International Journal of Instruction *January 2026 ● Vol.19, No.1*
e-ISSN: 1308-1470 ● www.e-iji.net *p-ISSN: 1694-609X*
pp. 687-704

Article submission code: 20250529165142
Received: 29/05/2025 Revision: 12/09/2025
Accepted: 23/09/2025 OnlineFirst: 07/10/2025

Linking Affective Variables to Willingness to Communicate among English Undergraduates in Three Contexts

Minlin Wen
Universiti Putra Malaysia, Malaysia & China West Normal University, China, *Wenml330@cwnu.edu.cn*

Norhakimah Khaiessa binti Ahmad
Universiti Putra Malaysia, Malaysia, *norhakimah@upm.edu.my*

Lilliati Ismail
Universiti Putra Malaysia, Malaysia, *lilliati@upm.edu.my*

Willingness to communicate (WTC) is a crucial factor in the process of language learning and is shaped by both individual and contextual factors. Although many studies have explored the connection between WTC and affective factors in face-to-face contexts, there has been relatively little focus on digital communication environments, especially in the context of Informal Digital Learning of English (IDLE) in China. This study adopted a quantitative, survey-based design, with data collected through a questionnaire administered to 158 Chinese undergraduate English majors at a normal university in China, and employed correlation and hierarchical regression analyses to examine the relationships. Five affective variable (self-confidence, motivation, attitude, foreign language anxiety, and L2 grit) were investigated in relation to WTC across three different settings: within the classroom, beyond the classroom, and in digital environments. Three key findings emerged: First, students exhibited the highest WTC in digital contexts and the lowest outside the classroom. Second, foreign language anxiety negatively affects WTC only in the classroom setting and does not significantly influence WTC beyond the classroom or in digital environments. Finally, self-confidence, motivation, and L2 grit significantly predicted WTC, though their effects varied across contexts. These findings highlight the complex, context-dependent nature of WTC and affirm the continued relevance of the WTC framework in digital learning environments.

Keywords: willingness to communicate, affective variables, predictor, diverse language contexts, Chinese undergraduates

INTRODUCTION

Successful language learning heavily relies on effective communication, which bridges the gap between linguistic knowledge and real-world application. As MacIntyre et al.

Citation: Wen, M., Ahmad, N. K. B., & Ismail, L. (2026). Linking affective variables to willingness to communicate among English undergraduates in three contexts. *International Journal of Instruction*, *19*(1), 687-704. https://doi.org/10.29333/iji.2026.19135a

(2003) highlighted, the primary aim of language education is to facilitate "authentic communication" between individuals from various linguistic and cultural backgrounds. To achieve this goal, one essential requirement is that learners must exhibit a willingness to communicate (WTC). According to the comprehensive heuristic model of L2 WTC developed by MacIntyre et al. (1998), WTC is shaped by a combination of individual (static and enduring) and situational (dynamic and transient) factors. Additionally, affective variables, as stable, long-term properties, play a significant role in influencing learners' WTC.

Effective interactions in language learning rely not only on linguistic competence but also on affective readiness for communication. While research has consistently demonstrated the critical role of affective variables in shaping learners' WTC, most studies have focused on self-confidence, motivation, and foreign language anxiety. However, the roles of attitude and personality, particularly in digital contexts, remain underexplored (Shamsi & Bozorgian, 2022), despite their relevance to the affective domain. For instance, Dewaele (2019) highlighted that attitudes toward the target language and culture are often overlooked in studies examining predictors of WTC. Furthermore, despite the growing interest in grit as both a positive affective variable (Lee & Drajati, 2019) and a distinct personality trait (Wei et al., 2020), research on this concept, particularly L2 grit, remains in its early stages (Lee, 2022). While general grit, reflecting persistence and enthusiasm for long-term objectives, has been widely studied, its relevance to L2 learning contexts is limited (Wang, 2023). L2 grit, which emphasizes perseverance and passion specifically in language learning (Wu et al., 2024), offers more targeted insights. However, reliance on domain-general grit measures may overlook L2-specific nuances (Teimouri et al., 2022). The association between L2 grit and WTC, especially among Chinese English majors, is underexplored and merits further study (Wang, 2023).

