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RESEARCH ARTICLE

How do they stack up? Perceived communicative competence, foreign language anxiety, teacher support, and classroom environment in EFL learners' willingness to communicate in MOOCs

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Abstract

Given the shift to technology-mediated communication, this study investigated the factors that influence Chinese EFL learners' willingness to communicate (WTC) in the second language (L2) in MOOCs. While most previous studies conceptualized L2WTC as a unified construct, this study made a first attempt to distinguish its oral and written dimensions, thereby addressing an underexplored gap and capturing the complexities of both modes in online learning environments. Data were collected through questionnaires from 323 Chinese undergraduate EFL learners and complemented by semi-structured interviews with 24 learners representing high, medium, and low levels of oral and written L2WTC. Unexpectedly, the results indicated that trait-like factors (perceived communicative competence and foreign language anxiety) negatively impacted both forms of L2WTC, whereas the influence of context-specific factors (teacher support and classroom environment) was more complex. Teacher support positively affected oral L2WTC but had a limited impact on written L2WTC. The positive aspects of the classroom environment, such as its flexibility and technological use, enhanced both oral and written L2WTC, though technical difficulties and a lack of peer connection also emerged as barriers to communication. These findings provided new insights for research in online learning environments and further suggested strategies to promote positive factors while mitigating negative ones to enhance oral and written L2WTC.

Keywords: willingness to communicate; MOOCs; perceived communicative competence; foreign language anxiety; teacher support; classroom environment

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1. Introduction

Willingness to communicate (WTC) in the second language (L2) has been regarded as a prerequisite for successful L2 communication and a crucial construct in L2 acquisition (Kirkpatrick et al., 2024; Zadorozhnyy & Lee, 2025). As digital technologies continue to evolve, L2WTC in online environments has gradually attracted attention from researchers (Lee & Drajati, 2020). Drawing on prior research, four key factors have been frequently identified as antecedents of L2WTC, including perceived communicative competence (e.g., Alrabai, 2022), foreign language anxiety (e.g., Solhi, 2024), teacher support (e.g., Lee & Liu, 2024), and classroom environment (e.g., Bhuvaneswari et al., 2022).

In recent years, massive open online courses (MOOCs) have steadily gained popularity on a global scale since their launch in 2012 (Zhang et al., 2024). However, while extensive studies have examined L2WTC in traditional classrooms (e.g., Alrabai, 2022; Reinders & Wattana, 2015) and some in online environments (e.g., Lee & Liu, 2024; Solhi, 2024), few have investigated L2WTC among EFL learners in MOOCs. Moreover, most existing studies have focused solely on L2WTC in oral communication (e.g., Hejazi et al., 2023; Lee & Liu, 2024), overlooking the fact that L2WTC in online classrooms involves both oral (e.g., discussions, responding to questions) and written components (e.g., posting comments and ideas on discussion boards and forums). Grounded in MacIntyre et al.'s (1998) heuristic model, this study made a first attempt to differentiate between oral and written L2WTC and adopted an affective–cognitive perspective to examine how trait-like and context-specific factors interact in shaping each L2WTC form.

2. Literature review

2.1. EFL learning in MOOCs

With technological advancements in 2020, English teaching in higher education has experienced a transition from face-to-face on-site classes to distant online classes (Lee & Liu, 2024). MOOCs, an innovation in technology-enhanced pedagogy, have rapidly become an integral component of this transformation in global higher education (Azevedo et al., 2024). In China, many universities have incorporated MOOC development into institutional requirements, and undergraduates are required to take online English courses through MOOC platforms for credit (Guo & Ibrahim, 2023).

MOOCs present both opportunities and challenges for language education. On the one hand, they provide learners with flexible access to knowledge anytime and anywhere, facilitating interaction and instant feedback (Zheng et al., 2018). They also support personalized learning by allowing learners to adjust learning paths and pace (Jitpaisarnwattana et al., 2022). This flexibility broadens access to language resources and promotes learner self-regulation. On the other hand, since language learning is more skill-based than knowledge-based, MOOCs require learners to demonstrate a high degree of proactivity, autonomy, and engagement (Martín-Monje & Bárcena, 2015). Additionally, remote instruction may reduce immediacy between teachers and students (Pu, 2020), potentially triggering feelings of isolation or anxiety (Palloff & Pratt, 2013). More importantly, although MOOCs are designed to foster peer communication, many courses still follow teacher-centred approaches that may restrict collaborative engagement (Guillén, 2015). These constraints may undermine learners' motivation and ultimately hinder the learning process (Ding & Shen, 2022; Jiang & Peng, 2025). Given that shifts in contexts may lead to changes in L2WTC, further investigation into L2WTC in MOOCs is warranted.

2.2. Willingness to communicate in the second language (L2WTC)

2.2.1. The definition of L2WTC

L2WTC is defined as "a readiness to enter into the discourse at a particular time with a specific person or persons, using a L2" (MacIntyre et al., 1998, p. 547). To capture its dynamic nature,

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MacIntyre et al. (1998) developed a heuristic pyramid model that has since been widely adopted in studies on individual differences in L2WTC. Based on this six-layer model, L2WTC influential factors could be classified into trait-like and context-specific factors, with the former exerting enduring effects and the latter dynamic influences. This model challenged the perception of L2WTC as a stable trait, suggesting that it fluctuated during communication depending on the interaction of individual and contextual factors.

With the advancement of technology and its adoption in online learning platforms, communication in online classrooms has evolved to involve both oral interactions and written exchanges (Quan-Haase et al., 2021). To better align with the unique characteristics of technology-supported learning environments, the concept of L2WTC in online contexts needs to be broadened to include *individuals' tendency to use L2 for both oral and written communication, which can vary under the influence of trait-like and context-specific factors*. In the case of MOOCs, L2WTC extends beyond synchronous oral communication to encompass real-time written communication on discussion boards as well as asynchronous written exchanges in after-class discussion forums.

2.2.2. Factors affecting L2WTC

Drawing on the literature, this study focused on four key determinants widely acknowledged as critical influences on L2WTC. The first two trait-like factors are perceived communicative competence (PCC) and foreign language anxiety (FLA). PCC refers to learners' self-perceived ability to communicate effectively in the target language (MacIntyre et al., 1998). Previous studies have consistently shown that PCC positively predicted L2WTC in both traditional (Alrabai, 2022; Khajavy et al., 2016) and online learning contexts (Balouchi & Samad, 2021; Soyoof, 2023). For instance, Balouchi and Samad (2021) surveyed 372 university students in Malaysia and found that those with higher PCC tended to engage in L2 communication more frequently in online settings. Similarly, Soyoof (2023) interviewed 50 Iranian secondary school EFL learners and reported that enhancing learners' PCC in digital contexts significantly boosted their L2WTC.

