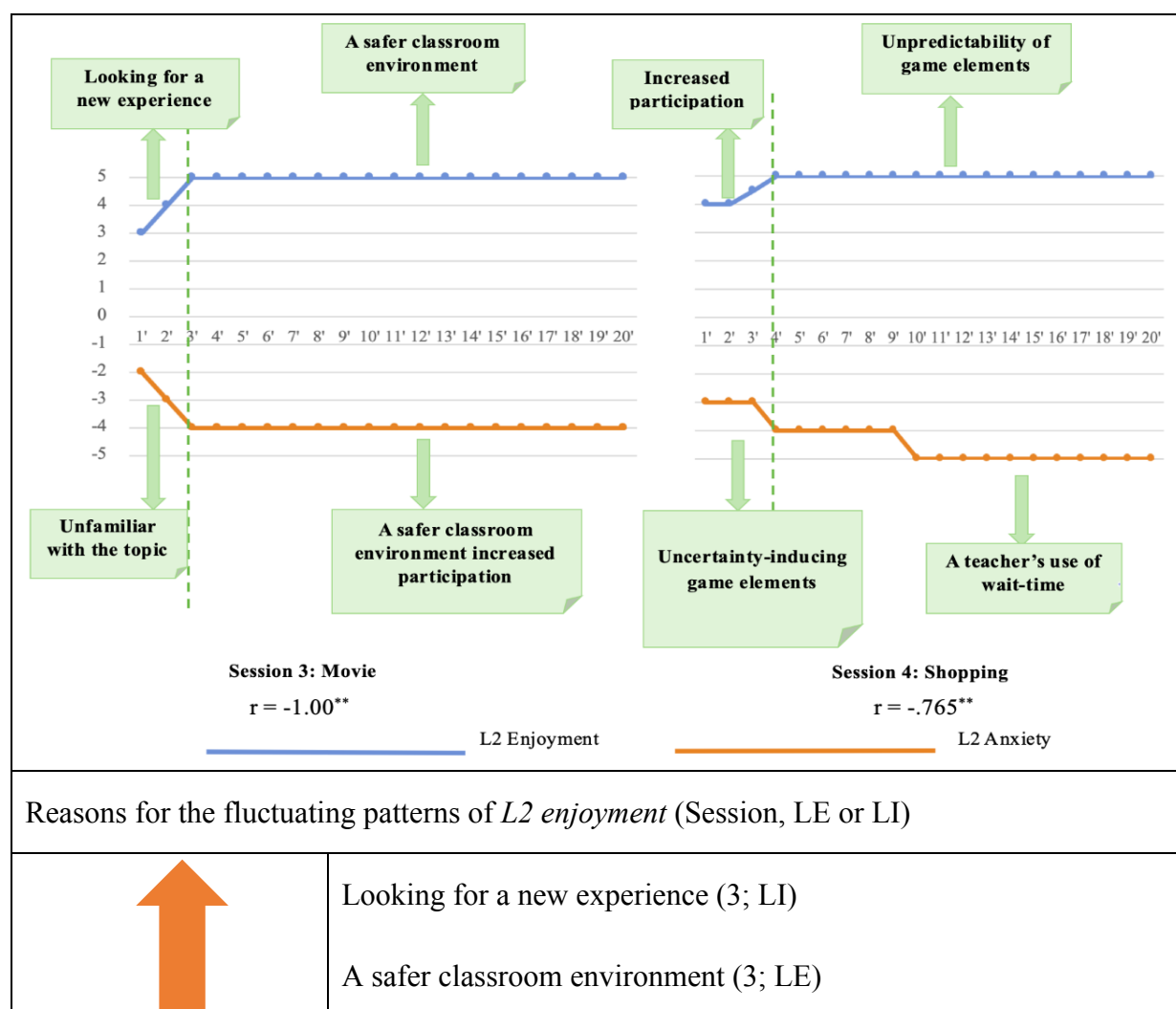
		Increased participation (3; LI)
		Unpredictability of game elements (4; LE)
	⬇ (green)	Not reported
Reasons for the fluctuating patterns of *L2 anxiety*		
	⬆ (orange)	Unfamiliarity with the topic (3; LE)
		Uncertainty-inducing game elements (4; LE)
	⬇ (green)	A safer classroom environment (3; LE)
		Increased participation (3; LI)
		A teacher's use of wait-time (4; LE)

The case of Anne

Table 25 shows Anne's idiodynamic ratings in Sessions 1 and 2, as well as the reasons for her fluctuating patterns of L2 enjoyment and L2 anxiety. Anne attributed her shifts in L2 enjoyment to both learner-internal (a low-risk task and confidence in using English expressions) and learner-external factors (an interesting topic, familiarity with the topic, and disliking the nature of the task). Linda's L2 anxiety was influenced by both learner-internal (concerns about answering incorrectly, being called to provide an answer in the chatroom, and being called to speak on the topic) and learner-external factors (typing answers in the chatroom).

Markedly, the L2 anxiety fluctuation trend (between -4 and 5 points) was much more unstable and dynamic than the L2 enjoyment fluctuation trend (between 3 and -5). A further inspection revealed that a learner-external factor (typing answers in the chatroom) reduced Anne's L2 anxiety from -2 to -4 during the first three minutes, whereas a spike in L2 anxiety

was caused by learner-internal factors including being concerned about providing incorrect answers (oscillating between -3 and 2), being called to provide an answer in the chatroom (oscillating between 2 and 4), and being called to speak on the topic (oscillating between -4 and 5). In particular, being called to provide an answer in the chatroom resulted in a two-point difference in fluctuation. Anne's L2 anxiety was reduced by two points when she typed answers in the chatroom. Being asked to speak on the subject, on the other hand, resulted in a nine-point difference. Thus, it stands to reason that speaking in English during an online class causes more L2 anxiety than typing in English.

According to Anne's accounts:

"From the beginning of the first lesson, I found the subject matter to be really interesting and related to my own life experiences, hence I greatly enjoyed the class activities. However, during the listening activities, I experienced a sense of tedium as my classmates had already given the answers in the chatroom the same as I had obtained. Consequently, I felt reluctant to offer my responses for the remaining questions that I lacked confidence in. I was concerned about the possibility of providing incorrect responses. Furthermore, I sensed anxiety when the teacher prompted me to type down my responses in the chatroom. I experienced heightened anxiety when the teacher requested that I speak using a microphone at the next session. Nevertheless, in contrast to session 1, I experienced a greater sense of ease and confidence in session 2, as I developed a stronger familiarity with both the teacher and my fellow classmates. Thanks to the teacher's timing adjustments, I no longer have to be concerned about disturbing my roommates during class, as was the

case in the previous session. So I can enjoy the class as I intended to, since I had great confidence in using the expressions related to the topic which I was very familiar with, and I felt I can talk so much about it."

In Chinese (original transcript):

"从第一节课开始，我就发现这个主题非常有趣，而且与我自己的生活经历息息相关，所以我非常喜欢该堂在线课程的学习活动。然而，在听力活动中，我感到有些无趣，因为我的同学已经在聊天室里给出了和我一样的答案。因此，我不想重复给出相同的答案。并且，对其他剩下的问题，我又没有足够的信心能够给出正确答案，因而也没有进行回答。我实在担心可能会做出错误的回答。此外，当老师提示我在聊天室里输入我的答案时，我感到很焦虑。当老师要求我在下一节课上使用麦克风发言时，我感到更加焦虑。尽管如此，与第一节课相比，第二节课却让我感到更加轻松和自信，因为我对老师和同学都更加熟悉了。由于老师调整了时间，我再也不用像前一节课那样担心在上课时打扰室友了。因为当时室友没有课程正在休息，我很害怕我参与课堂学习活动时会发出声响而影响他们休息。在没有这些困扰后，我可以随心所欲地享受这门课，因为，对我非常熟悉的主题学习来说，相关的英语表达方式我已经掌握，并且非常有信心能够顺畅的表述事件和表达情感，而且我觉得我可以谈论很多内容。"

Table 25

Anne's reasons for her fluctuating patterns of L2 enjoyment and L2 anxiety in Sessions 1 and 2

Session 1: Hometown
r = -.663**

Session 2: Campus Life
r = .253

L2 Enjoyment   L2 Anxiety
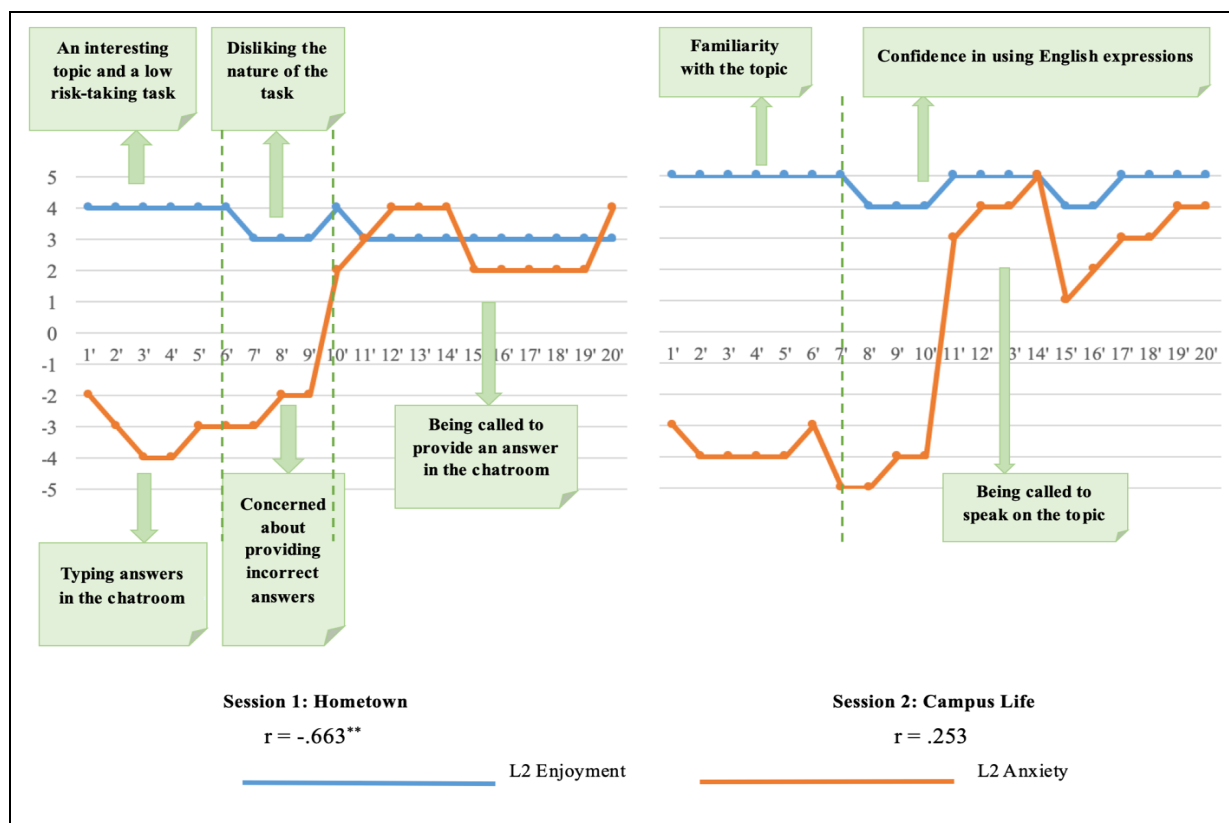
Reasons for the fluctuating patterns of *L2 enjoyment* (Session, LE or LI)	
⬆	An interesting topic (1; LE)
	A low risk-taking task (1; LI)
	Familiarity with the topic (2; LE)
	Confidence in using English expressions (2; LI)
⬇	Disliking the nature of the task (1; LE)

Reasons for the fluctuating patterns of *L2 anxiety*	
⬆	Concerned about providing incorrect answers (1; LI)
	Being called to provide an answer in the chatroom (1; LI)
	Being called to speak on the topic (2; LI)
⬇	Typing answers in the chatroom (1; LE)

Table 26 shows that in Sessions 3 and 4, the fluctuation trends of L2 enjoyment (between 3 and 5 points) were more stable than in the previous two sessions. Changes in L2 enjoyment were ascribed to learner-internal (a high risk-taking task and gaining confidence in speaking English after participation) and learner-external factors (an interesting topic and encouragement from peers and the teacher). Anne attributes her shifts in L2 anxiety to both learner-internal (an interesting topic and a lack of confidence in speaking English) and learner-external factors (a safer classroom environment).

The fluctuating trends in L2 anxiety (ranging from -4 to 5) observed in Session 3 were identical to those observed in Sessions 1 and 2. Surprisingly, there was a positive correlation between L2 enjoyment and L2 anxiety ($r = .539$, $p < 0.05$). A more in-depth examination revealed that an interesting topic increased Anne's L2 enjoyment while decreasing her L2 anxiety for the first five minutes. According to the observation field notes, Anne voluntarily participated in a small group discussion about movies, her favorite topic. This explains why she was able to maintain a high L2 enjoyment (oscillating between 4 and 5) and a low L2 anxiety (oscillating between -3 and -5) until 12 minutes. Between 12 and 20 minutes, Anne (CEFR B1) was asked to present her favorite movie to the entire class, which included students who spoke English more fluently, such as Emma, Sophia, Roy, and Linda (with CEFR B2 and C1 levels). As a result, Anne's state-like confidence in speaking English decreased, while her L2 anxiety increased dramatically from -4 to 4 points. However, Anne maintained low and stable levels of L2 anxiety throughout Session 4 as a result of a safer learning environment.