In addition to affective variables, temporary situational factors - such as the classroom environment (Khajavy et al., 2016), social support (Kalsoom et al., 2020), and communication mode (e.g., face-to-face vs. digital) (Chotipaktanasook & Reinders, 2016; Lee & Lee, 2020; Reinders & Wattana, 2015) - also jointly influence learners' WTC. Although research on digital communication contexts is growing, most studies largely focus on face-to-face interactions within and beyond the classroom (Dewaele & Dewaele, 2018; Kalsoom et al., 2020; Khajavy et al., 2016), with limited attention to digital contexts (Balouchi et al., 2021; Lee & Lee, 2020). Recent studies have begun addressing this gap by examining informal digital learning of English (IDLE). However, most IDLE research has been conducted in Europe, Latin America (Lee & Drajati, 2019), and Southeast Asia, with limited attention to East Asia, particularly the Chinese EFL context (Hu & Chang, 2019; Shang & Asaad, 2022). Moreover, the interplay between affective factors and WTC within the classroom, beyond the classroom, and in digital settings remains insufficiently understood (Lee & Hsieh, 2019), especially in China, underscoring the need to examine how these variables interact in diverse Chinese EFL contexts.

Based on these research gaps, this study examines how five affective elements - self-confidence, motivation, attitude, foreign language anxiety, and L2 grit - impact WTC

among Chinese English major undergraduates across three contexts: within the classroom, beyond the classroom, and in digital contexts. By addressing these underexplored areas in the Chinese EFL context, this study seeks to provide targeted insights into fostering learners' WTC and improving their language learning outcomes. Theoretically, it offers empirical evidence supporting MacIntyre's (1998) WTC Model within the Chinese EFL context and extends its applicability to digital learning environments, thereby deepening the understanding of how affective variables function across multiple settings. Practically, the findings provide guidance for both teachers and learners. Teachers are encouraged to cultivate a positive and supportive classroom atmosphere and to incorporate digital tools into traditional teaching practices to promote students' WTC. Learners are advised to strengthen their self-confidence and motivation through active engagement and to make use of digital platforms for low-pressure practice. Furthermore, the demonstrated importance of L2 grit highlights the need to foster perseverance and sustained interest in language learning, which can support learners' long-term communicative development.

LITERATURE REVIEW

A review of WTC

The idea of willingness to communicate (WTC) was originally proposed by Burgoon (1976) in a negative form as "unwillingness to communicate." Later, McCroskey and Baer (1985) reframed the concept positively as willingness to communicate, describing it as a personality characteristic in first language (L1) communication that reflects a stable pattern over time. In the 1990s, WTC was adapted to second language (L2) communication. In 1998, MacIntyre et al. described WTC as "a readiness to enter into discourse at a particular time with a specific person or persons, using a L2" (MacIntyre et al., p. 547), and developed a comprehensive heuristic model that views WTC as exhibiting both dispositional and momentary qualities. This pyramid-structured model incorporates various affective, cognitive, and situational variables, illustrating their interrelations and how they influence L2 learning and communication. MacIntyre and Doucette (2010) stated that WTC is indispensable for cultivating fluency in L2, representing the ultimate goal for language learners in their language acquisition journey. Additionally, WTC is strongly associated with students' communicative competence (Fu et al., 2012), and a lack of willingness may hinder effective communication and language output (Freiermuth & Jarrell, 2006).

The 21st century has witnessed a swift growth in social media and communication technologies, which has contributed to the growing importance of Language Learning and Teaching Beyond the Classroom (LBC), particularly in digital environments. This change has encouraged studies exploring the connection between language learners' WTC and technology-driven learning in the digital era (Shamsi & Bozorgian, 2022). A prominent focus within this field is the notion of Informal Digital Learning of English (IDLE), defined by Lee (2020) as "a fully autonomous L2 activity in out-of-class digital environments not linked to formal language instruction." Activities such as enjoying English songs, watching films, and participating in social media highlight unstructured, self-directed learning through digital platforms.