FLA, defined as the tension and apprehension experienced when using a foreign language (Horwitz, 1986), has been confirmed to be negatively associated with L2WTC across face-to-face and online learning contexts (e.g., Solhi, 2024). In the studies by Dewaele (2019) and Lee (2018), FLA emerged as the strongest negative predictor of L2WTC. Similarly, employing structural equation modelling to analyse the data from 290 university students in Istanbul, Solhi (2024) found that FLA significantly reduced L2WTC in both in-person and online environments, with a more pronounced effect in the latter. Consistent with these findings, Memari (2023) also reported that learners in virtual settings experienced lower FLA and higher L2WTC than those in traditional classrooms.

The other two context-specific factors include teacher support and classroom environment. Teacher support refers to learners' perceptions of the care and assistance provided by their teachers (Patrick et al., 2007). Prior research has highlighted its crucial role in influencing learners' L2WTC (e.g., Lee & Liu, 2024). Kang (2005) observed that effective teacher support reduced learners' FLA and increased their L2WTC. When teachers appeared attentive, smiled, or responded positively, students felt safe and were more inclined to engage in conversation (Kang, 2005). Conversely, signs of teacher disengagement, such as frowning, yawning, or checking the time, triggered students' anxiety and reduced their willingness to speak (Kang, 2005). Zarrinabadi (2014) corroborated these findings, suggesting that teacher strategies such as providing encouraging wait time, delayed error correction, and positive feedback can mitigate anxiety, foster confidence, and consequently enhance learners' L2WTC. Similarly, Hejazi et al. (2023) noted that teacher support positively influenced L2WTC, with L2 anxiety serving as a significant mediator. In online learning contexts, Lee and Liu (2024) believed that teacher support, such as patiently

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waiting for learners' responses and recognizing students' efforts, significantly improved learners' L2WTC.

Classroom environment, defined as the overall atmosphere of an educational setting (Dorman et al., 2006), has been regarded as a key predictor of L2WTC (e.g., Bhuvaneswari et al., 2022). Compared with face-to-face contexts, online environments are generally perceived as safer spaces with a lower risk of face-threatening situations, thereby fostering greater L2WTC. This is possibly because students in traditional classrooms often experience anxiety about making mistakes and fear negative judgement from teachers and peers, whereas online learning interactions tend to reduce these fears and anxieties while increasing their confidence (Reinders & Wattana, 2015). Additionally, Mellati and Khademi (2020) found that reduced eye contact in online environments could further alleviate anxiety, enhance confidence, and ultimately boost L2WTC. However, as online classes are an emerging form of instruction, students accustomed to traditional face-to-face classrooms may encounter difficulties adapting to online environments. Challenges such as technical glitches, lack of cues from peers, and limited direct interaction opportunities may inhibit students' L2WTC (Bhuvaneswari et al., 2022).

2.2.3. Research gaps

Based on the literature review, although extensive research has examined factors influencing L2WTC in traditional classrooms (e.g., Alrabai, 2022; Reinders & Wattana, 2015) and some in online settings (e.g., Lee & Liu, 2024; Solhi, 2024), limited attention has been paid to how these factors affect L2WTC within the emerging MOOC context. More importantly, when exploring the relationships between these variables and L2WTC, most existing studies have treated L2WTC as a unified construct, without differentiating between its oral and written modalities (e.g., Memari, 2023; Solhi, 2024). They have predominantly focused on WTC in oral communication, such as learners' willingness to speak in the target language during face-to-face sessions or synchronous online classes (e.g., Hejazi et al., 2023; Lee & Liu, 2024). However, L2WTC in MOOCs is multifaceted, encompassing not only synchronous real-time oral communication and written communication on discussion boards but also asynchronous written exchanges in after-class discussion forums. Given the distinct nature of the MOOC environment, findings from traditional and other online classrooms may not fully apply to this context. Therefore, this study seeks to differentiate between oral and written L2WTC, specifically examining the factors that influence each dimension. The research question is as follows:

> In the MOOC context, to what extent do the potential factors (PCC, FLA, teacher support, and classroom environment) influence oral and written L2WTC respectively?

3. Methodology

3.1. Participants

The participants were 323 Chinese EFL learners from a public university located in the southern part of China. This university is part of the Double First-Class University Plan and Project 211, admitting students from diverse academic backgrounds. The "Workplace English" MOOC was taken as a credit-bearing course by 350 freshmen and sophomores at this university. Questionnaires were distributed to all 350 students, and 323 valid responses were collected and analysed. The participants ranged in age from 18 to 21 years, including both male and female students in roughly equal proportions. Their overall English proficiency was approximately at the CEFR B1–B2 level. After calculating the questionnaire scores, 24 individuals were selected for one-to-one semi-structured interviews using stratified random sampling. Participants were categorized into high, medium, and low groups according to their oral and written L2WTC scores, and four

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individuals were randomly chosen from each group, ensuring balanced representation of learners across different levels of communication willingness.

3.2. Context

The "Workplace English" MOOC was taught by a native Chinese-speaking teacher and covered key themes such as attending interviews, onboarding, on-the-job skills, and business communication. Although this course was publicly accessible on the MOOC platform, the present study focused on undergraduate EFL learners at the studied university who took it as a credit-bearing requirement. According to the course description, the course spanned 19 weeks, comprising 1 hour of synchronous learning and an estimated 1–2 hours of asynchronous learning per week. During synchronous sessions, the teacher delivered live lectures, while students participated in real-time written interaction through the discussion board and engaged in oral communication during small-group discussions via WeChat. In the asynchronous mode, the teacher posted questions related to the weekly video lectures. Students were required to watch the lectures, submit written responses to the questions in discussion forums, and provide comments on their peers' posts within five days. After completing asynchronous written exchanges, students received peer comments on their posts, along with the teacher's written feedback in the forums prior to the following lecture. However, since the MOOC platform did not provide mechanisms for monitoring students' engagement in asynchronous learning, participation was primarily dependent on learners' self-regulation. The course employed machine grading for quizzes and peer evaluation as the main assessment methods. Upon successful completion, learners received a certificate from the MOOC platform and earned course credits.