As confirmed with Anne's interview data:

"I became more comfortable with studying and more willing to take part in the activities that were being conducted in class as a result of my hardworking preparation in advance. This was due to the fact that I became familiar with the teaching style of the teacher as well as the learning habits of my classmates. I stopped worried about them laugh at me making mistakes. On the other hand, I am still unable to get rid of the sense that I am going to lose face since I have the impression that I am not very good at speaking. Despite the fact that I had a lot of ideas about this topic, which I found to be very interesting, I was very hesitant to share my thoughts because I was terrified of making any mistakes in my grammar or pronunciation when I was speaking, particularly when the teacher asked me to discuss the topic at hand. However, after I had finished speaking, I felt a tremendous deal of pride and satisfaction, as well as a significant increase in my level of self-assurance. I realized that I enjoyed engaging in this kind of task quite a bit because it provided me with a sense of accomplishment. In addition, I observed the comments made by my classmates in the chatroom, which were quite nice and encouraging, and in a similar manner, the teacher offered me feedback that was constructive. All of these things inspired me to want to talk even more so that I could share my thoughts."

In Chinese (original transcript):

"由于我提前就很努力的做好了充分的准备，我对学习变得更加自如，也更愿意参加在线课堂上正在进行的各种学习活动。这是因为我熟悉了老师的教学风格以及同学们的学习习惯。我不再担心他们嘲笑我犯错，事实上他们从未嘲笑过我。但是另一方面，我仍然无法摆脱焦虑自己会丢脸的感觉，因为我给人的

印象是我不太会说话。尽管我对这个话题有很多想法，我也觉得这个话题很有趣，但我很犹豫要不要分享我的想法，因为我害怕在发言时犯语法或发音错误，尤其是当老师让我讨论手头的话题时。然而，在我说完之后，我感到了极大的自豪和满足，同时我的自信心也大大提高了。我意识到我很喜欢参与这类学习活动，因为它给我带来了成就感。此外，我观察了同学们在聊天室里的评论，这些评论非常正面且积极，令人鼓舞。同样，老师也向我提供了建设性的反馈。所有这些都激励我想多发言，这样我就可以分享我的想法。"

Table 26

Anne's reasons for her fluctuating patterns of L2 enjoyment and L2 anxiety in Sessions 3 and 4

	Reasons for the fluctuating patterns of *L2 enjoyment* (Session, LE or LI)
⬆️	An interesting topic (3; LE)
	Gaining confidence in speaking English after participation (3; LI)
	An interesting topic (4; LE)
	Encouragement from peers (4; LE)
	Encouragement from a teacher (4; LE)
⬇️	A high risk-taking task (3; LI)

	Reasons for the fluctuating patterns of *L2 anxiety*
⬆️	An interesting topic (3; LI)
	A lack of state-like confidence in speaking English (3; LE)
⬇️	A safer classroom environment (4; LE)

5.2.2 Factors influencing fluctuations in L2 WTC

In this subsection, we present a comprehensive analysis of the various elements that influence the moment-to-moment fluctuations in L2 WTC *during the entire online sessions*. Subsequently, emphasize specific variables that have a substantial impact on the variations in L2 WTC levels during *each session*.

During the entire online sessions

Table 27 provides a comprehensive summary of all the elements that influence the oscillations of L2 WTC. In order to conduct a thorough analysis and provide a theoretical explanation, we compared these identified factors with four principles from MacIntyre et al.'s (1998) heuristic model. These principles are 1) Social and Individual Context (Layer VI), 2) Affective-Cognitive Context (Layer V), 3) Motivational Propensities (Layer IV), and 4) Situated Antecedents (Layer III). The most often reported element was teacher support, which encompassed pedagogical, technical, and affective assistance.

Table 27

Factors affecting fluctuations in L2 WTC

Layers	Main themes	Sub-themes	Examples	*N*

VI	Social and Individual Context	1. Openness to a new online learning experience	I would like to try different ways to learn English.	7
V	Affective-Cognitive Context	1. Teacher's use of wait time	My teacher always gives me time to think and reorganize my ideas and words. It encourages me to think and talk more.	6
		2. Friendly and active learning environment	I want to talk more and become more active in involving myself in conversations when I find that everyone else is trying their best to answer questions.	5
		3. Playback video of each session	I don't need to worry about taking notes because I can watch the video after class. Hence, I can fully engage in talking or thinking about	4

			how to share my idea with others.	
		4. Peer encouragement	My classmates' encouragement also drives me to talk in class.	4
		5. Gamification	Games attract my interest and playing games can help me get more involved in talking.	4
		6. Teacher recognition	What makes me feel most satisfied is when I heard my teacher view my ideas as good ones. This makes me want to engage more in talking in class.	3
		7. (Un)familiarity with the interlocutors	I don't want to talk when I am not familiar with the teacher and classmates.	2
IV	Motivational Propensities	1. Topic knowledge	I would like to talk more if the topic interests me.	7

		2. Task familiarity	I have more time to prepare for the task, as I can search for more information beforehand. So I can talk more confidently about the question.	7
		3. Inadequacy of vocabulary	I don't want to talk in class because I am afraid I cannot talk fluently due to the shortage of my vocabulary.	4
		4. Self-perceived L2 confidence	I love communicating with others because I am very confident with my English.	1
III	Situated Antecedents	1. Virtual and non-verbal affective support	Seeing flowers or thumbs-up icons can let me know that others like my ideas, and then I would like to talk more next time.	5
		2. Visual aids	I like pictures. Pictures help visualize my ideas, and I can have more to talk about.	3

| | 3. (Un)familiarity with online platform and its functions | I find no more ways to engage in talking or conversations due to technological difficulties since this is the first time for me to have an online class and I knew nothing about the platform before. | 1 |
| | 4. Technical issues | I suffered a poor Internet connection when having the class and therefore I could not talk. | 1 |

Note: Layers = Pyramid Model Layers; *N* = number of codes

Session 1

Inadequacy of vocabulary: Jacky lacked sufficient English vocabulary to talk about his hometown because he rarely discussed this topic in English: "Hometown is hard to describe in English because it is not an everyday topic of conversation. This topic is rather too abstract. It is possible for me to have an understanding of some concepts, such as architecture, picturesque sites, and local food; but, I am not really sure how to explain these ideas in English correctly. (In original Chinese transcript: 用英文很难描述"家乡"这个话题，因为它不是日常的话题。这个话题太抽象了。我有可能了解一些概念，比如建筑、风景如画的景点和当地的食物；但是，我真的不知道如何用英语正确地表达这些想法。" Lucy echoed Jacky's comment: "'It is beautiful,' is the only thing that comes to me when I think about my hometown. I would like to introduce some of its well-known beautiful

sites or traditional culture, but I am at a loss for words when it comes to describing them in depth because I am unable to think of any appropriate English terminology. (In original Chinese transcript: "它很美"这是我想起家乡时唯一想到的。我想介绍一下它的一些著名的美丽景点或传统文化，但要深入描述它们，我就很犹豫，因为我想不到最合适的英语表达方式。"

Technical issues: Linda was rated on the lowest level of familiarity with an online class, which was also confirmed by her interview data: "I did not even know how to activate the microphone so that I could speak what I wanted to say. (In original Chinese transcript: 我甚至不知道应该如何启动麦克风，这样我才能开始发言分享我的想法。"

Unfamiliarity with the interlocutors: Linda commented that unfamiliarity with the interlocutors (e.g., a teacher and classmates) and the teaching environment (e.g., teaching style) made her hesitant to initiate English communication: "My silence was due to the fact that I was unfamiliar with a new teacher, her teaching style, and the other students in the class. (In original Chinese transcript: 我对新的老师不了解，不熟悉她的教学风格和习惯，也不熟悉课上的其他同学。因而选择保持沉默，静静观察，想先看看别的同学的表现情况。"

Session 2

Visual aids: Among all participants, Jacky showed the most turbulent levels of L2 WTC in Session 2. According to the interview, Jacky was silent because he had no interesting experience about college life to share (Session 2's topic): "I had no special experiences to share with others regarding the college life, thus I had nothing to contribute to the discussion on this topic. (In original Chinese transcript: 关于大学生活，我没有什么特别的经历可以与他人分享，因此我对这个话题的讨论没有任何贡献。" Later, a teacher showed photos related to

college life to students, which acted to boost Jacky's willingness to talk about this topic. According to Jacky's account:

"Personally, I believe that I am more of a visual person. Upon viewing the photographs of students attending lessons in the classroom, reading in the library, eating in the canteen, and meeting friends in the café, I found that I had an immediate need to discuss my own experiences that were comparable to those presented in the photographs. Also, I am currently studying photography at the moment. Therefore, I suppose that is the reason why those photographs drew my attention, which caused my mouth to open."

In Chinese (original transcript):

"就我个人而言，我相信我更倾向于视觉学习。当我看到学生们在教室上课、在图书馆看书、在食堂吃饭和在咖啡馆见朋友的照片时，我就非常想要参与讨论我自己的相关经历，这些经历与照片中的经历差不多。此外，我目前正在学习摄影。因此，我想这就是那些照片引起我注意的原因，让我有欲望说英语并想要参与课堂讨论。"

Familiarity with the interlocutors and online platform and *Friendly and active learning environment*: Linda exhibited the most changing patterns of L2 WTC in Session 1. In stark contrast, she became more active, and maintained stable patterns of L2 WTC throughout the second session. According to Linda:

"After the first session, Emma provided me with a detailed explanation of the functions that the platform offers. Therefore, I was able to acquire the knowledge necessary to make appropriate use of such functions when doing a variety of tasks. As I learned more about the teacher and her approach to teaching, I experienced a greater sense of relaxation and freedom to speak my mind. Aside from that, Emma encouraged me to take part in more conversation...The atmosphere in the classroom was my favorite. My desire to participate in the online class increased as a result of this."

In Chinese (original transcript):

"第一次在线课堂结束后，Emma 向我详细解释了该平台所有功能的使用方法。因此，我能够了解到了在参与不同类型的课堂活动时应选用何种功能的方法。随着我对这位老师和她的教学方法有了更多的了解，我有了更大的放松感和自由表达自己的想法。除此之外，Emma 鼓励我多参与一些对话。教室里的积极学习氛围是我最喜欢的。因此，我更加愿意参与在线课堂的各项学习活动了。"

Session 3

Teacher affective and pedagogical supports: Roy and Anne commented that teachers' affective (e.g., recognizing their efforts) and pedagogical support (e.g., patiently waiting their responses) helped boost and sustain their high levels of L2 WTC. According to Roy and Anne:

"The moment I understood that my teacher recognized my ideas as being appropriate is the one that brings me the most sense of pleasure. As a result, I felt driven to participate in more online class discussions...Even when I suddenly found myself at

a loss for words to express my thoughts, the teacher never prevented me from thinking or communicating. My teacher always made sure to give me time to reflect and organize both my thoughts and my speech. Because of that, I was inspired to think and say more."

In Chinese (original transcript):

"当我了解到我的老师认为我的想法是恰当的那一刻，是给我带来最大快乐的一刻。因此，我觉得有动力参与更多的在线课堂讨论，即使我突然发现自己无法使用正确的英语语言表达自己的想法时，老师也从未阻止我思考或交流。我的老师总是确保给我足够的时间来反思和整理我的想法和发言。正因为如此，我受到启发，想了想，说了更多。"

Topic sensitivity: Jacky pointed to the positive effect of his favorite topic (e.g., movies) on enhancing his L2 WTC level: "I enjoy watching movies since it is not only entertaining but also helps me improve my English. Whenever I come across this topic, I have a lot of things to say about. (In original Chinese transcript: 我喜欢看电影，因为它不仅有趣而且有助于我提高英语水平。每当我遇到这个话题，我都有很多话要说。"

Session 4

An increase in L2 confidence: Participants demonstrated the most stable patterns of L2 WTC compared to previous sessions. Most participants were reported to gain L2 confidence as they accumulated more online learning experience and practiced more English with others. According to Roy:

"The English lessons I took in this online program were quite enjoyable. Increasing my level of participation in the class led to an increase in my self-assurance when it comes to communicating in English. I gained a great deal of knowledge not only from my teacher but also from others of my class. I got more open to engaging in conversation with other people, and more importantly, I became well-versed in the art of talking with others in English with ease and confidence."

In Chinese (original transcript):

"我对英语在线课程中参与学习活动感到非常愉快。当我用英语交流时，我的自信心随着我越来越多的课堂参与也越发增强。我不仅从老师那里学到了很多知识，也从同学们那里学到了许多知识。我对与他人交谈变得更加开放，更重要的是，我学会了用英语与他人轻松自信地交谈的艺术。"

Gamification: Most participants talked about the pedagogical benefits of games that were used during this session. A teacher designed and integrated two types of games (i.e., matching game and interactive speaking activity) in Session 4. According to Anne and Sophia:

"I find that playing the matching game is far more enjoyable than tasks such as filling in a blank. Due to the fact that I could become easily familiarized with more vocabulary. It also helped me in increasing the size of my word bank...As a result of my desire to be the first person to share my response, I became more motivated to participate in online class discussions. I was aware that I would want to come out on top of the competition. It did not bother me to speak English using words and expressions that were not appropriate."

