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Dynamicity of EFL learners' willingness to communicate in an online class

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ABSTRACT

This study used an idiodynamic method to investigate fluctuations in the level of willingness to communicate in a second language (L2 WTC) in an online class. Seven EFL university students took part in four online class sessions (each lasting 20 min). They rated their L2 WTC after each session while watching a video recording of their performance. Following that, stimulated recalls and semi-structured interviews were used to identify factors influencing moment-to-moment changes in their L2 WTC. The findings indicate that EFL learners' levels of L2 WTC are highly dynamic as a result of the combined influences of various trait-like (e.g. openness to a new online learning experience) and state-like factors (e.g. technical issues) factors during their participation in an online class. In practice, these findings indicate that L2 teachers can continue to play an important role in increasing students' active participation in an online classroom by creating a positive learning environment through affective, technical, and pedagogical supports. This study demonstrates, methodologically, that an idiodynamic method is a useful analytical approach for comprehending the fluid and dynamic nature of L2 WTC in an online classroom—an emerging L2 learning environment.

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Willingness to communicate in a second language (L2 WTC); online class; idiodynamic method; teacher support

Introduction

Willingness to communicate in a second language (L2 WTC), defined as 'a readiness to enter into discourse at a specific time with a specific person or persons, using an L2' (MacIntyre et al. 1998, 547), has been identified as a key predictor of L2 communication behaviour (Shirvan et al. 2019). Extensive research has shown that L2 WTC is not simply the result of stable trait-like characteristics such as age and gender, which are relatively consistent and enduring across time and situations. Rather, it is influenced by complex interactions among learners as well as a number of transient state-like factors in which the individual is embedded, such as teachers and classroom environment (Dewaele and Dewaele 2018). In this regard, a dynamic viewpoint, or fluid and dynamic process of L2 WTC, is gathering steam (Zhang, Beckmann, and Beckmann 2018). A dynamic perspective is conceptually aligned with complex dynamic systems theory in this paper (CDST; Larsen-Freeman and Cameron 2008; Talebzadeh, Shirvan, and Khajavy 2020). According to Larsen-Freeman (1997), L2 acquisition should be viewed as a developmental process. Thus, we can describe and trace the nonlinear, complex, dynamic, and unpredictable phenomenon of L2 learning through the lens of CDST (Hiver and Al-Hoorie 2020).

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As digital communication becomes more common in young people's daily lives, researchers in Teaching English to Speakers of Other Language (TESOL) and Computer Assisted Language Learning (CALL) have attempted to understand English as a Foreign Language (EFL) learners' L2 WTC in various digital contexts (Reinders and Wattana 2014). According to a dynamic system approach, EFL learners' L2 WTC in digital settings has recently been understood at both trait-like and state-like levels (Kruk 2019, 2021). Kruk (2019), for example, demonstrated how the L2 WTC of advanced Polish EFL adult learners was influenced by several factors (e.g. topics and interlocutors) during their communication in 'Second Life' (an online virtual world).

Despite a growing body of knowledge about L2 WTC in digital settings with EFL learners, two research gaps remain. First, while a dynamic system approach to understanding L2 WTC in face-to-face settings is gaining popularity, there is a dearth of dynamic system research on L2 WTC in digital settings (Kruk 2021). This is surprising given that L2 WTC has been found to be highly dynamic and unpredictable in digital contexts (Kruk 2019). In particular, despite the rapid proliferation of the online classroom in L2 learning environments, CALL researchers pay little attention to language learners' L2 WTC in an online class (Shirvan et al. 2019; Zhang, Beckmann, and Beckmann 2018). Second, previous studies of L2 WTC in digital settings (e.g. Kruk 2019, 2021) collected self-reported data from EFL learners. Although the data was collected shortly after the end of each session, the participants were susceptible to recall bias because their responses were based solely on their memories (Bradburn, Rips, and Shevell 1987). The idiodynamic method, or 'a new approach to studying the affective or cognitive states that accompany human communication' (MacIntyre 2012, 361), can address a limitation of this retrospective method. Hiver and Al-Hoorie (2020) also indicate, 'the idiodynamic method allows the CDST research to subject the phenomenon to sharp focus within a short timescale, using procedures that focus on the time-dependent variation within a single individual or unit' (226).

To address these gaps, this study seeks to adopt an idiodynamic method to investigate fluctuations in L2 WTC levels of Chinese EFL learners in an online class, guided by the research questions (RQ) listed below:

RQ1. Is there variation in the L2 WTC of participants in a single session of an online class and from one session to the next?

RQ2. What factors may have influenced the participants' L2 WTC fluctuations?

Literature review

Willingness to communicate in a second language (L2 WTC)

Early L2 WTC researchers investigated how stable trait-like characteristics might influence L2 communication (MacIntyre and Charos 1996). Thanks to MacIntyre et al.'s (1998) pyramid-type L2 WTC model, the initial trait-like perspective has been expanded. As shown in Figure 1, Layer VI (social and individual context) is at the bottom of the pyramid and focuses on trait-like and stable factors such as intergroup climate (e.g. international posture; Yashima 2002) and learner personality (e.g. openness to new experience; Piechurska-Kuciel 2018). Moving up the pyramid, Layer V (affective–cognitive context) and Layer IV (motivational propensities) represent a variety of intra-/inter-personal, social, and environmental variables in relation to L2 WTC. Personal factors such as anxiety, perceived L2 competence, and motivation are associated with L2 WTC (Ghonsooly, Khajavy, and Asadpour 2012; Shirvan et al. 2019). In particular, positive peer and teacher social support, as well as supportive relationships, have been shown to improve L2 WTC in EFL classroom settings (Khajavy et al. 2016; Lee, 2020; Peng and Woodrow 2010). The pyramid's top three layers represent immediate, momentary, and situational impacts on L2 WTC. Layer III includes situational antecedents such as situation-specific communicative self-confidence and desire to communicate with a particular person. According to the pyramid model, Layer VI, V and IV (relatively

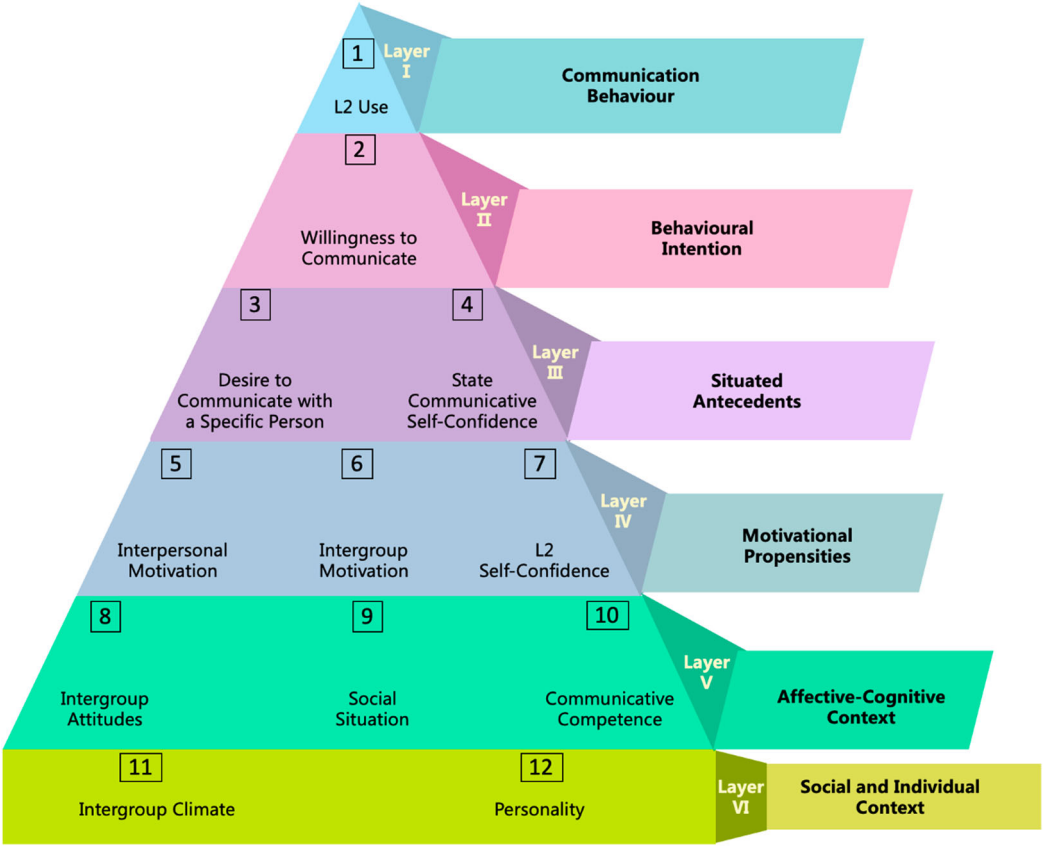

Figure 1. The pyramid model of L2 WTC (MacIntyre et al. 1998).

stable, distal, trait-like, and learner-internal factors) and Layer III (relatively transient, immediate, state-like, and learner-external factors) interact to influence Layer II (L2 WTC), resulting in Layer I (actual L2 use).