3.3. Instruments

The data were first collected through questionnaires (see Appendix A in the supplementary material) adapted from Peng (2014), with some statements modified to better align with the MOOC learning context. The questionnaire consisted of 45 closed-ended questions across six subscales: oral L2WTC (10 items), written L2WTC (10 items), PCC (7 items), FLA (7 items), teacher support (6 items), and classroom environment (5 items). All items were rated on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. The reliability of the instrument was examined using the Statistical Package for Social Sciences (SPSS), and the Cronbach's alpha was .895, confirming its reliability (Taber, 2018). Construct validity was further assessed through exploratory factor analysis (EFA). The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .828, and Bartlett's test of sphericity was significant ($\chi^2 = 797.378$, $df = 15$, $p < .001$), indicating the suitability of the data for EFA. Six factors with eigenvalues greater than 1 were extracted, accounting for 73.28% of the total variance. All communality values exceeded .40, and factor loadings were above .60 on their respective factors, confirming the construct validity of the questionnaire.

The interview questions (see Appendix B in the supplementary material) were developed based on Cao and Philp's (2006) study that examined EFL learners' L2WTC in New Zealand. To ensure participants could express themselves fluently and clearly, the interviews were conducted in their first language, Chinese, and then translated into English from digital audio recordings. The back-translation technique was used to verify the accuracy and consistency between the original and translated transcripts (Glidden-Tracey & Greenwood, 1997). The interview data provided learners' perceptions of the factors influencing their oral and written L2WTC in the MOOC, offering valuable insights into the underlying reasons behind the numerical data gathered from questionnaires (Rose, 2012).

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Table 1. L2WTC levels of 24 selected interview participants

	1	2	3	4	5	6	7	8	9	10	11	12
Highest oral L2WTC	✓	✓	✓	✓								
Medium oral L2WTC					✓	✓	✓	✓				
Lowest oral L2WTC									✓	✓	✓	✓
	13	14	15	16	17	18	19	20	21	22	23	24
Highest written L2WTC	✓	✓	✓	✓								
Medium written L2WTC					✓	✓	✓	✓				
Lowest written L2WTC									✓	✓	✓	✓

Note. L2WTC = second language willingness to communicate.

3.4. Data collection and analysis

A total of 350 online questionnaires were distributed, and 323 valid responses were received. These data were used to explore EFL learners' overall oral and written L2WTC levels and to examine the factors influencing each dimension. Based on the questionnaire scores, 24 participants with the highest, medium, and lowest scores in oral and written L2WTC were invited for one-to-one semi-structured interviews (Table 1). The "✓" symbols indicate which participant corresponds to each specific L2WTC level.

Quantitative data collected through questionnaires were analysed using descriptive statistics, Pearson correlation, and multiple linear regression analysis in SPSS 29. Descriptive analysis summarized the key features of learners' L2WTC levels and their potential influencing factors (McKinley & Rose, 2019). Pearson correlation analysis was conducted to measure and interpret relationships between the independent factors (PCC, FLA, teacher support, and classroom environment) and dependent factors (oral and written L2WTC). Multiple linear regression analysis was subsequently employed to examine the predictive power of the four independent factors on oral and written L2WTC (Uyanık & Güler, 2013).

Qualitative data from semi-structured interviews were analysed using deductive thematic analysis in NVivo 15, guided by the four factors identified in the literature (PCC, FLA, teacher support, and classroom environment). This approach allowed for an exploration of how these four potential factors impacted oral and written L2WTC (Clarke & Braun, 2017). The interview transcripts were first coded and divided into analytical units and then placed into different theme categories for analysis. The member-checking technique was also employed to validate the data interpretation. By inviting participants to review the accuracy of the data, this process minimized potential researcher bias and enhanced the trustworthiness of the findings (Birt et al., 2016).

4. Results

4.1. Quantitative results

As presented in Table 2, the descriptive analysis revealed that participants demonstrated a higher L2WTC in writing ($M = 36.01$, $Mdn = 37.00$, mode = 46.00) compared to speaking ($M = 22.08$, $Mdn = 22.00$, mode = 24.00), despite both oral and written L2WTC having score ranges from 10 to 50. In addition, although the minimum score for both was the same (10), oral L2WTC had a maximum score of only 42, whereas written L2WTC reached the full range of 50, further confirming the trend that participants were generally more willing to engage in written communication.

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Table 2. Descriptive statistics of variables

	Valid	Items	Score range	*M*	*Mdn*	Mode	Min	Max
Oral L2WTC	323	10	10–50	22.08	22.00	24.00	10.00	42.00
Written L2WTC	323	10	10–50	36.01	37.00	46.00	10.00	50.00
PCC	323	7	7–35	21.97	22.00	15.00	7.00	35.00
FLA	323	7	7–35	18.09	18.00	14.00	7.00	35.00
Teacher support	323	6	6–30	18.78	20.00	21.00	6.00	30.00
Classroom environment	323	5	5–25	16.81	17.00	16.00	7.00	25.00

Note. L2WTC = second language willingness to communicate; PCC = perceived communicative competence; FLA = foreign language anxiety.

Table 3. Intercorrelations between the variables

Variables	1	2	3	4	5	6
1. Oral L2WTC	1					
2. Written L2WTC	.570**	1				
3. PCC	−.479**	−.625**	1			
4. FLA	−.467**	−.691**	.519**	1		
5. Teacher support	.282**	.062	−.052	.064	1	
6. Classroom environment	.511**	.679**	−.587**	−.521**	.174**	1

Note. L2WTC = second language willingness to communicate; PCC = perceived communicative competence; FLA = foreign language anxiety.*$p < .05$. **$p < .01$.

Regarding trait-like factors, PCC and FLA were both measured on a scale ranging from 7 to 35. The scores for PCC ($M = 21.97$, $Mdn = 22.00$) were slightly above the theoretical midpoint (21.00), reflecting a moderate level of self-reported confidence in L2 communication. However, the mode value (15.00), which was considerably lower than the mean and median, suggested that despite the overall trend, a subgroup of participants reported low levels of PCC. In contrast, FLA scores ($M = 18.09$, $Mdn = 18.00$) fell below the midpoint (21.00), indicating a relatively low level of anxiety in the MOOC context. The mode value for FLA (14.00) was even lower than the mean and median, further indicating a distribution skewed toward lower anxiety levels.

In terms of context-specific factors, teacher support was assessed on a 6 to 30 scale. Its scores ($M = 18.78$, $Mdn = 20.00$, mode = 21.00) all exceeded the scale midpoint (18.00), suggesting that participants tended to perceive their teachers as providing moderate to moderately high levels of support. Classroom environment, measured on a 5 to 25 scale, yielded a mean of 16.81, a median of 17.00, and a mode of 16.00. These statistics pointed to a moderately positive appraisal of the classroom environment.