A growing body of research shows that such digital practices can enhance learners' confidence, motivation, and positive attitudes while reducing anxiety, thereby fostering greater WTC (Jannah et al., 2024; Mulyono & Saskia, 2021). Learners also tend to report higher WTC in digital contexts than in traditional face-to-face interactions, partly due to reduced pressure in online interaction (Fang & Mai, 2023; Lee & Hsieh, 2019). However, despite these promising findings, most studies still focus on face-to-face contexts, and the role of affective factors in digital and blended environments remains underexplored (Bensalem et al., 2024; Lee & Hsieh, 2019). Consistent with MacIntyre et al.'s (1998) model, affective factors remain central to WTC, yet their roles in digital and blended learning contexts remain underexplored.

Affective variables and WTC

Emotional factors play a critical role in shaping learners' willingness to communicate in second language acquisition (SLA). Many studies have emphasized the substantial effect of these elements like self-confidence, foreign language anxiety, motivation, attitude, and grit on WTC and real communication (Dewaele & Dewaele, 2018; Khajavy et al., 2016; Lee & Drajati, 2019; Lee & Lee, 2020; Mulyono & Saskia, 2021). However, findings often vary across contexts, highlighting the need for a more nuanced understanding of these variables.

Self-confidence, defined as the belief in one's ability to communicate effectively in the L2 (MacIntyre et al., 1998, p. 551), has been shown to promote active engagement and initiative in communication (Fu et al., 2012; Khajavy et al., 2016). Conversely, foreign language anxiety (FLA), described as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz et al., 1986, p. 128), often inhibits learners' willingness to initiate interactions (Dewaele, 2019; Ghonsooly et al., 2012; Kalsoom et al., 2020). Interestingly, the negative impact of anxiety appears to be context-dependent: in digital environments, FLA does not always significantly predict WTC (Lee & Hsieh, 2019), suggesting that online settings may mitigate anxiety-related barriers.

Motivation, conceptualized as a blend of the learner's effort, desire to attain language learning objectives, and a favorable attitude toward the language learning experience (Gardner, 1985), generally enhances WTC and more frequent language use in both in-person and virtual contexts (Balouchi et al., 2021; Yashima et al., 2004). Yet, its effects can vary across contexts (Lee & Hsieh, 2019), with some studies reporting weak or nonsignificant relationships between motivation and WTC (Ghonsooly et al., 2012; Öz et al., 2015; Peng & Woodrow, 2010), and evidence indicating higher motivation in classroom than online settings (Chen & Zhang, 2022). Attitude, particularly toward the course and teacher, has been found to influence WTC positively (Dewaele & Dewaele, 2018; Maryansyah, 2019). However, some studies report no significant relationship between attitudes and WTC (Dewaele et al., 2021), suggesting that the effect of attitudes may vary depending on context and individual learner characteristics. In addition, research on attitudes remains less extensive compared to factors like self-confidence, motivation, and foreign language anxiety (Dewaele, 2019), thus further

research is needed to explore university students' attitudes toward language learning in diverse contexts, especially in online environments.

Grit, a key affective trait in SLA, characterized by sustained effort and consistent interest (Duckworth et al., 2007), has been shown to positively impact language learners' WTC and their involvement in language learning (Lee & Hsieh, 2019; Lee & Lee, 2020; Wu et al., 2024). In particular, perseverance of effort shows stronger predictive power than consistency of interest for classroom WTC and language achievement (Lee, 2022; Wang, 2023). However, most studies treat grit as a general trait, potentially overlooking language-specific behaviors. To address this gap, Teimouri et al. (2022) proposed the L2 grit construct, targeting learners' sustained effort and interest specifically in second language learning. Despite its potential, the concept of L2 grit remains underexplored. As Wang (2023) points out, the relationship between L2 grit and WTC is still unclear, indicating a need for further research in this area. Overall, affective variables are crucial determinants of WTC, yet research reveals inconsistencies across contexts and populations, which is worth further exploration.