L2 WTC has been studied in several contexts, including ESL (Cao 2011), EFL (Dewaele 2019; Ghonsooly, Khajavy, and Asadpour 2012; Lee 2018), and multilingual contexts (Henry, Thorsen, and MacIntyre 2021a, 2021b). To date, researchers have provided extensive evidence that trait-like internal factors (e.g. L2 self-efficacy and L2 anxiety) and state-like external factors (e.g. teachers and social support) affect L2 WTC independently or collectively (Dewaele and Dewaele 2018; Dewaele and Pavelescu 2019; MacIntyre and Legatto 2011; see a meta-analysis in Shirvan et al. 2019; also see a systematic review in Zhang, Beckmann, and Beckmann 2018). A fluid and dynamic approach to understanding L2 WTC is gaining ground in the current literature (Dewaele and Dewaele 2020; Zhang, Beckmann, and Beckmann 2018, 2019). Regrettably, most existing studies have been conducted in face-to-face settings, and research on L2 WTC in digital settings has received little attention. Even less research has been done to understand L2 WTC in digital settings using a dynamic approach.

A dynamic perspective of L2 WTC in digital settings

With the advancement of technology and its increased affordances, digitally mediated L2 communication has become an increasingly important part of the daily lives of today's L2 learners (Ebadi and Ebadijalal 2020). In tandem with this changing L2 environment, TESOL and CALL researchers have

sought to understand whether and to what extent digital technology can influence language learners' L2 WTC levels. Digital games (Reinders and Wattana 2014), virtual reality (Ebadi and Ebadijalal 2020), and Google Assistant (a conversational AI chatbot; Tai and Chen 2020) have all been shown to improve EFL learners' L2 WTC levels. These studies suggest that digital technology functions (e.g. asynchronous and multimodal modes of communication) contribute to the creation of low affective-filter environments for EFL learners (e.g. decreasing levels of negative L2 emotions), thereby increasing their levels of L2 WTC. Such affective benefits, however, are scarce in traditional EFL classrooms (Reinders and Wattana 2014).

Kruk (2019) used one of the first dynamic approaches to investigate whether there is variability in L2 WTC in Second Life, in accordance with a dynamic system approach (Peng, Jager, and Lowie 2021). Kruk recruited two Polish students majoring in English, both of whom spoke English fluently. The participants took part in eight Second Life sessions and interacted with other English users via chat text or voice chat. Participants self-rated their L2 WTC levels immediately following the conclusion of each session. Both participants displayed fluctuating patterns of L2 WTC during a single Second Life session, as indicated by the average levels of L2 WTC at the beginning, middle, and end of the sessions. It was also reported that both participants' L2 WTC levels fluctuated from one session to the next. Qualitative data revealed that various factors such as avatar and interlocutor were constantly influencing L2 WTC levels. Kruk (2021) conducted a similar line of research with one female Polish student majoring in English. The female participant took part in 19 sessions of Second Life. Consistent with his findings from his 2019 study, Kruk (2021) concluded that L2 WTC is influenced by various factors such as interlocutors, topics, avatar, inadequate English skills, and the impact goes on constantly.

In relation to the Asian EFL context, Tai and Chen (2020) conducted a non-experimental mixed methods study on the impact of Google Assistant on 112 EFL secondary students in Taiwan. Participants interacted with Google Assistant on a variety of tasks during the intervention period. The quantitative findings revealed that Google Assistant significantly improved the participants' L2 WTC. Despite the fact that this study did not take a dynamic system approach, qualitative data revealed that L2 WTC in digital environments is influenced by a variety of factors, such as Google Assistant interactive features and unfamiliarity tasks. Lamently, unlike Kruk's studies (2019, 2021), Tai and Chen (2020) did not explicitly show fluctuating trends of L2 WTC levels in a digital setting.

Online class as an emerging L2 learning environment

As technology has advanced, online classes have become more common in educational settings, allowing for greater accessibility and affordance for learning (Fraschini and Tao 2021). In this study, an online class is defined as a digital environment in which a teacher and students can interact synchronously, such as through live-streamed lectures or writing in a chat window (e.g. Zoom). Thus, asynchronous online teaching that does not occur in real time (e.g. a pre-recorded video lecture) is not of interest in the current study. During the current COVID-19 pandemic, this type of online class has become increasingly popular in the field of L2 teaching and learning (Derakhshan et al. 2021; Li and Dewaele 2021; Moser, Wei, and Brenner 2021). Thus, contemporary L2 learners spend a significant amount of time (e.g. 30 h or more per week) taking lessons and interacting with teachers and classmates in a virtual classroom, such as Zoom, Microsoft Teams, Google Hangouts, and Tencent Classroom (Moser, Wei, and Brenner 2021).

Regrettably, despite the rapid expansion of the online classroom in L2 learning environments, online L2 educators do not have as much information about language learners' L2 WTC as face-to-face language educators do (Shirvan et al. 2019). This is an important issue because, just like in a traditional face-to-face classroom, L2 learners in an online classroom are heavily influenced by a variety of factors (Derakhshan et al. 2021). Furthermore, there has been little research examining L2 WTC in an online class from a dynamic perspective up to this point (Kruk 2019, 2021). Van Le, Cunningham, and Watson (2018) gathered interview data to investigate the L2 WTC of

Vietnamese EFL students in an online class (e.g. Skype). This qualitative method, however, was unable to account for the variability (or dynamic nature) of L2 WTC in an online class. Derakhshan et al. (2021) recently observed Iranian EFL learners in an online class from a dynamic standpoint. Unfortunately, they only examined the 'boredom' trajectory and did not examine the L2 WTC. Furthermore, there is room for methodological improvement in Kruk's (2019, 2021) studies on the dynamic perspective of L2 WTC in online settings. That is, because the participants' responses were primarily based on their memories, the self-reported data was susceptible to recall bias (Bradburn, Rips, and Shevell 1987). This methodological challenge is expected to be addressed by the current study's use of an idiodynamic method (see Method). In light of these research gaps, and in order to further this line of research, this study aims to use an idiodynamic method to investigate fluctuating levels of L2 WTC among EFL learners enrolled in an online class.

Method

Participants and context

Participants were invited to attend four sessions of an online class during the 2020–2021 academic year (each lasting for 20 min). Seven Chinese EFL students enrolled in a public vocational college took part in the study (Table 1). They had been studying English for more than 10 years, with no overseas experience. Their English levels ranged from intermediate to advanced based on an instructor's discretion and the participants' self-rated English proficiency (Council of Europe 2016). All participants were asked to rate their frequency of attending an online class based on their prior learning experience, and five of the seven students (more than 70%) reported a lower-than-average self-rated familiarity with an online class. Since we adopted the idiodynamic method, the investigation took place in a laboratory-style online class via Tencent Classroom (Teng Xun Ke Tang in Chinese), a popular online educational platform in Mainland China (MacIntyre and Legatto 2011; UNESCO n.d.).