In Chinese (original transcript):

"我发现玩匹配游戏远比填空之类的任务更令人愉快。因为我可以很容易地熟悉更多的词汇。它还帮助我增加了个人词汇量。由于我想成为第一个分享我的答案的人，我更有动力参与在线课堂的主题讨论。我意识到我想在比赛中脱颖而出。尽管使用了一些错误的单词和表达方式，但也并没有让我感到困扰。"

Cases of two participants from a dynamic perspective

Guided by a dynamic perspective, we examined a contrasting example with two participants, Linda and Emma. More precisely, we provided an analysis of the factors that explained the fluctuating patterns observed in L2 WTC (Linda) as well as the stable patterns observed in L2 WTC (Emma). Linda and Emma have many similarities. Both female EFL learners, aged 20, were born and raised in the Mainland China and had no overseas experience. Both participants had been learning English mainly through the formal school system. They possessed minimal familiarity with an online class, as both individuals rated their experience with an online class as "1 (lowest)" on a five-point Likert scale.

According to Linda's attributes:

"At the first session, perhaps due to my lack of prior experience in attending online oral English classes, I had a lot of trouble figuring out the functions offered by the online learning platform. I did not even know how to activate the microphone so that I could speak what I wanted to say… My silence was due to the fact that I was unfamiliar with a new teacher, her teaching style, and the other students in the class. After the first session, Emma provided me with a detailed explanation of the

functions that the platform offers. Therefore, I was able to acquire the knowledge necessary to make appropriate use of such functions when doing a variety of tasks. In this regard, I began to have a try on taking a volunteering role in talking in the class. I was also very glad that my teacher talked with me about my problems after the first session via QQ, and she showed a great amount of care and understanding. Since then, I learned more about the teacher and her approach to teaching, I experienced a greater sense of relaxation and freedom to speak my mind. Aside from that, Emma encouraged me to take part in more conversations. Hence, I took my chances in the second session. And I received lots of encouragement from both my classmates and teacher. I felt greatly moved...The atmosphere in the classroom was my favorite. My desire to participate in the online class increased as a result of this… With the online learning platform, I built a sense of familiarity with both the teacher and my classmates. As a result, I felt at ease when participating in class activities. I greatly appreciate the teacher's pedagogical approach as it significantly facilitates comprehension and acquisition of knowledge… Above all, I experienced a strong sense of security while learning English skills in the online classroom setting…I took even more opportunities to speak up in the following sessions, because my teacher would demonstrate patience while awaiting my responses and provide positive feedback and comments on my participation in the class and I found that my classmates would not ridicule me for making mistakes. On the contrary, they would acknowledge and appreciate my efforts when I provided my replies. I felt great happiness at receiving the 'thumbs up' signs from both my teacher and classmates in

the chat room. This boosted my confidence significantly, providing me with a sense of confidence and a strong desire to express myself in English. All of these elements motivated me to become more involved in the online class by speaking more frequently."

In Chinese (original transcript):

"在第一节在线课堂的时候，也许是因为我之前缺乏参加在线英语口语课程的经验，我很难掌握在线学习平台提供的功能。我甚至不知道如何启动麦克风，才能让我可以说出我想说的话……我的沉默是因为我不熟悉新老师的性格、她的教学风格和班上的其他同学。第一次会议结束后，Emma 向我详细解释了该平台提供的功能。因此，我能够熟练选择适当的功能来支持我参与不同种类的在线课堂活动。也因为如此，我开始尝试在课堂上积极自愿地回答问题。我也很高兴老师在第一节课结束后通过 QQ 和我谈论了我的问题，她表现出了极大的关心和理解。从那以后，我对这位老师和她的教学方法有了更多的了解，我有了更大的放松感和畅所欲言的自由感。除此之外，Emma 鼓励我多参与一些对话。因此，我在第二次课堂上抓住了机会。我从同学和老师那里得到了很多鼓励。我非常感动。教室里积极的学习氛围是我最喜欢的。因此，我更愿意参加在线课堂的各项学习活动。有了在线学习平台，我与老师和同学都建立了熟悉感。因此，我在参加课堂活动时感到很自在。我非常感谢老师的教学方法，因为它大大促进了我对知识的理解和获取进程。最重要的是，我在在线课堂上学习英语时感到了强烈的安全感……在接下来的课程中，我抓住了更多的机会来表达我的想法，因为老师在等待我的回答时会表现出足够的耐心，并对我的课堂参与提供积极的反馈和评论，我发现我的同学不会因为我犯了错误而嘲笑

我。相反，当我回答问题时，他们会承认并赞赏我所作的努力。当我在聊天室里看到老师和同学们的"竖起大拇指"的图标时，我感到非常高兴。这大大增强了我的信心，给我带来了自信，也促使我更愿意说英语。所有这些因素促使我更频繁地发言，从而更多地参与在线课堂。"

Table 28

Linda's reasons for fluctuating patterns of L2 WTC

L2 WTC	Reasons for the fluctuating patterns	Session	Layers
	More familiarity with an online platform. More familiarity with functions of an online platform.	2	III
	More familiarity with an instructor's teaching style and class task	2	IV
	Peer encouragement and teacher recognition. Positive, friendly and active learning atmosphere.	2	V
	Unfamiliar with an online platform. Unfamiliar with functions of an online platform.	1	III
	Unfamiliar with an instructor's teaching style and class task.	1	IV
	A low level of L2 self-confidence.	1	IV
	Unfamiliar with the interlocutors, such as a teacher and classmates.	1	V
	Shy, introverted.	1	VI

Note: Layers = Pyramid Model Layers

Nevertheless, Linda's L2 WTC levels indicated significant fluctuations, but Emma consistently displayed stable patterns of L2 WTC. According to the details reported in Table 28, Linda's levels of L2 WTC fluctuated between -5 and 5 during Session 1, and between 2 and 5 during Session 2. These fluctuations were caused by the combined effects of MacIntyre et al.'s (1998) four layers, namely Layer VI, V, IV, and III. Emma consistently maintained a high level of L2 WTC (rated at 5) from Session 1 to 4, despite potential influences from Layers VI, V, and IV (refer to Table 29).

According to Emma's interview data:

"I am an outgoing person and an optimist too. As long as I am able to acquire new knowledge from the class, I am happy with the process of learning. For example, during the first session, I was not only taught new ways of expressing myself and structures for discussing my hometown, but I was also instructed on how to participate in a variety of activities through the use of an online learning platform. It's a very interesting idea. I have an intense passion for the English language, and as a result, I make it a point to seize every opportunity to acquire knowledge of the language, to actively participate in activities of the classroom, and to actively communicate with other people. I think when I respond to the questions that the teacher asks, I will also think about the question itself, which will allow me to improve my learning abilities. Because of this, I think it's important to volunteer my answers in the classroom, which includes both typing them down in the chat room and speaking them out loud in front of the other students… In my experience, the subject that I am most likely to discuss is one that I am interested in, such as topics

that relate to different cultures. I enjoy having conversations with people that come from a variety of cultural backgrounds since I am able to pick up a lot of fresh information from them… It was because Linda told me that she wanted to talk more in order to build up her confidence that I restrained myself from talking too much during the third session. Because there is only one person who can turn on the microphone to speak up at a time, I have decided to type down my responses in the chat room rather than speaking up in front of the class. Even so, I was really eager to engage in conversation… On the other hand, taking English class online is not always a smoothie process for me. There is only one issue that I am concerned about, and that is the terrible internet connection. At that time, while I was experiencing a terrible internet connection, I was unable to participate in any activity in an appropriate manner. It is a very bothersome situation! It is going to have an effect on how I feel for the rest of the day. I I am unable to stop myself from being upset. Because I am unable to learn what my other partners have learned in the class, I am actually experiencing a great deal of anxiety regarding my studies. But I'd like to watch the playback of the class. Absolutely [the playback video of the session] is very convenient. At last, By submitting my voice recordings to my teacher using QQ, I was finally able to communicate with her about my opinions regarding the final topic. The fact that she enjoyed my sharing so much and that I was successful in the game gave me a lot of motivation. It would be wonderful if I could have more opportunity to take classes like this one. I would love to talk a lot more."

In Chinese (original transcript):

"我是一个性格外向的人，也是一个乐观主义者。只要我能从课堂上获得新知识，我就会感到有成就感。例如，在第一节课上，我不仅学会了自我介绍的新方式和讨论家乡的语言表达结构，还学会了如何通过使用在线学习平台参与各种活动。这是一个非常有趣的过程。一直以来，我都对英语有着强烈的学习热情，因此，我希望抓住每一个机会来学习英语知识，积极参与课堂活动，并积极与他人交流。我认为，当我回答老师提出的问题时，也促使我进行思维的探索，这也可以使我提高学习能力。正因为如此，我认为在课堂上自愿回答很重要，包括在聊天室里上传答案，然后在其他学生面前大声说出……根据我的经验，我最有可能讨论的话题是我感兴趣的话题，比如与文化差异有关的话题。我喜欢与来自各种文化背景的人交流，因为我能够从他们那里获得很多新的信息……正是因为 Linda 告诉我，她想多参与课堂讨论活动，以建立她的信心，所以我在第三次课堂上尽量克制自己，不要说太多。因为一次只有一个人可以打开麦克风说话，所以我决定在聊天室里给出我的回答，而不是在全班同学面前发言。即便如此，我还是非常渴望参与讨论……另一方面，在线上英语课对我来说并不总是一个顺利的过程。我最大的困扰，就是糟糕的互联网连接。当时，当我正经历着糟糕的互联网连接时，我无法以适当的方式参与任何活动。这是一个非常麻烦的情况！这将影响我整天的状态。我无法阻止自己感到不愉快。因为我无法学习其他同学在课堂上学到的东西，我就会对自己的学习感到非常焦虑。随后，我去看了课堂的视频回放，它非常方便。最后，通过使用 QQ 将我的答案录音并提交给我的老师，我终于能够与她交流我的想法。事实上，她非常喜欢我的分享。后来，我在赢得了游戏，这给了我很大的动力。如果我能有更多的机会参加这样的课程，那就太好了。我很想多说英语。"

Table 29

Emma's reasons for stable patterns of L2 WTC

Reasons for the stable patterns	Session	Layers
- Enhanced motivation to speak in English due to the joint effect of interesting topics (e.g., shopping) and her personality trait (e.g., extroverted).	1,2,3,4	IV
- Had a low level of L2 speaking anxiety.		
- Very confident in speaking English.		
- Perceived herself as a competent English speaker.	1,2,3,4	V
- Positive attitude toward an online class.		
- High motivation to learn English in an online class.		
- Supportive and positive interpersonal interaction with a teacher and classmates.		
- Outgoing and easy to talk with.	1,2,3,4	VI
- Strong desire to use English in a new learning environment such as an online class.		
- Strong interest in getting to know people from diverse backgrounds.		

Note: Layers = Pyramid Model Layers

5.3 L2 emotions (enjoyment and anxiety) and actual language use via L2 WTC

The Pearson's correlation matrix of the study variables, which include L2 enjoyment, L2 anxiety, L2 WTC, and actual language use, was calculated using IBM SPSS Statistics version 26. The results are displayed in Table 30. The findings revealed that there were no statistically significant relationships between L2 enjoyment and L2 anxiety. This discovery seemed contradictory to the negative relationship observed in section 5.1 between L2 enjoyment and L2 anxiety, where the data pertaining to these two concepts were used in a different manner. The samples were examined independently, taking into account individual variations. Under those circumstances, the examination was carried out individually for each participant. Furthermore, in that particular section, it was discovered that the association between them did not consistently adhere to a seesaw pattern, indicating that they may not be associated in certain cases. However, in the present circumstances, the analysis was performed by combining the data from each participant into an all-encompassing dataset. The validity of our findings is derived from the dynamic nature of the correlation between L2 enjoyment and L2 anxiety. Thus, overall, there were no statistically significant correlations between them. On the other hand, both variables showed substantial associations with two other variables, specifically L2 WTC and actual language use, respectively. In contrast to L2 enjoyment, which showed a strong positive correlation with L2 WTC ($r = .79$, $p < .05$) and actual language use ($r = .85$, $p < .05$), L2 anxiety was found to have a significant negative correlation with both L2 WTC ($r = -.81$, $p < .05$) and actual language use ($r = -.85$, $p < .05$). These findings indicate that participants who have higher levels of enjoyment in their second language (L2) and lower

levels of anxiety tend to have a higher status of willingness to communicate in L2 and achieve better outcomes in their actual language use. Moreover, there is strong evidence that L2 WTC is significantly and positively associated with actual language use ($r = .93$, $p < .01$). This implies that students with higher L2 WTC tend to use L2 more frequently.

Table 30

Correlation matrix of the study variables

		1	2	3	4
1	L2 Enjoyment	-			
2	L2 Anxiety	-.61	-		
3	L2 WTC	.79*	-.81*	-	
4	Actual Language Use	.85*	-.85*	.93**	-

Note: * = $p < .05$ (2-tailed); ** = $p < .01$ (2-tailed)

In order to further explore the relationship between the level of students' L2 emotions and their actual language use in an online class via L2 WTC, two sets of path analysis were conducted using SPSS RStudio (version R 4.2.3). The findings are presented in Table 31 and Figure 18.