According to the Pearson correlation data in Table 3, both oral and written L2WTC were negatively correlated with PCC (oral: $r = -.479$, $p < .01$; written: $r = -.625$, $p < .01$) and FLA (oral: $r = -.467$, $p < .01$; written: $r = -.691$, $p < .01$), indicating that lower PCC and FLA were associated with higher L2WTC. Conversely, both forms of L2WTC were positively correlated with the classroom environment (oral: $r = .511$, $p < .01$; written: $r = .679$, $p < .01$), implying that a supportive and conducive learning environment was linked with higher L2WTC. Notably, oral L2WTC showed a moderate positive correlation with teacher support ($r = .282$, $p < .01$), whereas the relationship between teacher support and written L2WTC was weak ($r = .062$, $p > .05$), suggesting a stronger association between teacher support and learners' oral communication willingness compared to written communication.

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Table 4. Multiple linear regression results for predicting L2WTC

	Oral L2WTC			Written L2WTC				
Variables	R^2	β	*SE*	R^2	β	*SE*	Tolerance	VIF
PCC	.401	−.205**	.060	.645	−.215**	.063	.593	1.687
FLA		−.269**	.073		−.403**	.076	.639	1.564
Teacher support		.252**	.056		.017	.059	.937	1.067
Classroom environment		.207**	.101		.341**	.105	.563	1.777

Note. L2WTC = second language willingness to communicate; VIF = variance inflation factor; PCC = perceived communicative competence; FLA = foreign language anxiety.*$p < .05$. **$p < .01$.

Building on the initial correlations, the multiple linear regression results in Table 4 provided deeper insights into the predictive power of the possible L2WTC influential variables. As evidenced by the average variance inflation factor (VIF) approaching 1 and all tolerance statistics exceeding 0.5 (Senaviratna & Cooray, 2019), multicollinearity was not an issue in the dataset. Additionally, the data generally followed a normal distribution, since the absolute values of the skewness and kurtosis for all variables were below 1, with some even approaching 0 (Hair et al., 2021).

The regression results demonstrated that two trait-like factors were significant negative predictors of both oral and written L2WTC, with PCC (oral: $\beta = -.205$, $p < .01$; written: $\beta = -.215$, $p < .01$) and FLA (oral: $\beta = -.269$, $p < .01$; written: $\beta = -.403$, $p < .01$) exerting negative influences on both forms of L2WTC. These findings implied that learners with lower PCC and FLA were more likely to engage in oral and written communication within MOOCs, whereas those with higher PCC and FLA tended to exhibit reduced L2WTC.

In terms of context-specific factors, teacher support emerged as a significant positive predictor of oral L2WTC ($\beta = .252$, $p < .01$), but its effect on written L2WTC was minimal and statistically non-significant ($\beta = .017$, $p > .05$). By contrast, classroom environment consistently acted as a positive predictor for both oral and written L2WTC, significantly promoting L2WTC in both modalities (oral: $\beta = .207$, $p < .01$; written: $\beta = .341$, $p < .01$). These results suggested that although a positive classroom environment played a facilitating role in enhancing learners' L2WTC across both oral and written communication, teacher support only appeared to positively influence learners' spoken engagement rather than their written participation in the MOOC context.

In sum, the quantitative results revealed that while both trait-like and context-specific factors significantly predicted learners' L2WTC in the MOOC, their influence differed by modality. To be specific, two trait-like factors consistently had a negative impact on oral and written L2WTC, whereas context-specific factors generally positively influenced both. Notably, however, the facilitative role of teacher support was limited to oral L2WTC, with no significant effect identified for written communication. Figure 1 summarizes these differential impacts.

4.2. Qualitative results

For ease of reference, participants were assigned codes combining modality (O = oral, W = written) and L2WTC level (H = high, M = medium, L = low), followed by a number (e.g., WH1 = Participant 1 with high written L2WTC).

4.2.1. Perceived communicative competence (PCC)

Based on the interview transcripts, PCC had a negative impact on both oral and written L2WTC in the MOOC. Higher PCC was linked to lower L2WTC in both forms, whereas a lower PCC was associated with higher L2WTC.

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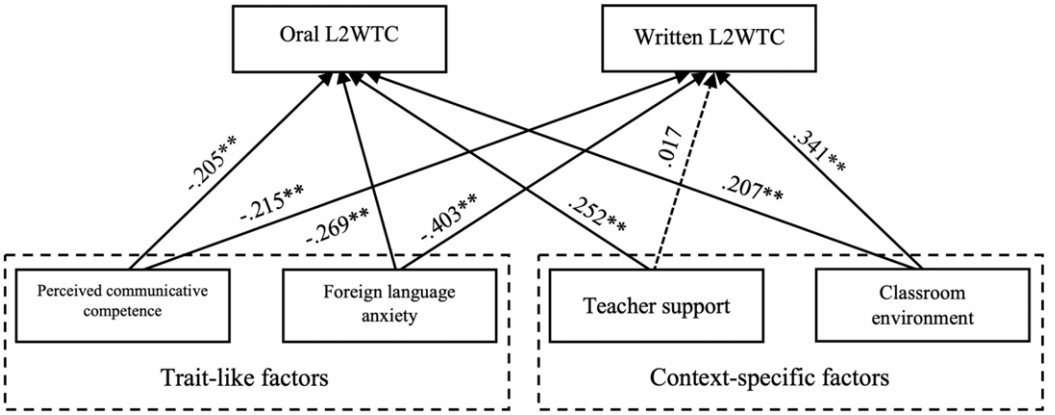


Figure 1. Quantitative results on factors affecting oral and written second language willingness to communicate (L2WTC). *$p < .05$. **$p < .01$.

For example, participants OH1 and WH1 mentioned:

I knew my English ability was not great, and I was always reluctant to speak up in traditional classrooms. However, when I took MOOCs, I was able to use translation tools, grammar checkers, and ChatGPT for support, which gave me the confidence to express myself in both oral and written communication. (OH1)

Despite having little confidence in my English level, I could think and prepare before posting my ideas or comments on the discussion forums in the asynchronous MOOC learning process. (WH1)

In contrast, participants OL4 and WL1 stated:

I was very confident about my English level, but I was not familiar with the online tools and platforms, and I was also concerned about technical issues. I was worried that if internet connectivity problems occurred while I was speaking, it might disrupt the flow of the learning process for both the teacher and my classmates. (OL4)

Although the questions the teacher asked were quite easy for me, I did not volunteer to answer because I was afraid my classmates might think I was showing off. (WL1)

The participants' perceptions suggested that the availability of supportive online tools and the flexibility of the asynchronous learning mode contributed to higher L2WTC among individuals with lower confidence in their English abilities. However, technical issues and the fear of being perceived as showing off held back those with higher levels of PCC, limiting their willingness to engage in both oral and written communication.