Online class procedures and L2 tasks

At the pre-task stage (for two minutes), students reviewed the previous lesson by answering teacher-led questions. At the during-task stage (for 15 min), three or four activities were implemented based on session topics (Table 2). With the hope of generating fluctuations in L2 WTC, each lesson began with easy tasks (e.g. describing pictures), then mixed difficult tasks (e.g. expressing opinions; MacIntyre and Legatto 2011). Students completed a self-evaluation sheet and reflection log during the post-task stage (three minutes).

Research procedure and data collection

An announcement on an online university platform was used to recruit participants. They were informed about the study's nature, including its objectives, procedures, and the benefits and

Table 1. Characteristics of the participants.

Name (Pseudonyms)	Age	Gender	English proficiency	Familiarity with an online class (1 = lowest to 5 = highest)
Emma	20	Female	C1	1
Sophia	20	Female	B2	2
Roy	21	Male	B2	3
Anne	21	Female	B1	2
Lucy	21	Female	C1	3
Jacky	20	Male	B1	2
Linda	20	Female	B2	1

Note: English proficiency was rated based on The Common European Framework of Reference for Languages.

Table 2. Topics and main activities.

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 theatre. 2. Retell the conversation to their peers. 3. Discuss their favourite movie(s) and why they like them. 4. Introduce their favourite 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.

risks of participating in the research. Following the participants' consent, the second author taught the online lessons while collecting data using the idiodynamic method (MacIntyre and Legatto 2011). The following are the specifics of data collection (Figure 2):

a. ***Video recordings*:** In all four sessions, the oral and written performances of individual participants, as well as the dyadic and group interaction between the teacher and students during pair/group work and impromptu speech, were video recorded. The four sessions' video recordings were posted to a QQ group, a virtual online classroom where the teacher and students exchanged messages and shared teaching materials and other resources.
b. ***Self-reported ratings:*** While watching a video recording of their performance, participants were requested to self-rate their level of L2 WTC in an excel spreadsheet on a scale from −5 to 5 and on a minute basis.
c. ***Stimulated recalls and interviews:*** Stimulated recalls and semi-structured interviews were conducted concurrently for further analysis. Stimulated recalls were conducted using video data to 'prompt participants to recall thoughts they had while performing a task or participating in an event' (Gass and Mackey 2002, 17). After being asked to watch the video recordings, the participants met with the second author and shared what they had done and felt during each session. The participants were asked to stop watching the recorded videos at any time when certain factors had affected the ups and downs of the changes in their L2 WTC levels. If necessary, the researcher followed up with questions for elaboration (e.g. Can you tell me more in detail?) or clarification (e.g. Is that what you meant?).
d. ***Observation field notes:*** The second author observed the classroom interaction. The investigator took notes in the notebook at the end of each session if observation data were related to the causes of sudden increases or decreases in L2 WTC.

Figure 2. Procedures and steps of the idiodynamic method.

Data analysis

To answer Research Question 1, participants' self-reported L2 WTC values were calculated on a minute basis to show the dynamicity of their L2 WTC for each session. Several steps were taken to respond to Research Question 2. The second author began by trancribing stimulated recalls and interview data in English. Second, the transcription's accuracy was confirmed by returning the transcribed material verbatim to the participants. Third, the researchers read through all transcripts several times to familiarise themselves with the data. Fourth, the researchers performed preliminary coding and proposed draft themes that described factors influencing L2 WTC fluctuations. Fifth, one experienced TESOL researcher was invited as an external coder, and the second author and one external coder independently analyzed the transcribed data using open coding.

Sixth, while filtering out extraneous data, both coders chose frequently recurring themes for axial and selective coding. When a discrepancy arouse between the coders, they discussed the disagreement until a consensus was achieved. Both coders continued this coding process until they reached more than 90% of inter-coder reliability (Cohen's $\kappa = .90$). Seventh, the first and second authors juxtaposed the identified themes using four principles of MacIntyre et al.'s (1998) model. For instance, the sub-themes (2nd order concept), such as 'openness to a new online learning experience,' were grouped into main themes (1st order theme), titled 'Layer VI: social and individual context.' However, because the pyramid model was developed for WTC in an ESL context, it does not specifically consider certain factors influencing L2 WTC in an EFL classroom, such as teacher and peer support. As a result, we also refer to EFL-based L2 WTC models for analysis and interpretation (Khajavy et al. 2016; Peng and Woodrow 2010). Lastly, the main themes, sub-themes, and relevant excerpts that reflect the final coding structure were compiled and are presented in the Results section.

Results

Dynamic nature of L2 WTC in an online class

Session 1

Figure 3 showed fluctuations in the levels of L2 WTC for the seven participants in the first online class session. Changing patterns for Lucy and Linda were particularly noticeable, as both participants had high levels of L2 WTC at the outset while continuing to drop to −5 point, the lowest level of L2 WTC. Interestingly, most of the participants' L2 WTC dropped in varying degrees during a span of 11–17 min.

Table 5. Factors affecting fluctuations in L2 WTC.

Layers	Main themes	Sub-themes	N	Sum
III	Situated Antecedents	1. Nonverbal and virtual affective support	5	10
		2. Learning stimuli	3	
		3. Technical difficulties	2	
IV	Motivational Propensities	1. L2 self-efficacy	6	6
V	Affective-Cognitive Context	1. Topic knowledge	7	40
		2. Teacher's use of wait time	6	
		3. Peer stimuli	5	
		4. Using playback videos	4	
		5. Peer encouragement	4	
		6. Game-embedded activities	4	
		7. Inadequacy of vocabulary	4	
		8. Teacher recognition	3	
		9. (Un)familiarity with the interlocutors	2	
		10. (Un)familiarity with an online platform and its functions	1	
VI	Social and Individual Context	1. Openness to a new online learning experience	7	7

Note: Layers = Pyramid Model Layers; N = the number of statements; Sum = the sum of the N.

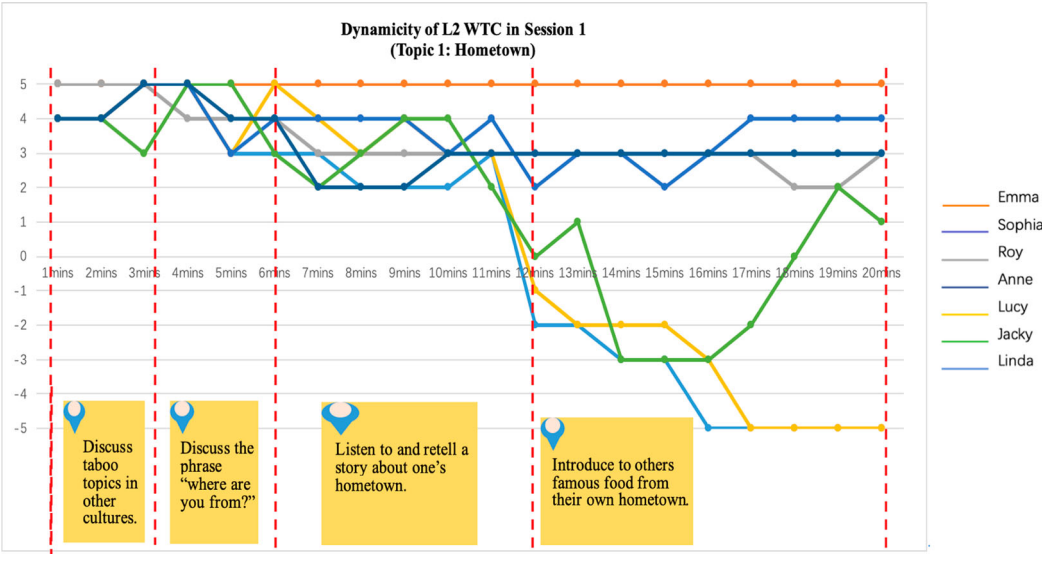

Figure 3. Fluctuations in the levels of L2 WTC in Session 1.

Session 2

As shown in Figure 4, most participants ($n = 6$) exhibited fluctuating trends of L2 WTC levels throughout the second session. However, as opposed to Session 1, none of the participants rated below zero on an L2 WTC level. Moreover, all indexes moved between 2 and 5, which exhibited less fluctuation patterns than those from the first session (between −5 and 5). This suggests that a trajectory of L2 WTC in the second session seemed more stable and less turbulent than in the previous session.