Table 31 demonstrates that both models showed a perfect fit, as shown by a Chi-square value of 0 and degree of freedom of 0 ($\chi^2 = 0$, $df = 0$). The indirect effect from L2 enjoyment status on actual language use was found to be statistically significant ($\beta_{indirect} = .55$, $p = .01$, 95% bias-corrected bootstrap confidence interval of unstandardized indirect effect = [0.14,

1.19]). This means that students who experienced greater L2 enjoyment were more inclined to engage in English language communication, which in turn positively correlated with their actual language use ability. Nevertheless, the L2 enjoyment status does not have a substantial direct impact on actual language use ($\beta_{indirect}$ = .30, p = .12). Furthermore, there was a significant indirect effect observed from the level of L2 anxiety status on actual language use ($\beta_{indirect}$ = -.58, p = .01, 95% bias-corrected bootstrap confidence interval of unstandardized indirect effect = [-0.51, -0.06]). This means that students who experienced lower levels of L2 anxiety demonstrated a greater inclination to engaged in English language communication. This inclination was found to be a significant predictor of their superior proficiency in actual language use. However, the L2 anxiety status does not have a substantial direct impact on the actual use of language ($\beta_{indirect}$ = -.26, p = .22).

Table 31

Path analysis results

Model 1

Model	χ^2	df	p	CFI	TLI	SRMR
Summary	0	0	<.001	1	1	0

Indirect	**Estimate**	**Std.Err**	z	p	**std.lv**	**std.all**
Effect	.67	.27	2.48	.01	.67	.55

Model 2

	χ^2	df	p	CFI	TLI	SRMR

Model						
	0	0	<.001	1	1	0
Summary						
Indirect	**Estimate**	**Std.Err**	**z**	**p**	**std.lv**	**std.all**
Effect	-.29	.12	-2.49	.01	-.29	-.58

Figure 18

Indirect effects of L2 enjoyment and L2 anxiety on actual L2 use via L2 WTC
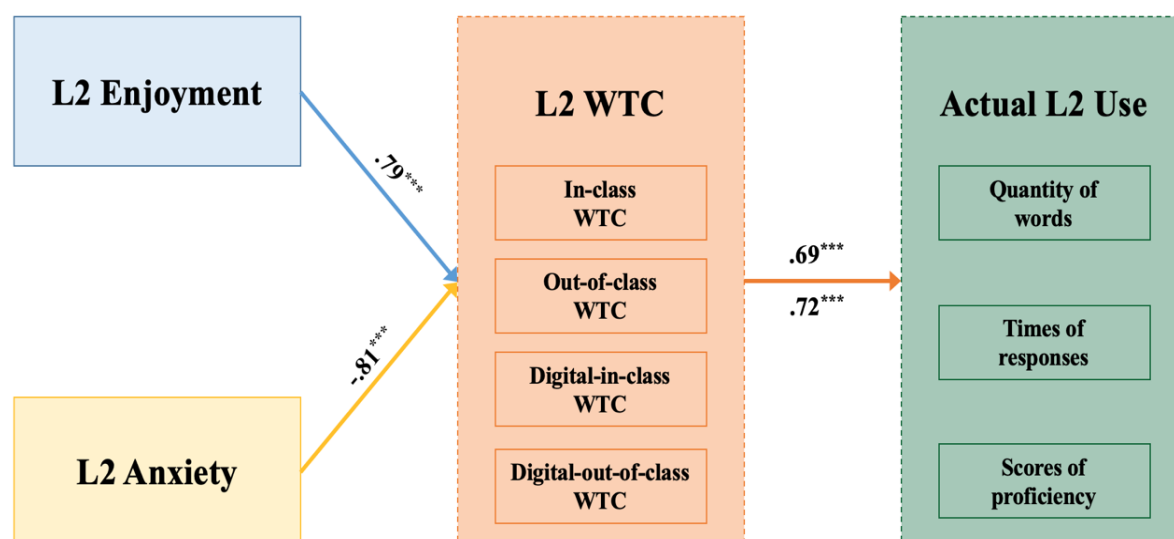
Summary of the Chapter

This chapter presented the results of the research questions. Overall, the idiodynamic

method was employed to identify the complex relationships between L2 enjoyment and L2

anxiety among Chinese EFL learners in an online class. In certain instances, both emotions

function in tandem, whereas in other occasions, they operate independently. These

complexities were compensating for individual differences related to learner-internal and

learner-external factors. Meanwhile, the findings demonstrated that the fluctuations in L2 WTC were remarkably dynamic. Various trait-like and state-like factors were identified to impact the dynamicity of L2 WTC in an online class. More specifically, the statistical analysis revealed significant indirect effects of both L2 emotions on actual language use via L2 WTC. The findings indicated that students who had a higher level of L2 enjoyment or a lower level of L2 anxiety were more likely to engage in English language communication. This, in turn, had a positive correlation with their actual language use ability.

Chapter 6: Discussion

In this chapter, the results of this study are summarized and discussed. The findings of the study are organized into seven sections: (1) changes of L2 emotions and L2 WTC throughout an online class from trait-level perspective; (2) the complex interaction of L2 enjoyment and L2 anxiety in an online class; (3) the dynamic fluctuations of L2 WTC in an online class; (4) various learner-internal and learner-external factors affecting dynamic changes of L2 emotions; (5) factors affecting L2 WTC in an online class by using MacIntyre et al.'s (1998) heuristic model of L2 WTC; (6) explaining L2 WTC in an online class by using dynamic approach; and (7) enhancing actual L2 use from indirect effects of L2 emotions via L2 WTC. Then, the pedagogical implications, limitations, and directions for future study will be discussed. Finally, the chapter ends with the conclusion of the study.

6.1 Changes of L2 emotions and L2 WTC throughout an online class from trait-level perspective

The descriptive data analysis of participants' reported trait-level L2 emotions and L2 WTC in digital in-class settings revealed that the levels of enjoyment in the pre-test (M = 3.74, SD = .57) and post-test (M = 4.03, SD = 0.52), as well as the levels of anxiety in the pre-test (M = 3.48, SD = 1.50) and post-test (M = 3.16, SD = 1.28), were found to be above-neutral. These levels were similar to those observed in a previous study conducted by Jiang and Dewaele (2019) in conventional classroom settings. This suggests that Chinese adult EFL learners could go through comparable psychological processes in their second language (L2)

acquisition, regardless of whether they are learning in a traditional classroom or a digital in-class environment. Furthermore, the Chinese EFL learners consistently demonstrated high levels of L2 WTC in many contexts during both the pre-test and post-test, indicating their overall significant desire to engage in English communication. This discovery contradicts the conclusion drawn in Liu's (2002) research, which claimed that Chinese EFL learners were passive in their language acquisition within the classroom. Implementing the communicative method to English education in China has the potential to enhance the L2 WTC of EFL learners. In addition, when comparing the results before and after the test, there was a significant increase in the level of enjoyment (M = 4.03, SD = 0.52) and willingness to communicate (M = 3.94, SD = 0.88) in the second language (L2) trait-level in the post-test. On the other hand, there was a slight decrease in the level of anxiety (M = 3.16, SD = 1.28) in the L2 trait-level in digital in-class settings. These findings suggest that online class sessions might impact the psychological condition and willingness to communicate of Chinese EFL learners in a digital classroom setting, such as online classes. Specifically, these sessions can enhance the learners' enjoyment, decrease their anxiety, and consequently lead to an increase in their WTC in the second language (L2).

Furthermore, the results of paired sample tests indicated that the online English learning program had a substantial positive impact on students' enjoyment in the online class setting, with a t-value of 3.29, p<.05 (two-tailed), and a 95% confidence interval ranging from .22 to 1.50. The students, on average, experienced an improvement in their level of enjoyment of 0.86 (SD = 0.70) after completing the program. Additionally, the program had a significant effect in reducing students' anxiety in the online class environment, as evidenced

by a t-value of -5.44 (*df* = 6, *p* < .05, two-tailed), with a 95% confidence interval ranging from -3.32 to -1.26. The students' anxiety levels fell by an average of -2.29 (*SD* = 1.11) upon completion of the four online sessions. At the same time, as the level of enjoyment rose and anxiety decreased, there was a notable increase in students' willingness to communicate in the online class setting, as indicated by a significant t-value of 3.29 (p<.05, two-tailed), with a 95% confidence interval ranging from .22 to 1.50. The students' willingness to communicate increased by an average of 0.86 (standard deviation = 0.70) after completing the project. These findings suggest that students are more likely to derive enjoyment from the learning process and experience reduced levels of anxiety. Consequently, they are more likely to actively participate in English conversation within an online classroom setting. These findings further support earlier studies by verifying the impact of informal digital English learning on L2 WTC through L2 emotions. Examples of such studies include Lee et al. (2021), Lee & Hsieh (2019), and Fung (2022). In contrast to the varied opinions expressed by students regarding their enjoyment experienced within online classes in Fung's (2022) study, which was attributed to limited opportunities for peer interactions, the participants in this study reported positive perceptions of enjoyment in online classes. This was attributed to a range of factors, both internal to the learners themselves (such as their interest in innovative learning methods) and external to the learners (such as perceiving flower or thumb-up icons as positive feedback from peers and the teacher).

6.2 The complex interaction of L2 enjoyment and L2 anxiety in an online class

Regarding the first research question, there is a significant correlation in 12 of the 28 online class sessions (43%), with 11 of these associations displaying a negative trend. This implies that, in some cases, both L2 enjoyment and L2 anxiety operate in a seesaw relationship, where one increases while the other decreases, while in other cases, they operate independently. The results of this study confirm the earlier studies showing L2 enjoyment and L2 anxiety are distinct constructs (Boudreau et al., 2018; Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2016). Kruk (2022) conducted one of the first study on the dynamic perspective of L2 emotions in the field of Computer-Assisted Language Learning (CALL), though he did not simultaneously investigate L2 enjoyment and L2 anxiety. To the best of our knowledge, this is some of the first research to demonstrate the complex interaction of L2 enjoyment and L2 anxiety within the context of an online class.

From a methodological standpoint, prior studies on L2 enjoyment and L2 anxiety (Dewaele & Dewaele, 2017; Dewaele & MacIntyre, 2014, 2016) relied on retrospective self-reported questionnaires with inconsistent reference points. Some participants reported their experiences over a short period (e.g., a minute), while others reported over a longer period (e.g., an academic year). In addition, Boudreau et al. (2018) employed an idiodynamic approach, although the study involved ten highly proficient second language (L2) learners who performed the tasks in controlled laboratory conditions without any interaction with interlocutors. Kruk (2022) examined L2 emotions of EFL learners in Second Life with interlocutors from a dynamic perspective. However, the study only gathered data from only two advanced L2

learners, using self-reported data that may be influenced by recall bias. This study, on the other hand, collects both L2 emotional episodes from seven EFL participants with varying proficiency levels in an online class on a one-minute timescale. This study contributes a more rigorous methodology and findings to the existing body of research.

6.3 The dynamic fluctuations of L2 WTC in an online class

With regard to the second research question, all participants, with the exception of Emma, showed fluctuating trends of L2 WTC in an online class. This finding aligns with prior study that demonstrating fluctuating patterns of EFL learners' L2 WTC levels in an online environment (Kruk, 2019, 2021). These findings indicate that L2 communication within an online classroom setting is also characterized by a high degree of dynamism and unpredictability. In contrast to previous studies that only examined one or two advanced Polish EFL learners' L2 WTC in Second Life (Kruk, 2019, 2021), this research expanded its scope by including a larger and different group of EFL participants. Specifically, it involved seven Chinese university students studying English as a Foreign Language, who exhibited a range of proficiency levels spanning from intermediate to advanced. Furthermore, investigations into the dynamic perspective on L2 WTC has primarily taken place in classroom environments (Cao, 2011), controlled laboratory conditions (MacIntyre & Legatto, 2011; MacIntyre & Wang, 2021; Pawlak & Mystkowska-Wiertelak, 2015), and a simulated digital laboratory setting (Kruk, 2019, 2021). To our knowledge, our study is the first to be undertaken in a laboratory-style online class with a dynamic perspective. This contribution to the research on L2 WTC

and CALL   is both timely and significant. It is particularly relevant as an online classroom is increasingly becoming a common environment for L2 learning. In terms of methodology, contrary to previous studies that relied on a retrospective self-reported questionnaire (Kruk, 2019, 2021), the participants in this study assessed their L2 WTC levels by self-rating while watching a video recording of L2 performance. Such visual aids or cues have been found to improve the accuracy of memory retrieval and strengthen the accuracy and reliability of collected data (Bradburn et al., 1987; MacIntyre & Legatto, 2011). In that regard, an idiodynamic method, which our study adopted, helps address this prior methodological limitation.

6.4 Various learner-internal and learner-external factors affecting dynamic changes of L2 emotions

Regarding the third research question, this study identified a total of 37 factors, consisting of 17 learner-internal and 20 learner-external factors, that influenced the changes in L2 enjoyment and L2 anxiety of two EFL learners during an online class. More precisely, *learner-internal factors influencing L2 enjoyment* are connected to their personality (seeking a new experience, overanalyzing the response's construction, and an interesting topic related to her personal experiences), their level of self-confidence (increased participation, confidence in using English expressions, and confidence in speaking English after participation), and their perception of task difficulty (a low and high risk-taking task). These findings support previous research (Dewaele et al., 2018; Jiang & Dewaele, 2019), indicating that L2 learners who have

a positive attitude toward L2 acquisition, actively perceive their progress in L2 learning, and practice more L2 use are more likely to enjoy L2 experience. *Learner-external factors influencing L2 enjoyment* include the teacher (feedback and encouragement), peers (peer encouragement), classroom atmosphere (a safer classroom environment), tasks (unpredictability of game elements, disliking the nature of the task, and task-based stimuli), and topics (an interesting and familiarity with topic). These findings align with prior studies (Dewaele et al., 2018; Jiang & Dewaele, 2019), indicating that the levels of L2 enjoyment can fluctuate depending on factors such as positive peer and teacher support, a pleasant learning environment, and engagement in interesting tasks and topics.