4.2.2. Foreign language anxiety (FLA)

Most participants believed that the MOOC, as a form of remote learning, caused less anxiety compared to traditional face-to-face classrooms. In this setting, learners with lower FLA were more likely to engage in oral and written communication, while those with higher FLA tended to avoid participation.

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As suggested by participants OM4, WH2, and WM3:

In real-time lecture, only the teacher turned on the camera, but students did not need to, which eliminated the pressure of eye contact and made me feel much more at ease. (OM4)

I felt less anxious engaging in written communication in the MOOC, because I had more time to organize my thoughts and revise my responses. (WH2)

Compared to real-time verbal interaction, I found written communication safer. It allowed me to express myself more accurately by reducing the chances of making mistakes. (WM3)

However, some participants still felt nervous in the MOOC:

Although my classmates could not see my face, they could still recognize me by my name. I was afraid that making mistakes would lead to laughter from my peers or criticism from the teacher. (OL1)

I was very afraid of losing face in front of my classmates or the teacher, which would make me feel upset for the rest of the day. (WL2)

On the one hand, MOOCs reduced some participants' FLA, making them more willing to engage in communication, especially in written communication. On the other hand, some participants still experienced anxiety in the MOOC setting, particularly due to concerns about making mistakes, losing face, and being judged by their peers or the teacher.

4.2.3. Teacher support

From the participants' perspective, teacher support played different roles in influencing oral and written L2WTC. Specifically, positive teacher support appeared to facilitate higher oral L2WTC, but its impact on written L2WTC was minimal.

For oral communication, participants OM3 and OL2 claimed:

When the teacher smiled, nodded, or praised me, I felt less anxious and more willing to participate in oral communication. (OM3)

I was very reluctant to engage in oral communication in class because every time I made a mistake, the teacher would criticize me harshly, which made me feel embarrassed. Keeping silent made me feel safer. (OL2)

For written communication, participants WH3, WM2, and WL4 claimed:

The teacher and I were quite distant, and the teacher did not keep an eye on me. I did not think teacher support would be of much help. (WH3)

The teacher was not available online in real time. After I posted something on discussion forums, the teacher did not provide immediate feedback. Even when there was feedback, it was often a brief written comment, such as "good". This did not make me feel more motivated to engage in communication. (WM2)

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Compared to oral communication, the teacher's feedback on written communication was limited. The teacher did not respond to every post on the discussion board during class, and outside of class, real-time responses to posts on the discussion forums were impossible. (WL4)

Given participants' perceptions, positive teacher support, such as praise or acknowledgement, helped reduce participants' anxiety and increased their willingness to use L2 to participate in oral communication. In contrast, the relatively brief, delayed, and less personalized feedback for written communication seemed to lack the same motivating effect.

4.2.4. Classroom environment

The analysis of the interviews revealed that while the positive aspects of the MOOC classroom environment facilitated greater oral and written L2WTC, the negative aspects also presented obstacles to communication in both forms.

Regarding positive aspects, participants OH2, OH3, and WH4 said:

I took MOOCs at home, and I did not have to turn on my camera. Sometimes, I was even in my pyjamas. I really enjoyed studying in such a relaxed environment, which helped me feel at ease and less anxious. (OH2)

In face-to-face classrooms, I had to give an answer immediately when the teacher asked a question. But now, I could search for information online to improve my response. (OH3)

I preferred taking MOOCs over traditional classrooms because the online tools helped me with translation and organizing my thoughts, allowing me to express myself more clearly and accurately. (WH4)

Regarding negative aspects, participants OL3 and WL3 noted:

All interactions were through text and audio, and I found it hard to build connections or feel supported by my peers. The lack of face-to-face communication made me feel isolated. (OL3)

I never saw my classmates' real faces. I felt awkward communicating with people I was not familiar with. (WL3)

In addition, some participants reported encountering technical issues in the MOOC, such as:

Sometimes my microphone did not work in the MOOC. (OM1)

The teacher turned on the camera during the MOOC, but the video often lagged. (OL2)

I often experienced lag during classes due to an unstable Wi-Fi connection. As a result, it was difficult for me to keep up with the content the teacher was presenting, let alone participate in oral or written communication. (WM1)

In the interviews, participants frequently highlighted the unique features of the MOOC environment, such as the flexibility in choosing study time and location, the freedom to control their own learning pace, the availability of supportive online tools, and the absence of pressure from eye contact. These contributed to higher oral and written L2WTC. However, the drawbacks of the MOOC should not be overlooked. Both the lack of connection between peers and potential technical issues hindered students' willingness to engage in oral and written communication.

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5. Discussion

This study examined the impact of trait-like factors (PCC and FLA) and context-specific factors (teacher support and classroom environment) on oral and written L2WTC. Both quantitative and qualitative findings revealed that PCC and FLA negatively impacted L2WTC in both modalities. Teacher support positively influenced oral L2WTC, but its impact on written L2WTC was limited. A positive classroom environment promoted oral and written L2WTC, while its negative aspects created barriers to communication in both forms.

One of the most unexpected findings was the negative impact of PCC on both oral and written L2WTC. The unexpected element lies primarily in the direction of the relationship, as higher PCC is typically associated with increased L2WTC rather than a decrease. This contradicted the well-established positive relationship between PCC and L2WTC in traditional classrooms (Alrabai, 2022; Khajavy et al., 2016) and online learning environments (Balouchi & Samad, 2021; Soyoof, 2023). Previous studies consistently found that higher PCC contributed to greater L2WTC (e.g., Alrabai, 2022), but the present study showed that a higher PCC was linked to a lower L2WTC in both oral and written forms. For learners who initially lacked self-assurance in their English language communicative abilities, MOOCs provided them with access to various online tools, such as translation software, grammar checkers, and AI-assisted tools like ChatGPT, to support language production and translation (El-Maghraby, 2024). Additionally, the flexibility of the asynchronous learning mode allowed students more time to organize and refine their responses, thereby enhancing their willingness to post ideas and comments in the discussion forums.

Conversely, learners with higher self-confidence in their language abilities seemed to experience a reduction in L2WTC when transitioning to the MOOC environment, particularly among those unfamiliar with online tools or more vulnerable to technical issues (Bhuvaneswari et al., 2022). Another reason contributing to the reluctance of confident learners may be the emphasis on modesty in Confucian values, which could discourage them from participating actively for fear of being labelled as showing off (Li, 2023). This echoed Peng's (2012) research, which indicated that the cultural value of modesty in Chinese society often inhibited learners from openly sharing their ideas. Similar tendencies have been observed in other Asian contexts, where avoiding standing out is prioritized over individual expression (Griffiths et al., 2014). Within MacIntyre et al.'s (1998) L2WTC model, this finding suggested that cultural norms may moderate the process through which trait-like factors such as PCC translate into L2WTC.