Session 3

As seen in Figure 5, all participants maintained high and stable levels of L2 WTC throughout the third session. At first glance, L2 WTC levels, particularly in the cases of Lucy, Sophia, and Anne, appeared to go up and down. On closer inspection, these fluctuation trends (between 3 and 5)

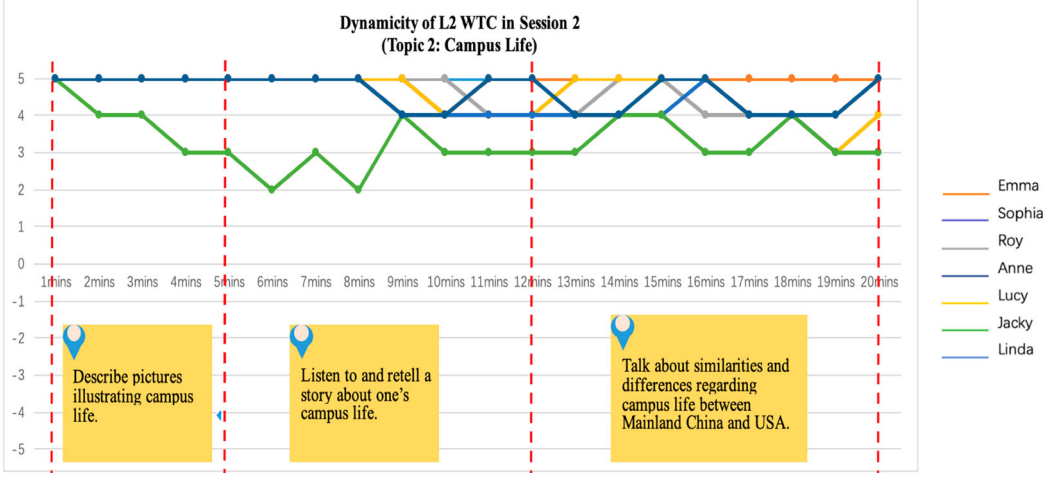

Figure 4. Fluctuations in the levels of L2 WTC in Session 2.

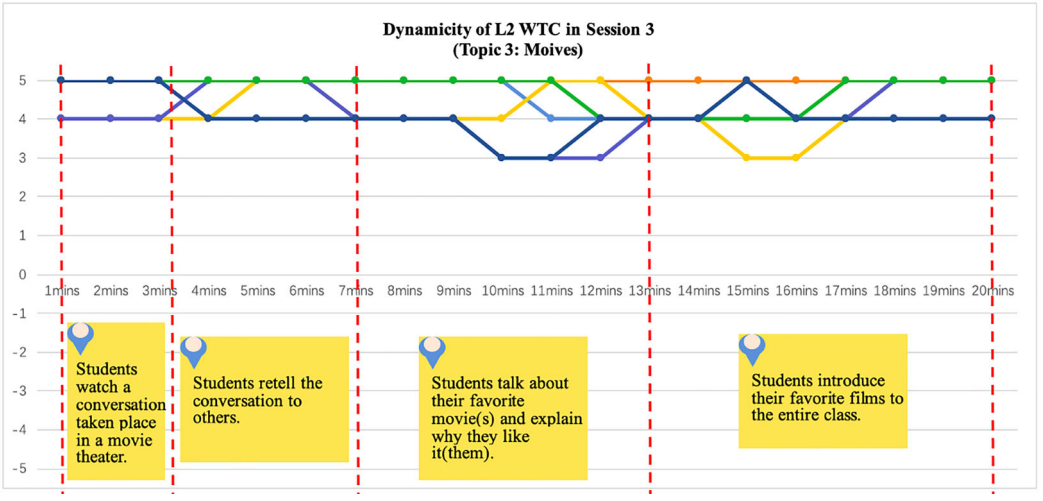

Figure 5. Fluctuations in the levels of L2 WTC in Session 3.

were more stable than those in the first (between −5 and 5) and second sessions (between 2 and 5). Surprisingly and interestingly, Jacky exhibited higher and more stable levels of L2 WTC (between 4 and 5) during the third session, which was different from those in the first (oscillating between −3 and 5) and second sessions (between 2 and 5).

Session 4

As shown in Figure 6, L2 WTC levels moved mostly between 4 and 5 points throughout Session 4. Evidently, the participants demonstrated the most stable patterns of L2 WTC in Session 4, the last of four sessions.

Variation in the levels of L2 WTC from session 1 to session 4

Table 3 summarises the mean and standard deviation values of each participant's L2 WTC ratings for each session and across all four sessions. These results indicate that the levels of L2 WTC changed from highly fluctuated to highly stable as the sessions progressed.

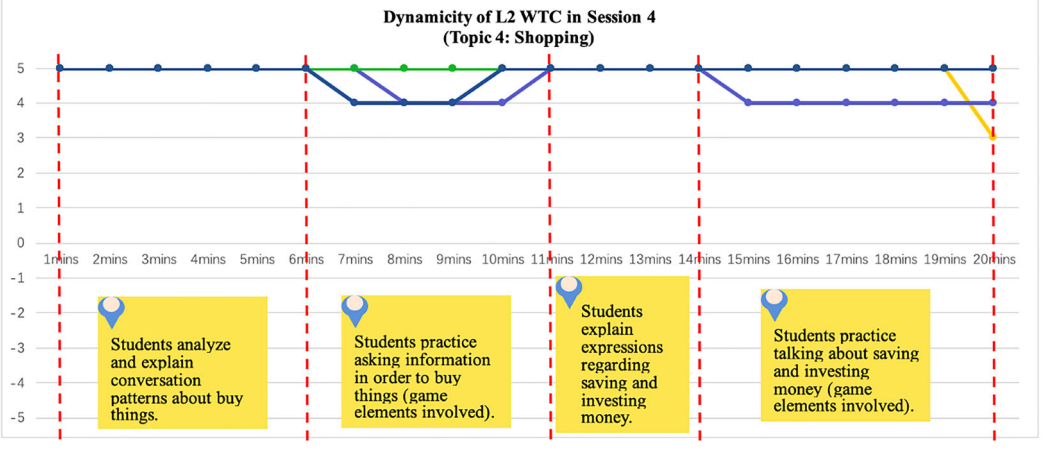

Figure 6. Fluctuations in the levels of L2 WTC in Session 4.

Table 3. L2 WTC Mean and Standard Deviation (SD) for four online class sessions.

Name		Session 1	Session 2	Session 3	Session 4
Linda	Mean	0.15	5.00	4.50	5.00
	SD	3.96	0.00	0.51	0.00
Emma	Mean	5.00	4.95	5.00	5.00
	SD	0.00	0.22	0.00	0.00
Roy	Mean	3.35	4.65	4.55	5.00
	SD	0.88	0.49	0.51	0.00
Lucy	Mean	0.65	4.60	4.25	5.00
	SD	3.90	0.60	0.64	0.00
Sophia	Mean	3.65	4.35	4.15	5.00
	SD	0.81	0.67	0.67	0.00
Jacky	Mean	1.60	3.30	4.75	5.00
	SD	2.66	0.73	0.44	0.00
Anne	Mean	3.25	4.65	4.10	5.00
	SD	0.85	0.49	0.55	0.00
Total	Mean	2.52	4.50	4.47	5.00
	SD	2.86	0.73	0.59	0.00

Furthermore, we examined within-person changes by comparing participants' L2 WTC levels between the first and last session using paired sample *t*-tests. Table 4 shows that the L2 WTC levels of all participants differ significantly, with the exception of Emma, whose data could not be computed due to consistent patterns of L2 WTC across all sessions.

Factors affecting fluctuations in L2 WTC

In this section, we highlight factors that have a significant impact on fluctuations in L2 WTC levels for each session and throughout the entire online session.