Learner-internal factors influencing L2 anxiety include fear of failure and negative evaluation (fear of making mistakes), preoccupation with one's position in L2 proficiency (over-focus on peers' responses), perfectionism-oriented personality (concerned about providing incorrect answers), speaking without preparation (being called to provide an answer in the chatroom or speak on the topic), and self-perceived competence (an interesting topic, increased participation, and high or low risk-taking task). The aforementioned findings corroborate previous research (Dewaele, 2017; Dewaele & MacIntyre, 2014; Dewaele et al., 2018; Jiang & Dewaele, 2019; Jin & Dewaele, 2018). *Learner-external factors influencing L2 anxiety* include the teacher (familiarity with the teacher and a teacher's use of wait-time), peers (familiarity with the peers and a lack of state-like confidence in speaking English), the classroom environment (a safer classroom environment), tasks (uncertainty-inducing game elements and typing answers in the chatroom), topics (unfamiliarity with the topic), and unfamiliarity with platform functions. These findings further support prior studies conducted

by Lee & Liu (2022), Dewaele et al. (2018, 2019), Jiang & Dewaele, (2019), and Zarrinabadi et al. (2021).

Upon deeper analysis, it becomes evident that the relationship between L2 enjoyment and L2 anxiety is intricate and ever-changing, due to the independent or combined influences originating from learner-internal and learner-external factors. For instance, Linda had an escalation in her L2 anxiety during the initial four minutes of Session 4 due to the introduction of a novel game activity by the teacher, which Linda was unfamiliar with. However, Nevertheless, Linda's appreciation for the game grew as she became increasingly engaged and familiar with it due to its unpredictable, surprising, and gamble-like elements, which included a random mix of her favorite or challenging open-ended questions (Dewaele et al., 2018). As a result, she was able to sustain a heightened degree of L2 enjoyment throughout the remainder of the session. This implies that regardless of the extent to which teachers prepare tasks and topics, students' personal relevance, perceived difficulty, and familiarity with the tasks and topics appear to have a noteworthy influence on their level of L2 enjoyment and L2 anxiety. These findings confirm the research conducted by Boudreau et al. (2018), which revealed dynamic and complex patterns of interaction between L2 enjoyment and L2 anxiety in a direct, in person L2 setting. This suggests that, just as in a face-to-face situation, L2 enjoyment and L2 anxiety are distinct constructs, and their correlation in an online class is not a straightforward seesaw pattern.

Nevertheless, this study differs from Boudreau et al. (2018) as it reveals a positive correlation between L2 enjoyment and L2 anxiety in the case of Anne. From the beginning to the end of 6 minutes, Anne had an increase in her L2 enjoyment (from 4 to 5) as she engaged

with an interesting topic about her favorite movie. Although, her L2 anxiety also slightly increased (from -4 to -3) during a time frame of 7 and 20 minutes, Anne had a decline in her state-like confidence in speaking English while she was asked to talk about her favorite movie in the presence of individuals who were more proficient in the language. This decline in confidence led to a significant rise in her L2 anxiety level increasing from -5 to 4. At the same time, Anne maintained a high level of L2 enjoyment with a rating ranging from 4 to 5. This was due to her increased self-assurance in using L2, which stemmed from her participation in the first sharing activity, and her continuous engagement in discussing about her interesting topic.

Furthermore, the factors that caused both L2 emotions in our current online class seemed to align with those previously documented in other digital settings. For instance, in a *virtual learning environment* (Kruk, 2022), EFL learners had a more positive attitude towards learning and using English as a result of interesting topics and EFL learners increased their frequency of English practice and engaged in typing and posting English comments (if needed). As a result, they developed greater confidence and reduced anxiety while using English expressions on *automatic speech recognition-based websites* (Bashori, 2018; Bashori et al., 2020, 2021). According to Yoshida (2020), the act of chatting and the people one chat with have an impact on the positive and negative emotions experienced by EFL learners in *online chatting environments* (Yoshida, 2020). *Game-based learning environments,* characterized by high or low risk-taking tasks, uncertainty-inducing game elements, healthy competition, and positive and immediate feedback from others, have been shown to enhance the positive attitudes and reduce anxiety among EFL learners in relation to learning English (Almusharraf,

2021; Li et al., 2019; Yang et al., 2021). Nevertheless, the present investigation revealed that teachers played a crucial role in supporting students to sustain optimal levels of L2 enjoyment and L2 anxiety over a period of time by providing affective, technical, and pedagogical assistance. This is logical since, similar to a traditional classroom environment, instructors in an online L2 class must establish educational goals, choose educational resources, and design and implement learning activities, all of which impact students' L2 emotions (Lee & Liu, 2021; Derakhshan et al., 2021).

6.5 Using MacIntyre et al.'s (1998) model to explain L2 WTC in an online class

With respect to the third research question, we have identified four main themes (along with 16 subthemes) that contributed to the observed fluctuations of L2 WTC in an online class. Upon performing a more detailed examination, we discovered that these results are consistent with the Layers VI, V, IV, and III proposed by MacIntyre et al. (1998). This suggests that MacIntyre et al.'s (1998) heuristic model provides a theoretical framework to understand L2 WTC in an online classroom. For instance, MacIntyre et al.'s (1998) *social and individual context* (Layer VI) is situated at the base of the pyramid, emphasizing the most trait-like and stable factors, such as personality. All seven participants in our study pointed out that being open to a new online learning experience (personality trait) had a positive impact on boosting their L2 WTC. This finding is in line with previous research, which indicated that openness to a new experience as a positive contributor to L2 WTC among Polish EFL secondary school learners (Piechurska-Kuciel, 2018). These findings indicate that EFL learners who are open-

minded toward novel methods of learning English, such as learning in an online platform, tend to become more willing to communicate in English in an online class.

The second level of the pyramid (Layer V) represents the *affective-cognitive context*, including sub-variables such as intergroup attitudes and social situation. It is considered more dynamic and situation-specific than Layer VI, as it involves more affective and cognitive aspects of L2 communication. Our research revealed that several factors, such as teacher's affective and pedagogical supports (e.g., a teacher's use of wait-time, lecture recordings for students to review, game-embedded activities, and teacher's positive affirmations), peer encouragement, and positive learning environment, significantly enhanced students' L2 WTC. These findings align with previous studies, that have demonstrated a positive correlation between L2 WTC and teachers' affective and pedagogical support (Peng, 2019; Wang et al., 2021), familiarity with interlocutors and their support (Cao, 2011; Kruk, 2021; Pawlak & Mystkowska-Wiertelak, 2015), and a positive learning environment (Khajavy et al., 2016; Khajavy et al., 2018; Peng, 2019; Wang et al., 2021). It seems plausible that If a student perceives positive emotions and observes active engagement from their peers in an online class, these positive emotions can likely be transmitted, resulting in increased active behaviors (i.e., L2 WTC) in an online class (Dewaele & Li, 2021).

This assumption may be explained by a phenomena known as 'L2 emotional contagion'. L2 emotional contagion postulates that emotions such as happiness, enjoyment, and anxiety can be highly contagious between a teacher and students or among students (Moskowitz & Dewaele, 2019; Talebzadeh et al., 2020). This can have an impact on the positive or negative interactions within a group of language learners (Dewaele & Li, 2021).

Recent empirical studies have provided support for the L2 emotional contagion mechanism, which have shown that teacher support (e.g., integrating multimodal pedagogies) was significantly related to fostering a positive learning environment, which in turn contributed positively to the L2 WTC of EFL learners (Peng, 2019; Wang et al., 2021).

Layer IV manifests *motivational propensities*, which consist of sub-variables such as interpersonal motivation (e.g., personal topics) and L2 self-confidence. All participants in our study unanimously identified the positive effects of topic knowledge and task familiarity on boosting their L2 WTC in an online class. On the other hand, inadequacy of vocabulary and self-perceived low L2 confidence were found to reduce their L2 WTC. The results align with previous studies that identified the the supportive or hindering effects of topic knowledge (Cao, 2011, 2014; MacIntyre & Wang, 2021), task familiarity (Cao, 2011, 2014), vocabulary knowledge (Cao, 2011, 2014), and L2 self-confidence (Cao, 2011) on L2 WTC. MacIntyre and Wang (2021) adopted the idiodynamic method to demonstrate that students became more confident in using L2, which in turn increased their L2 WTC when they were asked to describe a meaningful photo about a family trip. Based on these premises, it is logical to conclude that Layer V (e.g., teacher's pedagogical supports by selecting an interesting and meaningful topic such as movie and shopping) appears to positively affect Layer IV (e.g., topic knowledge and L2 confidence), which subsequently influences Layer II (i.e., encouraging students to initiate L2 communication in an online class).

Layer III represents the *situated antecedents*, including the intention to communicate with a specific person and state communicative self-confidence. The findings of our research indicate that the use of virtual and non-verbal affective supports, such as receiving virtual

flowers or sending thumbs-up emoticons to classmates, as well as visual aids, such as seeing photos related to a topic or task, have a direct and positive impaction students' L2 WTC in an online class. These findings are consistent with previous studies that shown the positive effects of interlocutor support (Kruk, 2019, 2021) and visual aids (MacIntyre & Wang, 2021). In contrast, technology-related issues, such as unfamiliarity with online platforms and their functions or technical glitches, were found to diminish students' L2 WTC. Derakhshan et al. (2021) demonstrated that technical issues such as problems with internet connection and audio/microphone functionality, triggered negative emotions including frustration, anxiety, and boredom among Iranian EFL learners. Furthermore, there is extensive evidence indicating that negative L2 emotions such as anxiety, decreases EFL learners' L2 WTC in both face-to-face and online communication environments (Khajavy et al., 2018; Kruk, 2019, 2021; Reinders & Wattana, 2014). Taken together, it seems likely that L2 WTC in an online class can be influenced by interlocutors who express positive emotions (equivalent to 'desire to communicate with a specific person') or due to a sudden increase in L2 anxiety stemming from technical issues (equivalent to 'state communicative self-confidence').

6.6 Using dynamic approach to explain L2 WTC in an online class

Using a dynamic method, we conducted a more detailed analysis of the data by identifying factors that could explain the fluctuating patterns of L2 WTC (e.g., Linda) and stable patterns of L2 WTC (e.g., Emma). For example, Linda and Emma had several similarities, including their age, duration of learning English, and experience with an online

course. However, Linda's levels of L2 WTC exhibited significant fluctuations, ranging from - 5 to 5 points, as a result of the joint influences of Layer VI (e.g., shy and introverted), Layer V (e.g., unfamiliar with the interlocutors, such as a teacher and classmates), Layer IV (e.g., unfamiliar with an instructor's teaching style and class task), and Layer III (e.g., technical issues). On the other hand, despite potentially negative effects from Layer III (e.g., poor Internet connection), Emma managed to consistently achieve the highest level of L2 WTC with a score of 5 from Session 1 to 4. This can be attributed to the combined influences of Layer VI (e.g., extroverted and positive intergroup climate), Layer V (e.g., positive attitude toward an online class and communicative competence), and Layer IV (e.g., interpersonal motivation and a high level of L2 speaking confidence, and a low level of L2 speaking anxiety). Evidently, Emma's L2 WTC was not at all affected by technology-related issues (during Session 3), which differed from Linda, whose L2 WTC was rapidly and negatively affected by this transient state-like factor (during Session 1). These findings indicate that L2 WTC in an online class is influenced by complex interactions between stable trait-like characteristics (e.g., personality) and transient state-like factors that a student is embedded in, such as interlocutors (e.g., a teacher and classmates), tasks, and technical issues. This indicates that adopting a dynamic system viewpoint is a valuable analytical method for understanding the fluid and dynamic nature of L2 WTC in an online classroom (MacIntyre et al, 1998; Kruk, 2019).