As for the relationship between FLA and L2WTC, the results were generally consistent with previous research (e.g., Memari, 2023; Solhi, 2024) but also revealed some new perspectives. Similar to the findings of Memari (2023), participants in this study reported experiencing less anxiety in the MOOC compared to traditional face-to-face classrooms, particularly in the context of asynchronous written communication. This could be due to the elimination of eye contact pressure, the provision of more time for reflection, and the reduced likelihood of making errors during communication (Mellati & Khademi, 2020; Reinders & Wattana, 2015).

However, it was worth noting that despite these anxiety-reducing factors in MOOCs, certain participants still experienced FLA. The negative relationship between FLA and L2WTC in MOOCs corresponded to the study of Dewaele (2019), Lee (2018), and Solhi (2024), with anxious learners more inclined to exhibit lower levels of oral and written L2WTC due to concerns about making mistakes, losing face, and being judged by peers or teachers. The concept of face is an essential element of Chinese culture, and Chinese students frequently experienced anxiety regarding the potential for mistakes that may lead to a loss of face in front of others (Ho & Crookall, 1995). To protect their face, students often adopted a safer approach by remaining silent during class activities, thereby avoiding situations where they might make mistakes or be subject to negative evaluation (Fu et al., 2012).

The positive effect of teacher support on oral communication aligned with previous research (e.g., Hejazi et al., 2023; Lee & Liu, 2024), but this study uncovered a notable finding: its impact on

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written communication was relatively limited. In oral communication, teacher support expressed through positive cues such as smiles, nods, or praise alleviated learners' anxiety and enhanced their oral L2WTC, whereas negative feedback, particularly harsh criticism, heightened learners' anxiety and prevented them from participating in oral communication. This echoed prior conclusions that positive teacher feedback could effectively reduce students' anxiety and enhance their L2WTC (Hejazi et al., 2023; Lee & Liu, 2024).

On the other hand, participants mentioned that teacher support played a limited impact on written communication in both synchronous and asynchronous modes. In synchronous modes, although the teacher and students interacted in real time, the large volume of posts on discussion boards made it almost impossible for the teacher to respond to every single message. This limitation reduced the interactivity and personalization of feedback, which may undermine the effectiveness of teacher support. In asynchronous modes, the distance between the teacher and students was not only physical but also temporal and interactive. Given that the teacher was unable to engage in learners' written communication process in real time, the feedback provided was often brief and delayed, further restricting its ability to motivate students in their written communication (Nicol & Macfarlane-Dick, 2006).

In terms of the classroom environment, the unique positive characteristics of MOOCs, such as the flexibility to choose study time and location, the freedom to control one's own learning pace, the availability of supportive online tools, and the absence of eye contact pressure, contributed to both greater oral and written L2WTC by increasing PCC and reducing FLA. This finding supported previous research suggesting that the online learning contexts, compared to traditional face-to-face settings, provided safer environments where learners experienced higher PCC, lower FLA, and greater L2WTC (Mellati & Khademi, 2020; Reinders & Wattana, 2015).

Nevertheless, the negative aspects of MOOCs, such as a lack of connection between peers and technical issues, posed significant challenges to oral and written communication. As discussed by Tai (2024), the lack of rapport between peers often inhibited students' L2WTC. For the online learning environment, MOOCs increased the physical and social distance between learners, and the reliance on audio and text-based communication made it more challenging for learners to establish close connections with their peers. In this context, participants reported feelings of isolation from the lack of peer connection and discomfort from communicating with unfamiliar interlocutors. Moreover, technical issues emerged as another key factor that hindered oral and written L2WTC. According to Bhuvaneswari et al. (2022), it was common for learners to encounter difficulties in online learning environments. Similarly, learners in this study reported experiencing technical issues such as microphone malfunctions, video lag, and unstable Wi-Fi connections. Because of these problems, they experienced difficulties in following the teacher's content or expressing their thoughts, which significantly impeded their willingness to engage in both oral and written communication.

6. Conclusion and implications

Grounded in MacIntyre et al.'s (1998) heuristic model, this mixed-methods study investigated the effects of trait-like factors (PCC and FLA) and context-specific factors (teacher support and classroom environment) on both oral and written L2WTC in the MOOC context. The findings revealed that trait-like factors negatively impacted both forms of L2WTC, while the influence of context-specific factors was more complex. Teacher support positively affected oral L2WTC but had a limited impact on written L2WTC. The positive features of the MOOC environment, such as flexibility and the use of technology, contributed to greater L2WTC by reducing FLA and increasing PCC. However, technical issues and the lack of peer connection emerged as negative aspects that hindered communication.

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This study represented a first attempt to differentiate between oral and written L2WTC, moving beyond the conventional treatment of L2WTC as a unified construct. Situated within the affective–cognitive perspective, it provided empirical evidence that deepened the understanding of L2WTC in MOOCs. While grounded in the Chinese EFL and MOOC contexts, the insights derived from this study hold potential applicability to broader online, blended, and cross-cultural learning environments where trait-like and context-specific factors similarly shape learners' oral and written L2WTC.

The findings further highlighted pedagogical strategies to enhance learners' L2WTC by reinforcing positive factors while addressing negative ones. First, the negative impact of PCC can be mitigated by equipping learners with the ability to effectively employ supportive online tools, strengthen their digital literacy, and overcome technical barriers. Second, although MOOCs may alleviate FLA compared to traditional classrooms, further efforts are needed to reduce FLA by encouraging learners to regard mistakes as an integral part of the learning process rather than a sign of failure (Khansir, 2012). Third, teachers are advised to provide positive feedback to recognize learners' successful performance and offer support to address learners' errors. In asynchronous modes, the provision of timely and personalized feedback is particularly critical, as delayed or brief responses cannot fully realize the motivational benefits of teacher support (Nicol & Macfarlane-Dick, 2006). However, given the large-scale nature of MOOCs, providing individualized feedback to every learner remains a challenge. To address this, AI-powered feedback systems may be integrated to deliver instant and tailored responses, thereby complementing teacher input and enhancing the overall feedback process. Finally, MOOC designers should optimize the positive features of MOOCs while minimizing potential technical challenges. Incorporating peer tutoring into the curriculum may further enhance peer connections, encourage learner autonomy, and foster a collaborative learning environment (Solhi, 2024).