Session 1

- *Technical difficulties (Layer III)*: 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 turn on the microphone to speak.' Emma also stated, 'I couldn't talk because I had a bad Internet connection during the class.'
- *Inadequacy of vocabulary (Layer V)*: 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. I can think of some ideas, such as architecture, scenic spots, and local food, but I don't really know how to articulate them in English.' Lucy echoed Jacky's comment: 'When I think of my hometown, I can only say 'It is beautiful.' I do want to introduce some of its famous scenic spots or traditional culture, but I don't know how to talk about them in details because I cannot think of any proper English expressions.' Linda also stated, 'I don't want to talk in class because I am afraid I won't be able to speak fluently due to a lack of vocabulary.'
- *(Un)familiarity with the interlocutors (Layer V)*: Linda commented that unfamiliarity with the interlocutors (e.g. a teacher and classmates) and the teaching environment (e.g. teaching

Table 4. Paired differences between the first session and the last session for individuals.

Name	Mean	SD	*t*	df	*p*
Linda	−4.85	3.96	−5.47	19	<.001
Roy	−1.65	0.88	−8.43	19	<.001
Lucy	−4.25	3.77	−5.04	19	<.001
Sophia	−0.90	0.91	−4.41	19	<.001
Jacky	−3.40	2.66	−5.71	19	<.001
Anne	−1.30	0.73	−7.94	19	<.001

style) made her hesitant to initiate English communication: 'I was silent because I was not familiar with a new instructor, her teaching style, and classmates … I don't want to talk when I am not familiar with the teacher and classmates.'
- *Openness to a new online learning experience (Layer VI)*: All participants ($N = 7$) indicated that openness to a new online learning experience (personality) had a positive effect on their L2 WTC. Sophia commented, 'I would like to try different ways to learn English.'

Session 2

- *Nonverbal and virtual affective support (Layer III)*: In an online classroom, students can send emoticons to their classmates. Roy emphasises the importance of virtual emotions in improving his L2 WTC: 'Seeing flowers or thumbs-up icons can let me know that others like my idea and that I'd like to discuss it further the next time we meet.'
- *Learning stimuli (Layer III)*: Among 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 interesting experience about a college life, so I had nothing to share with others about this topic.' 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:I think I am more like a visual person. When I saw the photos of students having classes in the classroom, reading in the library, eating in the canteen, and meeting friends in the café, I suddenly wanted to talk about my similar experience. I am also studying photography right now. So, I believe that's why those photos caught my eyes, which made my mouth open.
- *(Un)familiarity with online platform and its functions*, *peer stimuli,* and *peer encouragement (Layer V)*: Lucy stated, 'My classmates' encouragement also drives me to talk in class.' Linda exhibited the most changing patterns of L2 WTC in Session 1. Linda commented, '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.' In stark contrast, she became more active, and maintained stable patterns of L2 WTC throughout the second session. According to Linda:Emma explained the functions of the platform to me explicitly after the first session. So, I came to understand how to use those functions properly when engaging in different tasks. I felt more relaxed and free to talk since I got to know more about the teacher and her teaching style. Besides, Emma also encouraged me to talk more … I liked the class atmosphere most. It made me more willing to engage in the class.

Session 3

- *Teacher's use of wait time and teacher recognition (Layer V)*: Emma said, 'My teacher always allows me to think and reorganise my thoughts and words. It encourages me to think and speak more.' Roy and Anne also mentioned how teachers' pedagogical (e.g. patiently waiting for their responses) and affective support (e.g. recognising their efforts) helped them achieve and maintain high levels of L2 WTC. According to Roy and Anne:What makes me feel most satisfied is when I realized that my teacher acknowledged my ideas as good ones. This made me want to engage more in talking in class … .The teacher never stopped me from thinking or talking, even when I suddenly found no words to express my ideas. My teacher always gave me time to think and organize my ideas and words. It encouraged me to think and talk more.
- *Topic knowledge (Layer V)*: Emma said, 'I would like to talk more if the topic interests me.' Jacky also mentioned how his favourite topic (e.g. movies) helped him improve his L2 WTC level.: 'I

love watching movies because it is fun and helps improve my English. I have so many things to talk when I see this topic.'

- *Using playback videos (Layer V)*: In an online classroom, teachers provided lecture recordings for students to review, allowing them to focus on communicating with others. According to Anne, '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.'

Session 4

- *An increase in L2 self-efficacy (Layer IV)*: When compared to previous sessions, participants demonstrated the most stable patterns of L2 WTC. The majority of participants reported increasing L2 self-efficacy as they gained more online learning experience and practiced English with others. Emma stated, 'I love communicating with others because I am very confident with my English.' According to Roy:I enjoyed learning English in this online class. The more I engaged myself in the class, the more confident I became in communicating in English. I learned a lot not only from my teacher, but also from my classmates. I became more willing to talk with others and, most importantly, I learned how to talk with others in English with ease and confidence.
- *Game-embedded activities (Layer V)*: Several participants talked about the pedagogical benefits of games that were used during this session. A teacher designed and integrated games in Session 4. For instance, Jacky stated, 'Games pique my interest, and playing games can help me become more involved in talking.' According to Anne and Sophia:Compared to tasks like fill-in-the-blank questions, I love doing the matching game. It was much more fun to me because I could become easily familiarized with more vocabulary. It also helped me to expand my word bank … I became more eager to talk in class because I wanted to become the first one to share my answer. I knew I would want to win the game. I didn't mind speaking English with improper words and expressions.

Throughout the entire online session

As shown in Table 5, we used four tenets of MacIntyre et al.'s pramid model to summarise all factors influencing fluctuations of L2 WTC over the course of the online session. We also compute the total number of statements. Layer V-related factors were extensively discussed by participants ($N = 40$). The most frequently mentioned factor was teacher affective and pedagogical support, which included things such as patiently waiting for students' responses ($n = 6$), using playback videos ($n = 4$), game-embedded activities ($n = 4$), and recognising students' efforts ($n = 3$).

Cases of two participants from a dynamic perspective

Here, we present a contrasting case of two participants (Linda and Emma), guided by a dynamic perspective. We specifically reported factors that accounted for L2 WTC up-and-down patterns (Linda) and stable patterns (Emma). Linda and Emma had a lot in common. Both female EFL students (20 years old) were born and raised in Mainland China and had no prior international experience. Both participants had primarily learned English through the formal school system. They both rated their familiarity with an online class as '1 (lowest)' on a five-point Likert scale, indicating that they had very little experience with one.

However, Linda appeared shy and introverted based on class observations, whereas Emma appeared outgoing and excited to meet new people in a new learning environment, such as an online class. Linda's L2 WTC levels fluctuated significantly, whereas Emma maintained consistent patterns of L2 WTC. Specificially, Linda's L2 WTC levels oscillated between −5 and 5 (Session 1) and 2 and 5 (Session 2) due to the combined influences of MacIntyre et al.'s (1998) Layers VI, V, and III, as summarised in Table 6. In contrast, Emma maintained the

Table 6. Linda's reasons for fluctuating patterns of L2 WTC.

L2 WTC	Reasons for the fluctuating patterns	Session	Layers
	Peer encouragement Teacher recognition More familiarity with an online platform More familiarity with functions of an online platform More familiarity with an instructor and her teaching style Peer stimuli (Positive, friendly and active learning atmosphere)	2	V
	Technical difficulties	1	III
	Lack of vocabulary Unfamiliarity with an online platform and its functions Unfamiliar with the interlocutors, such as a teacher and classmates	1	V
	Personality (shy and introverted)	1	VI

Note: Layers = Pyramid Model Layers

Table 7. Emma's reasons for stable patterns of L2 WTC.

L2 WTC	Reasons for the stable patterns	Session	Layers
	Technical difficulties caused by a poor Internet connection (but her L2 WTC was not affected due to her positive personality)	1	III
	L2 self-efficacy (believing in her ability to communicate effectively in English in an online class)	1,2,3,4	IV
	Topic knowledge (interesting topics facilitate her to talk more) Familiarity with an online platform and its functions (holding more positive attitude toward an online class over time) Familiarity with the interlocutors (constantly experiencing positive interpersonal interactions with teacher and classmates)	1,2,3,4	V
	Openness to a new online learning experience Personality (Outgoing and easy to talk with)	1,2,3,4	VI

highest level of L2 WTC (5 point) from Session 1–4 despite potential influences from Layers VI, V, IV, and III (see Table 7).