6.7 Enhancing actual L2 use from indirect effects of L2 emotions via L2 WTC

Concerning the forth research question, the study observed the strong impact of L2 WTC on the participants' actual L2 use ($r = .93$, $p < .01$) which is positioned at the highest level of MacIntyre et al.'s (1998) heuristic model (Layer I). The results showed that students who intrigued by the subject matter, experienced a sense of motivation from both their teacher and peers in a secure setting, possessed a lower affective filter, were more willing to communicate. Consequently, they demonstrated intensified engagement in using English in an online class, such as actively participating in discussions and providing written feedback in the chat box. These findings supplement Lee and Sylvén's (2021) study by proving the beneficial impact of L2 WTC on the L2 use, not only in informal English learning activities outside class, but also in online classroom settings. Their observed actual L2 use was found to have a strong positive correlation with L2 enjoyment ($r = .85$, $p < .05$), while having a strong negative correlation with L2 anxiety ($r = -.85$, $p < .05$). These findings are consistent with the results of previous studies conducted by Shao et al. (2019), Horwitz (2001), MacIntyre & Gardner (1991). They suggested that students experienced greater level of positive emotions and reduced levels of negative emotions when they felt confident with teacher and peers' support, found the topic and tasks familiar with, and recognized a comfortable learning environment. These students were more likely to seek more inclined to actively pursue more possibilities for participation and demonstrate improved achievement in the classroom. The dynamic nature of learners' positive emotional engagement and the positive link between learners' positive emotional engagement and their language production were also observed among Vietnamese EFL context

(Dao & Sato, 2021). This study extend the merits of their findings to the online class settings. Moreover, the results revealed that the participants' actual L2 use was affected indirectly by their levels of L2 enjoyment ($\beta_{indirect}$ = .30, p = .12) and L2 anxiety ($\beta_{indirect}$ = -.58, p = .01) through L2 WTC respectively. These findings corroborate previous studies (Hashimoto, 2002; Lee et al., 2022) by indicating that both trait-like and state-like factors could significantly impact the development of students' positive emotions and reduction of their negative emotions. These factors work in tandem to have great potentials to improve their L2 WTC, and ultimately leading to increase their actual L2 use in an online class. This may manifest in activities such as engaging in verbal discussions using microphones or contributing written comments in the chat box.

6.8 Pedagogical implications

Overall, the results indicate that a teacher's constant attention to students' needs and concerns, along with their affective, pedagogical, and technological support, can assist students in maintaining optimal L2 emotional levels in an online class. Furthermore, L2 WTC highly fluctuated during sessions 1 and 2 as a result of the combined influences of trait-like (e.g., introverted and lack of L2 vocabulary) and state-like factors (e.g., technical issues and unfamiliarity with interlocutors). Nevertheless, a more stable pattern of L2 WTC was observed during sessions 3 and 4, mostly attributed to state-like factors, such as adequate support from a teacher. The results of our study indicated that the support provided by teachers in terms of pedagogy and technology was consistently identified as the most frequently mentioned factor

that played a positive role in boosting students' L2 WTC. Additionally, the findings of this study could further inform both the stake-holder and the school to implement measures that support sustainable education and encourage curriculum reform in English language education in the digital era.

We can derive *four* pedagogical recommendations from our findings. *First*, EFL students may experience an emotional roller coaster at the start of an online class. However, as the sessions proceed, they tend to experience more enjoyment and reduced anxiety. Moreover, fluctuations of L2 emotions manifest in distinct patterns among individuals. Therefore, prior to the first day of class, a teacher can provide a fundamental outline of an online platform, elucidating its features and functions. Consequently, students are more adequately equipped for the new online platform, while teachers have additional time to attend to specific technical issues. Teachers are also encouraged to engage in research on the preferred topics of their students and integrate them into instructional activities. According to Dewaele et al. (2018), students are more likely to enjoy learning L2 and experience less L2 anxiety if they select themes that align with their particular interests. An efficient approach would involve using the online teaching platform to send students a questionnaire or a quick multiple choice question to answer. The results would then be promptly and automatically displayed to both teachers and students. In terms of task implementation, teachers must be adaptable and flexible. The students in the current study experienced increased anxiety when they learned their relative ranking within the group based on the results of a fill-in-the-blank listening exam. Upon being informed of the students' worries, the teacher promptly modified the listening task by using open-ended questions, thereby reducing the students' L2 anxiety. Meanwhile, the schools

should actively promote the teachers' engagement in curriculum reform by cultivating research on positive psychology in English language education. Furthermore, it is imperative for the stake-holders to encourage and advocate for the enhancement of good health and well-being in order to support sustainable education.

Second, depending on the level of familiarity of the students with the online class and their language levels, a teacher may consider implementing unpredictable, surprising, and challenging tasks to create positive vibes in an online class (Dewaele et al., 2018). In addition, teachers should be able to mange to integrate gamification elements into L2 tasks, provide visual aids such as photos, and upload recorded online lessons into their respective learning management systems. Meanwhile, it is imperative for schools to actively encourage teachers' involvement in curriculum reform by fostering research on communicational motivation in English language education. Moreover, the stake-holders should promote the use of technology in the field of education in order to facilitate long-lasting education.

Third, since EFL students may experience variations in both L2 emotions and L2 WTC in an online class resulting from various learner-internal and external factors, a teacher can foster positive online learning environment through praising students and making good use of chatroom functions such as emoji and written comments. According to Kiaer (2023), emoji can be considered both a verb and an essential aspect of human communication, as individuals nowadays tend to use emoji instead of texting. Kiaer (2023) suggests that emojis can facilitate the development of mutual understanding among individuals, particularly in situations involving challenges and discomfort. A teacher's affective support was identified as the second most frequently mentioned factor affecting students' L2 WTC in this study. In this regard,

teachers are encouraged to provide affective supports by recognizing students' efforts verbally or through the use of emoticons such as a thumbs-up emoji. This helps students establish a sense of connection with their teacher and other classmates, while also allowing them some waiting time to respond during an online lesson. However, as Zarrinabadi et al. (2021) demonstrate, not all praise is equal. Praise for 'effort' may reduce students' L2 anxiety because linguistic failure or setbacks in the online class are interpreted as a need for hard work or an opportunity for growth. Praise for 'intelligence,' on the other hand, may increase students' L2 anxiety because they may perceive linguistic mistakes as a threat or something to avoid. Meanwhile, it is crucial for schools to actively promote teachers' participation in curriculum reform by cultivating learner-centered teaching strategies. Furthermore, the stake-holders should enhance inclusivity and promote a sense of mutual understanding between educators and learners in order to facilitate the development of sustainable education.

Lastly, our findings reveal that EFL learners had an increased willingness to communicate leading to greater amount of words and longer amount of time in their actual L2 use in an online class subsequent to establishing a positive relationship with classmates and having confidence in their peers' positive reactions. In light of this, teachers are recommended to promote peer encouragement and nurture a positive online learning environment. It is also important for a teacher to bear in mind that the fear of losing face in the virtual presence of peers and teachers can still be intimidating. Thus, a teacher might allow beginning or reflective L2 students to have sufficient time to think and type their responses in a chatroom before presenting their thoughts verbally in the presence of other participants (Zarrinabadi, 2014). Additionally, schools should facilitate teachers' involvement in curriculum reform by fostering

the development of instructional practices that include technology. Moreover, it is crucial for the stake-holders to advocate for high-quality education in order to bolster sustainable education.

Overall, our research demonstrates that L2 teachers continue to have a crucial impact on nurturing a positive learning environment and facilitating students' active participation in an online classroom.

6.9 Limitations and directions for future research

The strengths of our study notwithstanding, we also acknowledge *seven* limitations and provide directions for future research. *First*, owing to the nature of the exploratory study, we only conducted an online class session four times. Besides, as our participants were first-year Chinese EFL students from a single vocational college in one region, our findings may not be representative of all students; therefore, future studies may include participants from different academic years, universities, and cultural and educational backgrounds. In addition, we only selected a small group of seven Chinese EFL university students from a limited age range to participate in this study. Smaller class sizes tend to foster a better learning environment because they allow students to establish stronger social connections with their peers (Dewaele et al., 2018). Future research could conduct research for a longer period of time while involving participants with more diverse backgrounds and age ranges, and look into the dynamic pattern of L2 emotions, L2 WTC and their correlation with actual L2 use in a larger online class to improve the robustness of their findings. *Second*, though we have discussed the

potential linguistic and pedagogical advantages of online class over formal class in several areas, no research has yet compared the effectiveness of English learning by comparing online and formal English learning in these areas. Therefore, the current research design could serve as a starting point for future studies that aim to compare the efficacy of online and formal English learning in the aforementioned areas.

Third, the instructor was an experienced bilingual educator who believed in a student-centered approach to education. Different types of teachers, such as novice teachers, native L2 speakers, and teachers with teacher-centered beliefs, may cause students to experience different dynamics of L2 emotions and L2 WTC, ultimately resulting in varying outcomes in actual L2 use. *Fourth*, we strongly encourage future researchers to expand the use of digital environments in light of the advancements in technology. For instance, as conversational technology is becoming increasingly diversified in young learners' everyday lives, smartphones (e.g., Google Assistant and Apple's Siri) or smart-speakers (e.g., Google Home and Amazon's Echo) could be integrated into future research. *Lastly*, we solely investigated the dynamic nature of L2 enjoyment and L2 anxiety. Because other positive (e.g., grit) and negative (e.g., boredom and burnout) emotions may exist in an online class, future research could include other L2 emotions (Li, 2021; Li et al., 2021; Kruk et al., 2021; Pawlak et al., 2021; Zawodniak et al., 2021). *Fifth*, although anecdotal evidence from businesses encourages parents to foster a digital learning environment outside classroom, no rigorous studies have been published to show whether parental-supported online learning improves L2 WTC and speaking skills (Lee, 2022). Future research can build on previous (Sundqvist & Sylvén, 2016) and current studies to ascertain whether the parental out-of-class learning support program is linked to students'

English learning practices in digital out-of-class settings, which are in turn linked to L2 WTC and, ultimately, improved speaking proficiency. *Sixth*, as the completion of multiple surveys, including the real-time state L2 WTC and L2 emotions survey, could lead to survey fatigue and higher drop-out rates, we chose to exclude a mid-survey from our pre- and post-trait WTC survey. Nevertheless, to obtain more nuanced insights, future studies could explore the possibility of including a mid-survey. On the other hand, the semi-structured interview questions were designed to identify the factors that had an impact on the participants' L2 WTC and L2 emotions. However, the questions' binary nature, which only permitted positive or negative answers, and the lack of an open-ended question might have restricted the interviewees' ability to indicate that their L2 WTC and L2 emotions were not affected. Thus, it is recommended that future researchers modify the questions to enable neutral responses or include additional open-ended questions to collect more flexible and targeted data. Furthermore, due to the restriction on accessing professional idiodynamic software, an editable excel spreadsheet was used as an alternative for the real-time state L2 WTC and L2 emotions survey. Due to the inability to simultaneously conduct self-ratings for three constructs, there is a possibility of encountering a multicollinearity issue during data analysis. In order to assure the accuracy of the data, future studies should utilize professional idiodynamic software that has the capability to accommodate several constructs simultaneously.

Lastly, this study measured the impact of L2 emotions on the actual L2 use in an online class via L2 WTC using both pre- and post-surveys spanning a 4-week period. Additionally, real-time momentary surveys were also employed. However, Jeon (2022) discovered that 72.5% of 120 EFL Korean students, aged 11-12, who informally studied English through apps, ceased

using them during an eight-week experimental timeframe. In contrast, 27.5% of participants chose to continue using the app in an informal manner. The author observed that this particular group exhibited a greater sense of perceived autonomy, competence, and relatedness compared to the group that stopped using the app. This implies that when the psychological demands of autonomy, competence, and relatedness are met for EFL students, they are more inclined to stay motivated and engaged in informal language acquisition. Future research might explore whether students sustain their participation in online learning following the conclusion of a teacher-supported program, as the primary objective of such programs is to foster students' autonomy as learners. In addition, researchers have the potential to develop an online program that is supported by teachers and integrates the three fundamental components of self-determination theory. This program can then to be used to assess its short-term (e.g., momentary), mid-term (e.g., 12 weeks), and long-term (e.g., six months) effects on L2 WTC and speaking skills.

Summary of the Chapter

This chapter examined the main findings, pedagogical implications, limitations, and directions for future research. Overall, a comprehensive understanding of learners' emotions, L2 WTC, and their impact on actual L2 use in an online class was achieved through the use of the idodynamic method. The provision of affective, pedagogical, and technical assistance by teachers, along with the supportive feedback from peers, and the user-friendly and multiple features of online platforms, might be the reason why students have a lower affective filter,

improve their L2 WTC and enhance their actual L2 use in an online class. Despite the study's limitations, s it proposed several pedagogical implications. These include providing a fundamental outline of an online platform, explaining its features and functions, researching students' preferred topics, being adaptable and flexible when it comes to task implementation, fostering a positive online learning environment by praising students and making good use of chatroom functions, promoting peer encouragement and nurturing a positive online learning environment, and being mindful of learners' fear of losing face in the virtual presence of peers and teachers. The next chapter will provide a concise overview of this dissertation study.

Chapter 7: Conclusions

The previous chapter examined potential factors to explain the results, some possible pedagogical implications, limitations, and directions for future research. This chapter will provide a concise overview of the research conducted in this dissertation.