Furthermore, this study has three main limitations. First, it adopted self-report questionnaires and semi-structured interviews to examine learners' L2WTC, but discrepancies may exist between learners' self-perceived L2WTC and their actual communicative behaviours. Future research is therefore recommended to employ longitudinal classroom observations to validate and extend the present findings. Second, since the participants were recruited from a single institution, the findings may have been influenced by contextual characteristics specific to this setting. Including learners from multiple institutions or regions in further studies would enhance the generalizability of the findings. Third, this study focused on the perspectives of EFL learners, while teachers' perceptions were not investigated. As the role of teachers in online learning environments has undergone significant changes compared with traditional classrooms, incorporating insights from both teachers and learners would yield a more comprehensive understanding of the L2WTC construct.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/S0958344026100470

Data availability statement. The data that support the findings of this study are available in the research data management system of the University of Sydney and can be accessed upon request.

Authorship contribution statement. Wenqian Huang: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing; Pengzhan Yang: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft; Huizhong Shen: Conceptualization, Supervision, Validation, Writing – review & editing; Hongzhi Yang: Conceptualization, Supervision, Validation, Writing – review & editing.

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Ethical statement. Ethics approval has been obtained from the Research Integrity and Ethics Administration of the University of Sydney. All participants were fully informed about the study and provided their consent prior to the commencement of the research. Participants were also informed of their right to withdraw from the study at any time and for any reason without consequence. All the collected data were anonymized and have been stored confidentially.

GenAI use disclosure statement. The authors declare no use of generative AI.

References

Alrabai, F. (2022). Teacher communication and learner willingness to communicate in English as a foreign language: A structural equation modeling approach. *Saudi Journal of Language Studies*, 2(2), 45–67. https://doi.org/10.1108/SJLS-03-2022-0043

Azevedo, B., Pedro, A., & Dorotea, N. (2024). Massive open online courses in higher education institutions: The pedagogical model of the Instituto Superior Técnico. *Education Sciences*, 14(11), Article 1215. https://doi.org/10.3390/educsci14111215

Balouchi, S., & Samad, A. A. (2021). The effect of perceived competence on second language communication frequency: The mediating roles of motivation, willingness to communicate, and international posture. *Education and Information Technologies*, 26(5): 5917–5937. https://doi.org/10.1007/s10639-021-10579-z

Bhuvaneswari, G., Borah, R. R., & Hussain, M. M. (2022). Willingness to communicate in face-to-face and online language classrooms and the future of learning. In A. Hamdan, A. E. Hassanien, T. Mescon, & B. Alareeni (Eds.), *Technologies, artificial intelligence and the future of learning post-COVID-19: The crucial role of international accreditation* (pp. 237–253). Springer. https://doi.org/10.1007/978-3-030-93921-2_14

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811. https://doi.org/10.1177/1049732316654870

Cao, Y., & Philp, J. (2006). Interactional context and willingness to communicate: A comparison of behavior in whole class, group and dyadic interaction. *System*, 34(4), 480–493. https://doi.org/10.1016/j.system.2006.05.002

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, 12(3), 297–298. https://doi.org/10.1080/17439760.2016.1262613

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. https://doi.org/10.1177/0261927X19864996

Ding, Y., & Shen, H. (2022). Delving into learner autonomy in an EFL MOOC in China: A case study. *Computer Assisted Language Learning*, 35(3), 247–269. https://doi.org/10.1080/09588221.2019.1681464

Dorman, J. P., Fisher, D. L., & Waldrip, B. G. (2006). Classroom environment, students' perceptions of assessment, academic efficacy and attitude to science: A Lisrel analysis. In D. L. Fisher & M. S. Khine (Eds.), *Contemporary approaches to research on learning environments: Worldviews* (pp. 1–28). World Scientific Publishing. https://doi.org/10.1142/9789812774651_0001

El-Maghraby, A. A. (2024). Using AI ChatGPT for improving FL freshmen's learning of English structural and semantic features. *CDELT Occasional Papers in the Development of English Education*, 86(1), 319–336. https://doi.org/10.21608/opde.2024.362828

Fu, L., Wang, X., & Wang, Y. (2012). The research on willingness to communicate in Chinese students' EFL study. *Journal of Language Teaching and Research*, 3(1), 112–117. https://doi.org/10.4304/jltr.3.1.112-117

Glidden-Tracey, C., & Greenwood, A. K. (1997). A validation study of the Spanish Self-Directed Search using back-translation procedures. *Journal of Career Assessment*, 5(1), 105–113. https://doi.org/10.1177/106907279700500107

Griffiths, C., Oxford, R. L., Kawai, Y., Kawai, C., Park, Y. Y., Ma, X., Meng, Y., & Yang, N. (2014). Focus on context: Narratives from East Asia. *System*, 43, 50–63. https://doi.org/10.1016/j.system.2013.12.013

Guillén, G. (2015). Review of *Language MOOCs: Providing Learning, Transcending Boundaries. Language Learning & Technology*, 19(3), 61–64. https://doi.org/10.64152/10125/44432

Guo, X., & Ibrahim, N. M. (2023). Engagement markers in EFL MOOC lectures in Chinese universities. *International Journal of Information and Education Technology*, 13(12), 1850–1857. https://doi.org/10.18178/ijiet.2023.13.12.1998

Hair, J. F., Jr., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer Nature.* https://doi.org/10.1007/978-3-030-80519-7

Hejazi, S. Y., Sadoughi, M., & Peng, J. E. (2023). The structural relationship between teacher support and willingness to communicate: The mediation of L2 anxiety and the moderation of growth language mindset. *Journal of Psycholinguistic Research*, 52(6), 2955–2978. https://doi.org/10.1007/s10936-023-10026-9

Ho, J., & Crookall, D. (1995). Breaking with Chinese cultural traditions: Learner autonomy in English language teaching. *System*, 23(2), 235–243. https://doi.org/10.1016/0346-251X(95)00011-8

Horwitz, E. K. (1986). Preliminary evidence for the reliability and validity of a foreign language anxiety scale. *TESOL Quarterly*, 20(3), 559–562. https://doi.org/10.2307/3586302

https://doi.org/10.1017/S0958344026100470 Published online by Cambridge University Press

Jiang, Y., & Peng, J. E. (2025). Exploring the relationships between learners' engagement, autonomy, and academic performance in an English language MOOC. *Computer Assisted Language Learning*, 38(1–2), 71–96. https://doi.org/10.1080/09588221.2022.2164777

Jitpaisarnwattana, N., Darasawang, P., & Reinders, H. (2022). Understanding affordances and limitations in a language MOOC from an activity theory perspective. *Research and Practice in Technology Enhanced Learning*, 17(1), Article 9. https://doi.org/10.1186/s41039-022-00186-y