Discussion

Concerning the first research question, all participants, except Emma, showed fluctuating trends of L2 WTC in an online class. This finding is congruent with previous research, which showed rise-fall patterns of EFL learners' L2 WTC levels in an online environment (Kruk 2019, 2021). This suggests that L2 WTC in an online classroom is also highly dynamic and unpredictable. However, unlike previous studies that only examined one or two advanced Polish EFL learners' L2 WTC in Second Life (Kruk 2019, 2021), this research involved more and new EFL participants with diverse proficiency levels (ranging from intermediate to advanced). Additionally, a dynamic perspective on L2 WTC has been mostly conducted in classroom settings (Sato and Lam 2021), lab conditions (MacIntyre and Wang 2021), and a digital lab setting (Kruk 2019, 2021). To our knowledge, our study is the first that has been conducted in a laboratory-style online class from a dynamic perspective. This is a timely and important addition to the literature on L2 WTC and CALL because an online classroom is increasingly becoming a common environment for L2 learning. From the standpoint of methodology, contrary to previous studies that used a retrospective self-reported questionnaire (Kruk 2019, 2021), the participants in the present study self-rated their L2 WTC levels while watching a video recording of L2 performance. Visual aids or cues of this type have been found to improve recall accuracy as well as the accuracy and reliability of collected data (MacIntyre and Legatto 2011). In this regard, the idiodynamic method used in the study contributes to overcoming this previous methodological limitation.

With respect to the second research question, we identified four main themes (with 15 subthemes) that contributed to the observed ups and downs of L2 WTC in an online class. On further

analysis, we found that these findings are aligned with MacIntyre et al.'s (1998) Layers VI, V, IV, and III. This suggests that MacIntyre et al.'s (1998) heuristic model can explain L2 WTC in an online classroom from a theoretical perspective. For instance, all participants ($N = 7$) pointed to the positive effect of openness to a new online learning experience in boosting their L2 WTC. This finding is in line with previous research, which reported openness to a new experience as a positive contributor to L2 WTC among EFL secondary school learners (Piechurska-Kuciel 2018). This suggests that EFL learners who are open-minded toward new ways of learning English (e.g. learning in an online platform) tend to become more willing to communicate in English in an online class.

Interpersonal factors such as peer stimuli and peer encouragement, as well as intrapersonal factors such as topic knowledge and vocabulary inadequacy (Layer V: affective–cognitive context), were found to improve students' L2 WTC. These findings are consistent with previous research that found topic knowledge and vocabulary knowledge to play either facilitative or inhibitive roles (Cao 2011; MacIntyre and Wang 2021).

Furthermore, participants extensively discussed teacher affective and pedagogical support, such as patiently waiting for students' responses, using playback videos, game-embedded activities, and recognising students' efforts. These findings are consistent with previous research that has found a positive relationship between L2 WTC and teachers' affective and pedagogical support (Dewaele 2019; Dewaele and Dewaele 2020; Peng 2019), familiarity with interlocutors and their support (Cao 2011; Kruk 2021), and a positive learning environment (Dewaele 2019; Khajavy et al. 2016; Khajavy, MacIntyre, and Barabadi 2018; Peng 2019). This suggests that whether in a face-to-face or online classroom, teacher support is critical for EFL students (Khajavy et al. 2016; Peng and Woodrow 2010). It appears plausible that if a student reports feeling positive and observes others' active participation in an online class, these positive vibes can be 'caught,' leading to active behaviours in an online class (Dewaele and Li 2020). This assumption could be explained by a phenomenon known as 'L2 emotional contagion' (Talebzadeh, Shirvan, and Khajavy 2020). According to the theory of L2 emotional contagion, emotions like happiness, enjoyment, and anxiety are highly contagious between a teacher and students or among students, and this can affect language learners' positive or negative group interactions (Dewaele and Li 2020; Jiang and Dewaele 2019; Li, Jiang, and Dewaele 2018; Moskowitz and Dewaele 2019). Recent empirical research has also found that teacher support (e.g. integrating multimodal pedagogies) is significantly related to fostering a positive learning environment, which in turn contributes positively to the L2 WTC of EFL learners (Peng 2019).

Students became more confident in speaking English as the online class progressed (Layer IV: motivational propensities), which contributed to improving students' L2 WTC in an online class. This finding is consistent with the findings of MacIntyre and Wang (2021), who found that when students described a meaningful photo from a family trip, they became more confident in using L2, which increased their L2 WTC. Based on the findings of MacIntyre and Wang (2021), it appears possible that Layer IV (e.g. teacher pedagogical supports by selecting an interesting and meaningful topic such as movie and shopping) may positively affect Layer IV (e.g. L2 self-efficacy), which in turn influences Layer II (e.g. L2 WTC in an online class).

In an online class, virtual and nonverbal affective supports (e.g. receiving virtual flowers or sending thumbs-up emoticons to classmates) and learning stimuli (e.g. seeing photos related to a topic or task) in Layer III (situated antecedents) were found to directly and positively affect students' L2 WTC. These findings are consistent with previous research that found positive effects of interlocutor support and visual learning stimuli (Kruk 2019, 2021; MacIntyre and Wang 2021). In contrast, students' L2 WTC was found to be reduced by technology-related issues such as unfamiliarity with online platforms and their functions or technical glitches. Derakhshan et al. (2021) found that technical issues (e.g. Internet connection and audio/microphone issues) elicited negative emotions (e.g. frustration, anxiety, and boredom) in Iranian EFL learners. Furthermore, it is well established that negative L2 emotions, such as anxiety, reduce EFL learners' L2 WTC in face-to-face and online

communication settings (Khajavy, MacIntyre, and Barabadi 2018; Kruk 2019, 2021; Reinders and Wattana 2014). Taken together, it appears likely that interlocutors who express positive emotions (equivalent to 'desire to communicate with a specific person') or a sudden spike in L2 anxiety due to technical issues (equivalent to 'state communicative self-confidence') can influence L2 WTC in an online class.

Guided by a dynamic perspective, we further analyzed the data by identifying factors that could explain up-and-down patterns of L2 WTC (the case of Linda) and stable patterns of L2 WTC (the case of Emma). For instance, Linda and Emma shared much in common (age, length of learning English, and familiarity with an online class). However, Linda's levels of L2 WTC fluctuated highly (e.g. oscillating between −5 and 5 points) due to the joint influences of Layer VI (e.g. shy and introverted), Layer V (e.g. lack of vocabulary, peer encouragement and teacher recognition), and Layer III (e.g. technical difficulties). In contrast, despite potentially negative effects from Layer III (e.g. technical difficulties caused by a poor Internet connection), Emma were able to maintain the highest level of L2 WTC (5 point) from Session 1 to Session 4 due to the combined influences of Layer VI (e.g. outgoing personality and openness to a new online learning experience), Layer V (e.g. topic knowledge and familiarity with the interlocutors), and Layer IV (e.g. L2 self-efficacy). Clearly, Emma's L2 WTC was unaffected by technology-related issues (during Session 1), in contrast to Linda, whose L2 WTC was rapidly and negatively affected by this transient state-like factor (during Session 1). This suggests 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, such as interlocutors (e.g. a teacher and classmates), learner knowledge, and technical issues. This also implies that a dynamic system perspective is an effective analytical approach for comprehending the fluid and dynamic nature of L2 WTC in an online classroom (MacIntyre et al. 1998; Kruk 2019).

Pedagogical Implications

Our findings shed light on how language learners must respond dynamically to a plethora of trait-like (e.g. personality) and state-like (e.g. technical glitches) factors during the course of an online course. L2 WTC, in particular, fluctuated a lot during Sessions 1 and 2. However, a more stable pattern of L2 WTC was observed during Sessions 3 and 4, mainly due to teacher-related factors, such as adequate support from a teacher. Our findings revealed that a teacher's pedagogical and technical support was the most frequently mentioned factor that played a positive role in boosting students' L2 WTC. As a result, we advise teachers to provide pedagogical support by selecting interesting and familiar topics, incorporating game activities into L2 tasks, providing learning stimuli (e.g. photos), and uploading recorded online lessons into their respective learning management systems.