English has had a crucial impact across various domains such as business, education, and academics in modern China, and it has been highly prioritized in university curricula. Moreover, with the rapid advancement of information technology in the New Era, the Chinese government has exerted significant endeavors towards the reform of English language instruction and acquisition within university curricula. This reform places emphasis on the use of modern technology to enhance teaching methods and support students' independent and personalized learning. Furthermore, China is widely acknowledged for its status as the country with the largest number of English language learners worldwide, hence placing considerable emphasis on the inclusion of English language training in its educational curriculum. Notwithstanding the adoption of communicative methodologies by university educators to enhance students' communication abilities (Shi, 2006), students in language classrooms are frequently regarded as passive recipients of knowledge (Liu, 2002). Among various reasons of the students' limited participation in communicative activities, the most commonly mentioned one was known as the washback effects. The observed passivity can be ascribed to the adverse washback effects stemming from previous learning experiences, whereby students seldom actively pursue occasions to engage in English language practice. Research suggests that only less than 1% of Chinese EFL students are conversational (Smith, 2018). Moreover, Chinese

students are frequently observed to display a lack of will to communicate or even remain silent (Jackson, 2002; Liu & Jackson, 2011) in classes, thus diminishing their already limited opportunities for actual L2 communication. In a large scale study conducted by Dewaele and MacIntyre (2014), it was shown that Asian L2 learners, of which more than 75% were Chinese nationals and majority of them were adult learners, had the lowest levels of L2 enjoyment and highest level of L2 anxiety among L2 learners worldwide. The impact of L2 emotions, including enjoyment and anxiety, on learners' willingness to communicate is widely acknowledged (Lee & Lee, 2020; Khajavy et al., 2021; Lee, 2022; Sadoughi & Hejazi, 2024). In this case, Chinese EFL learners' limited engagement in communicative activities may be attributed to their low levels of L2 enjoyment and high levels of L2 anxiety. Hence, the main concerns in the Chinese English as a Foreign Language (EFL) setting center on augmenting learners' second language (L2) willingness to communicate (WTC) and strengthening their communication skills and proficiency. Prior research has thoroughly investigated several aspects that impact the second language willingness to communicate of Chinese English as a Foreign Language (EFL) learners in classroom environments (Peng & Woodrow, 2010; Peng, 2016; Li & Liu, 2021). Nevertheless, there is a scarcity of research that has examined the diverse factors that impact the second language willingness to communicate (L2 WTC) and the practical application of English in online classroom settings among Chinese English as a Foreign Language (EFL) learners. Moreover, whereas the interplay between L2 enjoyment and L2 anxiety has been extensively examined in traditional classroom settings, there remains a dearth of knowledge on their dynamics within the context of online learning. In this regard, this current study addressed the challenges of Chinese EFL learners' dynamic changes in L2

WTC and L2 emotions. The study investigated the effects of L2 emotions including L2 enjoyment and L2 anxiety on actual L2 use via L2 WTC. The findings demonstrated that a range of learner-internal and learner-external factors have combined influence on the fluctuations of L2 emotions during an online class. MacIntyre et al.'s (1998) heuristic model could be an effectively tool to explain the dynamic changes of L2 WTC in an online class. In addition, the statistical analysis revealed significant indirect effects of both L2 emotions on actual language use via L2 WTC. The findings indicated that students who had a higher level of L2 enjoyment or a lower level of L2 anxiety were more likely to engage in English language communication. This, in turn, had a positive correlation with their actual language use ability.

As mentioned in Chapter 2, Despite an expanding body of knowledge about L2 WTC, L2 enjoyment and L2 anxiety in digital settings involving EFL learners, there is a dearth of research on L2 WTC in digital settings from a dynamic system perspective (Kruk, 2021). This is surprising because L2 communication in digital contexts has been found to be highly dynamic and unpredictable (Kruk, 2019). Besides, a dynamic perspective on both emotions in an online setting is still in its early stages (Lee & Liu, 2022). Understanding L2 learners' emotions in an online class is both timely and critical, given the rapid rise of online learning in the field of L2 education (Derakhshan et al., 2021). understanding a dynamic view of both emotions could be improved methodologically. Kruk (2019, 2021) collected self-reported data from advanced Polish EFL adult learners. Although the researcher collected the data shortly after the end of each session, the participants were vulnerable to recall bias (e.g., providing less accurate estimates about L2 WTC levels) because their responses relied solely on their memories (Bradburn et al., 1987). In Dewaele and MacIntyre's (2016) study, some respondents

used a short timescale (e.g., a minute) to report L2 enjoyment and L2 anxiety episodes, while others used a long timescale (e.g., over an academic year). A limitation of this retrospective method can be addressed by adopting an idiodynamic method. According to MacIntyre and Legatto (2011), an idiodynamic method allows participants to watch a video recording of their L2 performance while self-rating their levels of L2 WTC. Using a graph of L2 WTC self-ratings, researchers can also conduct a follow-up interview. Boudreau et al. (2018) conducted a study in lab settings where their participants performed the tasks without interlocutors. However, their participants were limited to advanced French learners. Although Kruk (2022) carried out an innovative online study on L2 emotions from the dynamic perspective, only two advanced EFL learners participated, and the self-reported questionnaire failed to examine L2 enjoyment and L2 anxiety together. Moreover, despite the fact that in a large-scale global survey, Asian L2 learners, 76 percent of whom were Chinese L2 learners, were found to have the highest level of L2 anxiety but the lowest level of L2 enjoyment (Dewaele & MacIntyre, 2014), little consideration has been given to their L2 emotions from positive psychological perspective (Dewaele & Li, 2020) and insufficient attention has been paid to time flow in a foreign language course to look into the variability of L2 emotions (Pan & Zhang, 2021). Moreover, its scope has not been expanded to online classes.

Therefore, this study employed an idiodynamic method to examine whether there is any variability in Chinese EFL learners' L2 WTC levels in an online class while accounting for factors that might have influenced fluctuations in L2 WTC. The results of the present study revealed changes of both trait-level of as well as state-level of L2 emotions and L2 WTC within an online class. Compared to conventional classroom settings studied in previous research, a

similar psychological process in Chinese EFL learners' L2 acquisition in a digital in-class environment was also observed in this study. Besides, unlike learners being regarded as passive learners in previous study (Liu, 2002), participants in the current study reported high and growing levels of L2 WTC in an online class. Moreover, this study finds out that students are more likely to derive enjoyment from the learning process and experience reduced levels of anxiety. Consequently, they are more likely to actively participate in English conversation within an online classroom setting. These findings further support earlier studies by verifying the impact of informal digital English learning on L2 WTC through L2 emotions (e.g., Lee et al., 2021; Lee & Hsieh, 2019; Fung, 2022).

The study also aimed to investigate the complex interactions between L2 enjoyment and L2 anxiety in the same context, while accounting for individual differences related to learner-internal and learner-external factors. Our study offers strong evidence that EFL learners are affected by various trait-like and state-like factors during their engagement in an online class. From a theoretical perspective, our findings demonstrate that MacIntyre et al.'s (1998) heuristic model can be expanded into an online teaching context. Methodologically, the current study shows that an idiodynamic method is a useful analytical approach through which one can comprehend the fluid and dynamic nature of L2 WTC in an online classroom. Our findings show that in some cases, both emotions work in tandem, whereas in others, they work independently. A closer examination reveals that the relationship between the two emotions is highly complex and dynamic, owing to independent or combined influences from learner-internal and learner-external factors.

Based on the results of this dissertation study, there are several suggestions to Chinese EFL teachers. First, prior to the first day of class, a teacher can provide a fundamental outline of an online platform, elucidating its features and functions. This can avoid EFL students from experiencing an emotional roller coaster at the start of an online class due to unfamiliarity with the platform. Second, teachers are encouraged to engage in sophisticated research on the preferred topics of their students and integrate them into instructional activities. An efficient approach would involve using the online teaching platform to send students a questionnaire or a quick multiple choice question to answer. The results would then be promptly and automatically displayed to both teachers and students. Third, in terms of task implementation, teachers must be adaptable and flexible. Fourth, depending on the level of familiarity of the students with the online class and their language levels, a teacher may consider implementing unpredictable, surprising, and challenging tasks to create positive vibes in an online class. Fifth, a teacher can foster a positive online learning environment by praising students and making good use of chatroom functions such as emoji and written comments. Sixth, teachers are recommended to promote peer encouragement and nurture a positive online learning environment. Finally, a teacher might allow beginning or reflective L2 students to have sufficient time to think and type their responses in a chatroom before presenting their thoughts verbally in the presence of other participants.

Summary of the Chapter

This chapter reviewed several challenges in the Chinese EFL context in the New Era. It also discussed potential strategies to address these challenges based on the results of the present dissertation study. Constructs such as L2 WTC, L2 emotions, and actual L2 use play a significant role in L2 teaching, especially in the Chinese EFL context. Several suggestions were proposed for Chinese EFL instructors to assist their students in improving their L2 enjoyment while reduce their L2 anxiety, enhancing their L2 WTC, and ultimately promoting their actual L2 use in an online class.

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Appendix A: Transcript of actual L2 use in spoken responses

Session No.	Spoken Responses	Name of Participants
1	Hello teacher I think in the western country the topics about age religion and the marriage situation should be avoided	Linda
	I heard medium sized market town quite near the mountains and maybe 10,000 People live here and most of people working in the sugar factory.	Emma
	I come from Chengdu City, and I think the most special food in my hometown is the hotpot. I think it's characterized by cooking while eating. You can add different soups and foods according to your preference. It's a good product in winter. I think it's very suitable for mountain climate and maybe that's all.	Anne
	My hometown Luzhou city. The special local dish is Luzhou white cake. And the Luzhou white cake is famous as a cake snake of the Han nationality is famous in Bashu for its beauty, tenderness, aroma, sweetness and the refreshments it has become a good breakfast food for all ages. Luzhou white cake snacks select high quality rice, white sugar oz man masters	Lucy

		sugar last as raw materials refined by sugar extraction method so the full name was masters law the sugar extraction white cake, okay, that's that's all.	
2		The first category refers to the people who are shy to strangers while the other quarters people and the latter refers to that some people may seem be easier to mingle with a new group of people	Anne
		Yeah, maybe we can call the former category as the Southwest I mean the Southeast Asia Culture? Yeah. A Southeast Asia well be very shy to talk to strangers sometimes happen in western country	Roy
		Hello. How's your life? Hi, how are you? very good. So do you have anything to do today? Yeah, and in afternoon I'll go into I go into the classroom who to go to the Translation Translation class. Only have the translation class. I don't know what means about as a compulsory and the translation course is our compulsory lesson.	Sophia
		we are having class in the classroom.	Roy
		We are in class to practices what we like. anything else? it is a club we are doing team project in the, maybe in the library. I'm	Jacky

		not sure. Maybe it is in the computer room? Because a computer there.	
		hello teacher, can you hear me? I usually I usually have the holiday classes and I need to attend the apartment conference because I joined the broadcasting apartment. And let me think, I think I'm not satisfied with our school's canteen because I think it's not taste good. And I think because our school is too old we even don't have the air conditioner in our dormitory. Yeah Yeah, I have I have a lot group project that I need to do that I need to finish and usually in the library and sometimes in the dormitory. Maybe nothing else interesting. Sometimes I will. I will do jogging in the playground with my roommates. Because I wanna lose my weight.	Emma
		In my college life, I have so many classes every day, sometimes I will be very busy with my class, and many tasks. But in my free time, I don't like to do the part time job, because I think it's so tiring. And it's unrealistic for me. Right? almost Every day I will rush to the canteen to eat down because I'm hungry. As a freshman of the college, I seldom do the experiments in the laboratory. And maybe I will go to the class to do the things what I like, and most of the time, I will do the team Project with	Linda

		my partners. And we always try my best. I always try my best to help them and finish a task perfectly. What's more, sometimes, I want to sign up for so many English contests, such as a national English competition for college students, because I love English so much. All in all, I think my college life is colorful, and we're really happy because there are so many friendly teachers and partners with me together. I have to rush to the canteen every day because if I'm late, the delicious food will die out.	
3		Okay. How about we going out for a movie tomorrow night. emm, absolutely. So what time do you prefer to go? which time suits you best. I think maybe 9 o'clock p.m. 9 o'clock in the evening. yeah. no it's not too late. What kind of movie do you want to watch. I like maybe I don't like emm. just American like Marval movies.	Jacky
		a good evening. emm. actually I don't know what kind of movie I like to watch. oh I'm not interested in Avatar. maybe I prefer movie on the screen called my sister recently. I like that one, we can go and watch that one. I like the star. I like the actress very much. Because she is a bit like me. How about we go tonight? yes of course. so what time? you think. maybe we	Emma

		should watch the movie at 7 thirty. oh I made a mistake. maybe I mean tomorrow. Ok?	
		I prefer the home cinema. why? because it's cheaper. if we go the movie theaters we will spend so much money and sometimes I will think it's expensive and I can't afford it. It's quite expensive like My sister worth like 30 kuai. I think it's not convenient for us to go out, so I'll choose to stay at home and watch some movies.	Linda
		I will read sentence number 4. Okay. A movie that makes you scream is a hornor. oh, maybe I should pronounce it horror because it's pronounced horrible.	Roy
		oh yeah my favorite movie is wolf warrior two. it is a patriotic movie. Wujing is both the director and the star of this movie. and I think the most special thing about this film is that it has the strong educational significance, I think this movie makes me very moved. and also, I think this movie makes me love my mother land more. It is It is happened between china and Africa I think. emm some some some countries	Anne
4		I want to choose diamond. Yeah, please, please let me see. I think it's very difficult for me to choose because there are many beautiful clothes and dresses when I shopping, and I think it's	Emma

		very difficult to choose one of them. I, I always emm confused. emm Maybe this one is suitable and the other is also suitable. So it's very, it's very difficult to choose one of them. And secondly, I think I will feel very tired when I shopping. Because I must work for a long time. And I can't even have a rest. Yeah.	
		I like shopping because I think maybe most of girls like shopping. And I think shopping can really make us be happy. I think so. And every time I'm in a bad mood, I like to go shopping and but something to Make myself to be happy. I think shopping is our best choice to change our our moods. I love shopping because because I think of no. I like shopping because I think shopping is	Anne
		Hello, teacher. I prefer to challenge. I prefer shopping alone. Because I go shopping with others. Someone will say, Why do you buy these? Sometimes? I will by so many English books that they can't accept the fact that I like English so much. At least. So high level. Sometimes I will make them sad. Because they don't like English as me. But I like English so much. almost every time I go shopping, I will buy some books for me. Unless I go shopping with a friend just like me, if she likes	Linda