Kang, S.-J. (2005). Dynamic emergence of situational willingness to communicate in a second language. *System*, 33(2), 277–292. https://doi.org/10.1016/j.system.2004.10.004

Khajavy, G. H., Ghonsooly, B., Hosseini Fatemi, A., & Choi, C. W. (2016). Willingness to communicate in English: A microsystem model in the Iranian EFL classroom context. *TESOL Quarterly*, 50(1), 154–180. https://doi.org/10.1002/tesq.204

Khansir, A. A. (2012). Error analysis and second language acquisition. *Theory and Practice in Language Studies*, 2(5), 1027–1032. https://doi.org/10.4304/tpls.2.5.1027-1032

Kirkpatrick, R., Vafadar, H., & Mohebbi, H. (2024). A scoping review of willingness to communicate in language education: Premises to doubt, lessons to learn, and future research questions to examine. *Language Testing in Asia*, 14(1), Article 9. https://doi.org/10.1186/s40468-024-00284-2

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. https://doi.org/10.1080/01434632.2018.1435666

Lee, J. S., & Drajati, N. A. (2020). Willingness to communicate in digital and non-digital EFL contexts: Scale development and psychometric testing. *Computer Assisted Language Learning*, 33(7), 688–707. https://doi.org/10.1080/09588221.2019.1588330

Lee, J. S., & Liu, L. (2024). Dynamicity of EFL learners' willingness to communicate in an online class. *Journal of Multilingual and Multicultural Development*, 45(6), 2078–2096. https://doi.org/10.1080/01434632.2022.2039677

Li, Y. (2023). Understanding Chinese postgraduates' silence in EFL flipped classroom. *Frontiers in Educational Research*, 6(28), 24–37. https://doi.org/10.25236/FER.2023.062803

MacIntyre, P. D., Clément, R., Dörnyei, Z., & Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. *The Modern Language Journal*, 82(4), 545–562. https://doi.org/10.1111/j.1540-4781.1998.tb05543.x

Martín-Monje, E., & Bárcena, E. (Eds.). (2015). *Language MOOCs: Providing learning, transcending boundaries*. De Gruyter. https://doi.org/10.2478/9783110420067

McKinley, J., & Rose, H. (2019). *The Routledge handbook of research methods in applied linguistics*. *Routledge*. https://doi.org/10.4324/9780367824471

Mellati, M., & Khademi, M. (2020). MOOC-based educational program and interaction in distance education: Long life mode of teaching. *Interactive Learning Environments*, 28(8), 1022–1035. https://doi.org/10.1080/10494820.2018.1553188

Memari, M. (2023). Comparing Iranian EFL learners' anxiety and willingness to communicate in regular and virtual class. *Arabian Gulf Journal*, 51(4), 771–792.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199–218. https://doi.org/10.1080/03075070600572090

Palloff, R. M., & Pratt, K. (2013). *Lessons from the virtual classroom: The realities of online teaching* (2nd ed.). John Wiley & Sons.

Patrick, H., Ryan, A. M., & Kaplan, A. (2007). Early adolescents' perceptions of the classroom social environment, motivational beliefs, and engagement. *Journal of Educational Psychology*, 99(1), 83–98. https://doi.org/10.1037/0022-0663.99.1.83

Peng, J. E. (2012). Towards an ecological understanding of willingness to communicate in EFL classrooms in China. *System*, 40(2), 203–213. https://doi.org/10.1016/j.system.2012.02.002

Peng, J. E. (2014). Willingness to communicate in the Chinese EFL university classroom: *An ecological perspective*. Multilingual Matters. https://doi.org/10.21832/9781783091560

Pu, H. (2020). Implementing online ELT in the time of crisis: Ordeal or opportunity? *ELT Journal*, 74(3), 345–348. https://doi.org/10.1093/elt/ccaa030

Quan-Haase, A., Harper, M.-G., & Wellman, B. (2021). The role of communication technology across the life course: A field guide to social support in East York. *Journal of Social and Personal Relationships*, 38(12), 3497–3517. https://doi.org/10.1177/02654075211056898

Reinders, H., & Wattana, S. (2015). Affect and willingness to communicate in digital game-based learning. *ReCALL*, 27(1), 38–57. https://doi.org/10.1017/S0958344014000226

Rose, H. (2012). Language learning strategy research: Where do we go from here? *Studies in Self-Access Learning Journal*, 3(2), 137–148. https://doi.org/10.37237/030202

Senaviratna, N. A. M. R., & Cooray, T. M. J. A. (2019). Diagnosing multicollinearity of logistic regression model. *Asian Journal of Probability and Statistics*, 5(2), 1–9. https://doi.org/10.9734/AJPAS/2019/v5i230132

https://doi.org/10.1017/S0958344026100470 Published online by Cambridge University Press

Solhi, M. (2024). The impact of EFL learners' negative emotional orientations on (un)willingness to communicate in in-person and online L2 learning contexts. *Journal of Psycholinguistic Research*, 53(2), Article 26. https://doi.org/10.1007/s10936-024-10071-y

Soyoof, A. (2023). Iranian EFL students' perception of willingness to communicate in an extramural digital context. *Interactive Learning Environments*, 31(9), 5922–5939. https://doi.org/10.1080/10494820.2021.2024579

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Tai, T.-Y. (2024). Comparing the effects of intelligent personal assistant-human and human-human interactions on EFL learners' willingness to communicate beyond the classroom. *Computers & Education*, 210, Article 104965. https://doi.org/10.1016/j.compedu.2023.104965

Uyanık, G. K., & Güler, N. (2013). A study on multiple linear regression analysis. *Procedia - Social and Behavioral Sciences*, 106, 234–240. https://doi.org/10.1016/j.sbspro.2013.12.027

Zadorozhnyy, A., & Lee, J. S. (2025). Informal digital learning of English and willingness to communicate in a second language: Self-efficacy beliefs as a mediator. *Computer Assisted Language Learning*, 38(4), 669–689. https://doi.org/10.1080/09588221.2023.2215279

Zarrinabadi, N. (2014). Communicating in a second language: Investigating the effect of teacher on learners' willingness to communicate. *System*, 42, 288–295. https://doi.org/10.1016/j.system.2013.12.014

Zhang, Y., Yang, F., Yang, H., & Han, S. (2024). Does checking-in help? Understanding L2 learners' autonomous check-in behavior in an English-language MOOC through learning analytics. *ReCALL*, 36(3), 343–358. https://doi.org/10.1017/S0958344024000144

Zheng, Q., Chen, L., & Burgos, D. (2018). *The development of MOOCs in China*. *Springer Singapore*. https://doi.org/10.1007/978-981-10-6586-6

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