A teacher's affective support was the second most frequently mentioned factor. Teachers are encouraged to provide affective supports by verbally or visually recognising students' efforts, using emoticons (e.g. a thumbs-up emoji), assisting students in feeling connected with a teacher and other classmates, and patiently waiting for their responses during an online lesson. Our findings also show that EFL learners were more likely to participate in an online class after they developed a positive relationship with their classmates and believed their classmates would respond positively. Taking this into consideration, teachers should encourage peer encouragement and cultivate a positive online learning environment. Overall, our findings indicate that L2 teachers continue to play an important role in fostering a positive learning environment and encouraging students' active participation in an online classroom.

Limitations and implications for research

The strengths of our study notwithstanding, we also acknowledge three limitations and provide directions for future research. First, we held a small number of online class sessions with just seven Chinese EFL university students. A a result, our findings may not be representative or

applicable to a broader context. Future researchers could conduct longer-term studies with more participants from diverse backgrounds and ages to improve the robustness of their findings. Second, we only measured the dynamic nature of L2 WTC. Since positive (e.g. enjoyment, self-esteem, and grit) and negative (e.g. boredom, burnout, and stress) emotions may optimise or compromise EFL learners' L2 WTC in an online class, future research can be expanded by including L2 emotions (Khajavy, MacIntyre, and Hariri 2021; Li 2020, 2021; Li, Zhang, and Jiang 2021; Zhou, Xi, and Locktman 2020). Finally, as new technology advances, we encourage future L2 WTC researchers to expand their use of digital environments. For example, as conversational technology becomes more diverse in the daily lives of young learners, smartphones (e.g. Google Assistant and Apple's Siri) or smart-speakers (e.g. Google Home and Amazon's Echo) may be integrated into future research (Lee 2022; Soyoof et al. 2021).

Conclusion

This study employed an idiodynamic method to examine whether there is any variability in Chinese EFL learners' L2 WTC levels in an online class. It also attempted to identify factors that might have influenced fluctuations in L2 WTC. Although our findings appear to confirm what is already known about L2 WTC, this study provided some of the first evidence that EFL learners are influenced by a variety of trait-like and state-like factors during their participation in an online course. This is a timely and significant contribution to the literature on L2 WTC and CALL because an online classroom is becoming a more common environment for L2 learning but is still relatively unexplored in the fields. Furthermore, while the variables we identified have been extensively studied, our findings add a new way for MacIntyre et al.'s (1998) heuristic model to be expanded into an online teaching context.

Methodologically, the current study demonstrates that an idiodynamic method is a useful analytical approach for comprehending the fluid and dynamic nature of L2 WTC in an online classroom. Similarly, using the idiodynamic method allowed us to address a methodological challenge, such as recall bias, that had not been addressed in previous L2 WTC research (Kruk 2019). As a result, our rigorous methodological approach has increased our confidence in our findings. From a pedagogical standpoint, these findings suggest that by receiving affective, technical, and pedagogical support from a teacher, EFL learners can become more willing to communicate in an online class. Our findings will provide language educators who teach L2 online with more relevant, accurate, and practical implications.

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References

Bradburn, N. M., L. J. Rips, and S. K. Shevell. 1987. "Answering Autobiographical Questions: The Impact of Memory and Inference on Surveys." *Science* 236 (4798): 157–161. doi:10.1126/science.3563494.

Cao, Y. 2011. "Investigating Situational Willingness to Communicate Within Second Language Classrooms from an Ecological Perspective." *System* 39: 468–479. doi:10.1016/j.system.2011.10.016.

Council of Europe. 2016. *Common European framework of reference for languages (CEFR)*. Retrieved June 29, 2021 from http://www.coe.int/en/web/common-european-framework-reference-languages.

Derakhshan, A., M. Kruk, M. Mehdizadeh, and M. Pawlak. 2021. "Boredom in Online Classes in the Iranian EFL Context: Sources and Solutions." *System* 101: 102556–16. doi:10.1016/j.system.2021.102556.
Dewaele, J.-M. 2019. "The Effect of Classroom Emotions, Attitudes Toward English, and Teacher Behavior on Willingness to Communicate among English Foreign Language Learners." *Journal of Language and Social Psychology* 38 (4): 523–535. doi:10.1177/0261927X19864996.
Dewaele, J.-M., and L. Dewaele. 2018. "Learner-internal and Learner-External Predictors of Willingness to Communicate in the FL Classroom." *Journal of the European Second Language Association* 2 (1): 24–37. doi:10.22599/jesla.37.
Dewaele, J.-M., and L. Dewaele. 2020. "Are Foreign Language Learners' Enjoyment and Anxiety Specific to the Teacher? An Investigation Into the Dynamics of Learners' Classroom Emotions." *Studies in Second Language Learning and Teaching* 10 (1): 45–65. doi:10.22599/jesla.37.
Dewaele, J.-M., and C. Li. 2020. "Emotions in Second Language Acquisition: A Critical Review and Research Agenda." *Foreign Language World [Chinese 外语界]* 196 (1): 34–49.
Dewaele, J.-M., and L. M. Pavelescu. 2019. "The Relationship Between Incommensurable Emotions and Willingness to Communicate in English as a Foreign Language: A Multiple Case Study." *Innovation in Language Learning and Teaching*. doi:10.22599/jesla.37.
Ebadi, S., and M. Ebadijalal. 2020. "The Effect of Google Expeditions Virtual Reality on EFL Learners' Willingness to Communicate and Oral Proficiency." *Computer Assisted Language Learning*, 1–25. doi:10.1080/09588221.2020.1854311.
Fraschini, N., and Y. Tao. 2021. "Emotions in Online Language Learning: Exploratory Findings from an*ab Initio*Korean Course." *Journal of Multilingual and Multicultural Development*, 1–19. doi:10.1080/01434632.2021.1968875.
Gass, S., and A. Mackey. 2002. *Stimulated Recall Methodology in Second Language Research*. Mahwah: Lawrence Erlbaum Associates.
Ghonsooly, B., G. H. Khajavy, and S. F. Asadpour. 2012. "Willingness to Communicate in English among Iranian non-English Major University Students." *Journal of Language and Social Psychology* 31 (2): 197–211. doi:10.1177/0261927X12438538.
Henry, A., C. Thorsen, and P. D. MacIntyre. 2021a. "Willingness to Communicate in a Multilingual Context: Part one, a Time-Serial Study of Developmental Dynamics." *Journal of Multilingual and Multicultural Development*, 1–20. doi:10.1080/01434632.2021.1931248.
Henry, A., C. Thorsen, and P. D. MacIntyre. 2021b. "Willingness to Communicate in a Multilingual Context: Part two, Person-Context Dynamics." *Journal of Multilingual and Multicultural Development*, 1–16. doi:10.1080/01434632.2021.1935975.
Hiver, P., and A. H. Al-Hoorie. 2020. *Research Methods for Complexity Theory in Applied Linguistics*. Bristol, UK: Multilingual Matters.
Jiang, Y., and J.-M. Dewaele. 2019. "How Unique is the Foreign Language Classroom Enjoyment and Anxiety of Chinese EFL Learners?" *System* 82: 13–25. doi:10.1016/j.system.2019.02.017.
Khajavy, G. H., B. Ghonsooly, A. H. Fatemi, and C. W. Choi. 2016. "Willingness to Communicate in English: A Microsystem Model in the Iranian EFL Classroom Context." *TESOL Quarterly* 50 (1): 154–180.
Khajavy, G. H., P. D. MacIntyre, and E. Barabadi. 2018. "Role of the emotions and classroom environment in willingness to communicate: Applying doubly latent multilevel analysis in second language acquisition research." *Studies in Second Language Acquisition* 40: 605–624. doi:10.1017/S0272263117000304.
Khajavy, G. H., P. D. MacIntyre, and J. Hariri. 2021. "A Closer Look at Grit and Language Mindset as Predictors of Foreign Language Achievement." *Studies in Second Language Acquisition* 43 (2): 379–402. doi:10.1017/S0272263120000480.
Kruk, M. 2019. "Dynamicity of Perceived Willingness to Communicate, Motivation, Boredom and Anxiety in Second Life: The Case of two Advanced Learners of English." *Computer Assisted Language Learning*, 190–216. doi:10.1080/09588221.2019.1677722.
Kruk, M. 2021. "Changes in Self-Perceived Willingness to Communicate During Visits to*Second Life*: A Case Study." *The Language Learning Journal* 49 (2): 240–250. doi:10.1080/09588221.2019.1677722.
Larsen-Freeman, D. 1997. "Chaos/Complexity Science and Second Language Acquisition." *Applied Linguistics* 18 (2): 141–165. doi:10.1093/applin/18.2.141.
Larsen-Freeman, D., and L. Cameron. 2008. *Complex Systems and Applied Linguistics*. Oxford: Oxford University Press.
Lee, J. H. 2018. "The Effects of Short-Term Study Abroad on L2 Anxiety, International Posture, and L2 Willingness to Communicate." *Journal of Multilingual and Multicultural Development* 39 (8): 703–714. doi:10.1080/01434632.2018.1435666.
Lee, J. S. 2020. "The Role of Grit and Classroom Enjoyment in EFL Learners' Willingness to Communicate." *Journal of Multilingual and Multicultural Development*. Advance online publication. doi:10.1080/01434632.2020.1746319.
Lee, J. S. 2022. *Informal Digital Learning of English: Research to Practice*. New York: Routledge.