	English too. because we can talk about what to buy? And what about prices maybe we can have more choice. Sometimes when I go shopping alone, I will have more personal space to make my own choices.	
	I think there are some differences between men and women in shopping is that we may well be that 90% of the stores in a shopping mall and compare with rock stars before making a decision, when they encounter the good they're like very much. While men will directly go to the stores. They have already liked to buy the good without any extra stop. Yeah. Thank you.	Jacky
	Oh, yeah, um, I will buy a, I will buy a T shirt and shoes. So may I know what kind of size you want. For the t shirt. It's just a small. The T shirt size is small. It's small size t shirt. Do you have any preferable color? I'm blue. You want blue t shirt? How about this one? Oh that's wonderful. I like it. Wow. is a wonderful? You like it is wonderful it is so. So it's worse like 289 qui is that okay. At 989 I'm sorry 200 Wow, I just think it's a little it's expensive for me. So can you give me a discount? Well discounts I'm sorry, we don't have the computing policy for discount right now. Maybe you can come around three days later to see whether we have a discount or not. Hold on, I can	Sophia

hear you clearly because my my network is not stable. Okay, so we don't have discount for now. Yeah, you can come back in three days to check if we have any compelling policy for discounts at that time. Okay, how about shoes? You I heard you want shoes? Which shoes do you like? Just sports though. sneaker. sneaker. sneaker? Yeah, right. Let me check Sneaker do you want this kind of sneakers? Yeah. All right. Okay. We don't have this time for now. I'm sorry. Okay. Well, do you want to buy anything else? Um, no, that's okay. You just go window shopping. That's all

Appendix B: Transcript of actual L2 use in written responses

Name of Participants	Session No.	Written Responses
Lucy	1	forbidden; I'm from…; yes; the traffic is terrible; yes
	2	I am in class; eat in the canteen; we do experiments in the laboratory; I go to the gym almost every day;
	3	I suffered poor internet connection; Third; because I can be more immersed in the movie when I see it in the cinema; A movie that makes you laugh is a comedy;
	4	A. supermarket B. Department C. convenience store D. outlet, E department store F. Retail shop；精品店；
Emma	1	politics; maybe gender? I don't know; yes; yeah; people are friendly there; she feels comfortable and safe; entertainment sports facilities; yes;
	2	Chinese culture? people are always feel shy; I am answering my teacher's questions; temporary job; go to the canteen; we need to do the experiments; we do exercises in the gym;
	3	sorry teacher my apologies; I have trouble with my network; I'm not willing to;
	4	2-b; 5-g; 1-e 2-b 3-d 4-f 5-g 6-c 7-a; 3-e 7-d 5-a 4-b 9-c 1-f；瓜子；零售店；

Linda	1	salary; I was born and grew up in; yes; sugar factory;
	2	talk with?; course; We're putting the books in order; we're waiting in line to choose food to eat;
	3	because the video said so; confirm: HD; yeah, I'm single too; oh my god, it's too complex;
	4	3D; 1E 2B 3D 4C 5G 6F 7A; I'm dizzy (emoj); 小卖部算不算？零售店；I also heard about retailers;
Sophia	1	yes; yeah;
	2	
	3	finally, 7%; 6 Sci-fi;
	4	4c; 1E 2B 3D 4C 5G 6F 7A; 4b 3e 5a 9c 1f 7d
Anne	1	I am from / I come from; yes; My hometown is Guangyuan city, the special local dish is "Liangmian". it's a food made of rice. It is steamed, polished and other steps. then plus some seasoning, especially garlic. we usually eat it and cook it as breakfast;
	2	join; the former shy to strangers;
	3	yeah; A film with cartoon characters is an animation; I've turned on my microphone already;
	4	7A; 1E 2B 3D 4C 5G 6F 7A; club?
Roy	1	I am from; yes;

	2	"hands up" button is not working for me; Answering the teacher's question; perform an experiment;
	3	HD; Cinema; Home; I think it's more convenient and flexible; single haha; 2 romance; The pursuit of happiness, let me learn to persist and dare to pursuit myself dreams; 当幸福来敲门;
	4	4c; 1e 2b 3e 4c 5g 6f 7a;
Jacky	1	I am/come from; Adele? yes; the old building is interesting; I come from Zigong. and the local specialty is spicy rabbit which is famous for its perfect color, taste and flavor; Ok
	2	Listen teacher and student's conversation; have dinner; eat in the canteen; café;
	3	yeah; ?; I can't hear you clearly; no?; HD; yep; my favorite movie is The Bold. It's a suspense drama; and, the film by HuiYinghong starred, told about the Tang House living in three different generations but the same understanding of the female people; by the Thang lady president over the over all situation, between the shuttle power and nobility, relying on excellent writhing and soft figure; and the complex political and business relations in the survival of profit
	4	1E 2B; I wanna choose spade of hearts but I want to have several minutes to prepare;

Appendix C: Pre-Survey and Post-Survey (Trait Level)

English Learning Questionnaire

<u>Part A Background Information</u>

What is your name? 您的姓名是？

What is your age? 您的年龄是？

Please indicate your gender? 您的性别是？1) male 男性, 2) female 女性

What do you consider to be your native or first language(s)? 您的母语或第一语言是？

What do you consider to be your second language(s)? 您的第二外语是？

How long have you been studying English? 您的英语学习持续了多少年？

1) 1-2 years (年)

2) 3-4 years (年)

3) 5-6 years (年)

4) 7-8 years (年)

5) 9-10 years (年)

6) More than 10 years (年)

Have you ever been to English speaking countries? If yes, how many years have you spent staying in the English speaking countries? 您有在英语国家生活的经历吗？如果有，有多少年的经历？

1) None （没有）

2) Less than 1 year （少于一年）

3) 1-2 years （1-2 年）

4) More than 3 years （3 年及以上）

How would you rate your English proficiency? 请给自己的英语水平打分：

1) 1, 2) 2, 3)3, 4)4, 5)5, 6)6, 7)7, 8)8, 9)9, 10)10

Please rate the familiarity with an online class on a five-point Linkert scale:

 1 = not familiar at all; 5 = very familiar

<u>Part B Willingness to Communicate (WTC) in using English to communicate (在课内课外，</u>

<u>包括面授课堂和网络课堂，使用英语的意愿程度)：</u>

*How much are you willing to communicate in English in this situation?

1. Definitely not willing; 2. Probably not willing; 3. Perhaps willing; 4. Probably willing;

and 5. Definitely willing

对于下列使用英语沟通交流的情况，请选择适合的选项（1-5）来描述你参与的意愿程度。1 = 绝对不愿意； 2 = 可能不愿意； 3 = 可能愿意； 4 = 比较愿意； 5 = 完全愿意。

Items English	Chinese
WTC in in-class environments	**面授课堂中使用英语进行交流的情况**
1. When you are given an opportunity to talk freely in an English class.	1. 当你有机会在英语课堂中自由发言的时候
2. When you have an opportunity to talk in front of other students in an English class.	2. 当你有机会在英语课堂中面对全班同学做陈述的时候
3. When you have a group discussion in an English class.	3. 当你有机会在英语课堂中参与小组讨论的时候
4. When you have an opportunity to make a presentation in front of a large group.	4. 当你有机会在英语课堂中在讲台上做演讲的时候
5. When you have an opportunity to explain in English your own culture to your classmates.	5. 当你有机会在英语课堂中对同学们介绍你熟知的文化习俗的时候
WTC in out-of-class environments	**面授课堂外使用英语进行交流的情况**
1. When you find your close foreign friend standing before you in a line at the café.	1. 当你在咖啡厅排队时发现站在你前面的人是和你关系亲近的外国友人的时候
2. When you find your foreign acquaintance standing before you in a line at the café.	2. 当你在咖啡厅排队时发现站在你前面的人是和你认识的外国友人的时候
3. When you and a small group of foreign friends engage in a discussion outside of school	3. 当你和一些外国友人在校外进行讨论的时候

4. When you have a chance to talk in a small group of strangers outside of school.	4. 当你在校外有机会和一些陌生的外国友人进行讨论的时候
5. When you have a chance to explain your own culture in English to other English speakers outside of school.	5. 当你在校外需要用英文向他人介绍本国文化的时候
WTC in digital in-class environments	**网络课堂中使用英语进行交流的情况**
1. When you are given an opportunity to talk freely during online English lessons.	1. 当你有机会在英语网络课堂中自由发言的时候
2. When you have an opportunity to talk in the presence of other students during online English lessons.	2. 当你有机会在英语网络课堂中面对全班同学做陈述的时候
3. When you have a group discussion during online English lessons.	3. 当你有机会在英语网络课堂中参与小组讨论的时候
4. When you have an opportunity to make a presentation in front of a large group during online English lessons.	4. 当你有机会在英语网络课堂中做演讲的时候
5. When you have an opportunity to explain in English your own culture to your classmates during online English lessons.	5. 当你有机会在英语网络课堂中对同学们介绍你熟知的文化习俗的时候
WTC in digital out-of-class environments	**网络课堂外其他网络平台上使用英语进行交流的情况**
1. When you have an opportunity to talk with non-native speakers of English (e.g., German and Chinese) on social media.	1. 当你有机会在社交媒体上与不是以英语为母语的外国人（如：德国人、中国人等）进行交流的时候
2. When you have an opportunity to talk with native speakers of English (e.g., American and British) on social media.	2. 当你有机会在社交媒体上与是以英语为母语的外国人（如：美国人、英国人等）进行交流的时候
3. When you have an opportunity to talk in English with other foreign fans in an online community (e.g., Tom Cruise, Lionel Messi, and Justin Bieber).	3. 当你有机会在网络论坛上与外国明星（如：汤姆克鲁斯、梅西、贾斯丁比伯等）的粉丝进行交流的时候
4. When you have an opportunity to talk in English with other game players.	4. 当你有机会和网络游戏中结识的外国网友进行交流的时候
5. When you have an opportunity to explain your own culture online in English to other English speakers.	5. 当你有机会在网络平台上向外国人介绍本国文化的时候

Part B Enjoyment in using English to communicate (在线课堂中使用英语的愉悦度)：

*Please respond to the following statements on a five-point Likert scale.

1. Strongly disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly agree

对于下列使用英语沟通交流的情况，请选择适合的选项（1-5）来描述你参与的意愿程度。1 = 完全不同意； 2 = 不同意； 3 = 基本同意； 4 = 同意； 5 = 完全同意。

Items English	Chinese
Enjoyment in digital in-class environment	网络课堂中英语学习的愉悦度
I don't get bored with English.	1. 我不觉得无聊。
I enjoy learning English on TengXun Ketang (SPOC class).	2. 我喜欢在腾讯课堂平台上进行的英语口语网课。
I can express myself better in SPOC class.	3. 我在英语口语网课中可以很自然地使用英语。
I performed well in English class.	4. 我在英语口语网课上总体表现很好。
In English class, I feel proud of my accomplishments.	5. 我为自己在英语口语网课上取得的成绩感到骄傲。
There is a good atmosphere in English class.	6. 英语口语网课的课堂氛围很积极。
I laugh a lot in English class.	7. 我在英语口语网课的课堂上经常笑。
Making errors is part of the English learning process.	8. 我认为在英语口语网课课堂学习过程中犯错误也是一种学习。
I can laugh off embarrassing mistakes in English.	9. 我可以对使用英语时犯的错误一笑而过。
The teacher is supportive and encouraging.	10. 我的英语老师可以给学生提供很多鼓励和帮助。

Part C Anxiety in using English to communicate (在线课堂中使用英语的愉悦度)：

*Please respond to the following statements on a five-point Likert scale.

1. Strongly disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly agree

对于下列使用英语沟通交流的情况，请选择适合的选项（1-5）来描述你参与的意愿程度。1 = 完全不同意； 2 = 不同意； 3 = 基本同意； 4 = 同意； 5 = 完全同意。

Items	English	Chinese
Anxiety in digital in-class environment		网络课堂中英语学习的焦虑度
Even if I am well prepared for the English class, I feel anxious about it.		1. 即使已经为英语口语网课做好了充分准备，我还是会感到焦虑。
I always think that the other students speak English better than I do.		2. 我总觉得其他同学的英语说得比我好。
When speaking English, I can get so nervous that I forget things that I know.		3. 当我说英语的时候，我会紧张到忘记准备好的说辞。
I am afraid that the other students will laugh at me when I speak English.		4. 当我说英语的时候我怕别人会笑话我。
I would feel nervous when I'm going to be called on in English class.		5. 在英语口语网课中，当老师点到我的名字需回答提问时，我会感到很紧张。
It embarrasses me to volunteer answers in English class.		6. 在英语口语网课中，需要主动回答问题时，我感到很尴尬。
I would feel nervous when I'm going to turn on the microphone to talk.		7. 当我需要开麦克风回答问题时，我会感到很紧张。
I would feel nervous when I'm going to type in words in the chatroom.		8. 当我在聊天室打字回答问题时，我会感到很紧张。