Li, C. 2020. "A Positive Psychology Perspective on Chinese EFL Students' Trait Emotional Intelligence, Foreign Language Enjoyment and EFL Learning Achievement." *Journal of Multilingual and Multicultural Development*, 246–263. doi:10.1080/01434632.2019.1614187.

Li, C. 2021. "A Control-Value Theory Approach to Boredom in English Classes among University Students in China." *The Modern Language Journal* 105 (1): 317–334. doi:10.1111/modl.12693.

Li, C., and J.-M. Dewaele. 2021. "How Classroom Environment and General Grit Predict Foreign Language Classroom Anxiety of Chinese EFL Students." *Journal for the Psychology of Language Learning* 3 (2): 86–98. doi:10.52598/jpll/3/2/6.

Li, C., G. Jiang, and J.-M. Dewaele. 2018. "Understanding Chinese High School Students' Foreign Language Enjoyment: Validation of the Chinese Version of the Foreign Language Enjoyment Scale." *System* 76: 183–196. doi:10.1016/j.system.2018.06.004.

Li, C., L. J. Zhang, and G. Jiang. 2021. "Conceptualisation and Measurement of Foreign Language Learning Burnout among Chinese EFL Students." *Journal of Multilingual and Multicultural Development*, 1–15. doi:10.1080/01434632.2021.1931246.

MacIntyre, P. D. 2012. "The Idiodynamic Method: A Closer Look at the Dynamics of Communication Traits." *Communication Research Reports* 29 (4): 361–367. doi:10.1080/08824096.2012.723274.

MacIntyre, P. D., and C. Charos. 1996. "Personality, Attitudes, and Affect as Predictors of Second Language Communication." *Journal of Language and Social Psychology* 15 (1): 3–26. doi:10.1177/0261927X960151001.

MacIntyre, P. D., Z. N. Dörnyei, R. Clément, and K. A. Noels. 1998. "Conceptualizing Willingness to Communicate in a L2: A Situational Model of L2 Confidence and Affiliation." *The Modern Language Journal* 82 (4): 545–562. doi:10.1111/j.1540-4781.1998.tb05543.x.

MacIntyre, P. D., and J. J. Legatto. 2011. "A Dynamic System Approach to Willingness to Communicate: Developing an Idiodynamic Method to Capture Rapidly Changing Affect." *Applied Linguistics* 32 (2): 149–171. doi:10.1093/applin/amq037.

MacIntyre, P. D., and L. Wang. 2021. "Willingness to Communicate in the L2 About Meaningful Photos: Application of the Pyramid Model of WTC." *Language Teaching Research*, 878–898. doi:10.1177/13621688211004645.

Moser, K. M., T. Wei, and D. Brenner. 2021. "Remote Teaching During COVID-19: Implications from a National Survey of Language Educators." *System* 97: 102431–15. doi:10.1016/j.system.2020.102431.

Moskowitz, S., and J.-M. Dewaele. 2019. "Is Teacher Happiness Contagious? A Study of the Link Between Perceptions of Language Teacher Happiness and Student Attitudes." *Innovation in Language Learning and Teaching*, 117–130. doi:10.1080/17501229.2019.1707205.

Peng, J.-E. 2019. "The Roles of Multimodal Pedagogic Effects and Classroom Environment in Willingness to Communicate in English." *System* 82: 161–173. doi:10.1016/j.system.2019.04.006.

Peng, H., S. Jager, and W. Lowie. 2021. "A Person-Centred Approach to L2 Learners' Informal Mobile Language Learning." *Computer Assisted Language Learning*, 1–22. doi:10.1080/09588221.2020.1868532.

Peng, J.-E., and L. Woodrow. 2010. "Willingness to Communicate in English: A Model in the Chinese EFL Classroom Context." *Language Learning* 60 (4): 834–876. doi:10.1111/j.1467-9922.2010.00576.x.

Piechurska-Kuciel, E. 2018. "Openness to Experience as a Predictor of L2 WTC." *System* 72: 190–200. doi:10.1016/j.system.2018.01.001.

Reinders, H., and S. Wattana. 2014. "Can I say Something? The Effects of Digital Game Play on Willingness to Communicate." *Language Learning & Technology* 18 (2): 101–123.

Sato, M., and C. D. Lam. 2021. "Metacognitive Instruction with Young Learners: A Case of Willingness to Communicate, L2 use, and Metacognition of Oral Communication." *Language Teaching Research*, 899–921. doi:10.1177/13621688211004639.

Shirvan, M. E., G. H. Khajavy, P. D. MacIntyre, and T. Taherian. 2019. "A Meta-Analysis of L2 Willingness to Communicate and its Three High-Evidence Correlates." *Journal of Psycholinguistic Research* 48: 1241–1267. doi:10.1007/s10936-019-09656-9.

Soyoof, A., B. L. Reynolds, B. Vazquez-Calvo, and K. McLay. 2021. "Informal Digital Learning of English (IDLE): A Scoping Review of What has Been Done and a Look Towards What is to Come." *Computer Assisted Language Learning*, 1–27. doi:10.1080/09588221.2021.1936562.

Tai, T.-Y., and H. H.-J. Chen. 2020. "The Impact of Google Assistant on Adolescent EFL Learners' Willingness to Communicate." *Interactive Learning Environments*, doi:10.1080/10494820.2020.1841801.

Talebzadeh, N., M. E. Shirvan, and G. H. Khajavy. 2020. "Dynamics and Mechanisms of Foreign Language Enjoyment Contagion." *Innovation in Language Learning and Teaching* 14 (5): 399–420. doi:10.1080/17501229.2019.1614184.

UNESCO. n.d. Global Education Coalition: Tencent. Accessed April 27, 2021. https://globaleducationcoalition.unesco.org/Members/Details/61.

Van Le, T., U. Cunningham, and K. Watson. 2018. "The Relationship Between Willingness to Communicate and Social Presence in an Online English Language Course." *The JALT CALL Journal* 14 (1): 43–59.

Yashima, T. 2002. "Willingness to Communicate in a Second Language: The Japanese EFL Context." *The Modern Language Journal* 86 (i): 54–66. doi:10.1111/1540-4781.00136.

Zhang, J., N. Beckmann, and J. F. Beckmann. 2018. "To Talk or not to Talk: A Review of Situational Antecedents of Willingness to Communicate in the Second Language Classroom." *System* 72: 226–239. doi:10.1016/j.system.2018.01.003.

Zhang, J., N. Beckmann, and J. F. Beckmann. 2019. "One Situation Doesn't fit all: Variability and Stability of State Willingness to Communicate in a Chinese College English Classroom." *Language Teaching Research*, 136216881989133–26. doi:10.1177/1362168819891330.

Zhou, L., Xi, Y., & Locktman, K. (2020). The Relationship Between Second Language Competence and Willingness to Communicate: The Moderating Effect of Foreign Language Anxiety. *Journal of Multilingual and Multicultural Development*. doi:10.1080/01434632.2020.1801697.