WTC in Chinese EFL settings

Research on WTC has consistently been a focal point in China due to its crucial role in developing learners' communicative skills. Most studies on WTC in China examine the influence of individual or contextual factors on learners' WTC. The individualized factors include self-confidence (Fang & Mai, 2023; Hu & Chang, 2019), motivation (Chen & Zhang, 2022), foreign language anxiety (Hu & Chang, 2019; Wei et al., 2022), risk-taking (Fang & Mai, 2023), personality (Shang & Asaad, 2022), and attitude (Chen & Zhang, 2022). Among these, foreign language anxiety and motivation are most extensively discussed, followed by self-confidence and risk-taking, whereas attitude and personality receive less attention. The findings suggest a strong association between individual factors and WTC, aligning with the prevailing trends in international research.

In recent decades, the influence of emotions on learning has been explored through an innovative psychological lens, which Chinese scholars began integrating into studies of learners' WTC around 2020. This includes positive factors such as L2 grit (Wang, 2023) and foreign language enjoyment (Wei & Chen, 2022), as well as negative factors like foreign language boredom (Bai, 2023). Research indicates that positive psychological factors are strong predictors of WTC, while negative factors are negatively associated with WTC. However, research on psychological factors in China remains relatively underdeveloped, with only a few existing studies.

Beyond individual affective factors, contextual and cultural factors also influence WTC in Chinese EFL settings. Classroom silence among Chinese learners is often attributed to limited English exposure outside class, the predominance of teacher-centered instruction, and cultural norms emphasizing attentiveness and respect for authority (Freiermuth & Ito, 2020; Lin & Curle, 2025; Tao, 2021; Wei & Chen, 2022). Students may be hesitant to speak to avoid losing face, following socially accepted norms such as "silence is golden" or "think twice before speaking", and often prioritize written exam performance over oral skills (Wei & Chen, 2022; Zhuo & Yang, 2019). These cultural

and educational factors, combined with individual affective variables, contribute to the observed variations in learners' WTC.

While a plethora of research has examined WTC in China, the predominant focus remains on non-English major college students, particularly in traditional classroom and out-of-classroom contexts. Although some studies have explored WTC in digital environments, they predominantly target non-English majors, leaving English major students underrepresented (Hu & Chang, 2019; Shang & Asaad, 2022). Additionally, around half of these studies investigate WTC within blended learning models that integrate online and offline instruction. Their emphasis on formal, teacher-directed learning often neglects the increasingly significant role of IDLE, which fosters learner autonomy, engagement, and spontaneous communication. Notably, only one study has examined WTC across three distinct learning contexts (Fang & Mai, 2023). Although it reported a tendency for higher WTC outside of class and online compared to in-class settings, the differences among the three contexts were not statistically significant. Inconsistencies in findings are also evident. For instance, Hu and Chang (2019) observed lower WTC in WeChat environments, while Chen and Zhang (2022) reported higher WTC in classroom settings during the pandemic. Collectively, these studies suggest that learners' WTC fluctuates across different environments. However, despite the increasing prevalence of digital communication in higher education, little is known about how English major students navigate WTC in informal digital environments. This gap calls for further investigation, particularly in light of the evolving role of IDLE in shaping students' communicative behavior.

In summary, two major research gaps can be identified. First, affective variables such as attitude and L2 grit have received comparatively little attention compared to self-confidence, anxiety, and motivation. Second, while digital communication is becoming increasingly prevalent, WTC in informal digital contexts, especially among English majors, remains underexplored, and studies comparing WTC across different learning contexts are still limited in the Chinese EFL setting. Given these gaps, the present study adopts an exploratory approach and aims to address the following research questions:

1. How willing are Chinese undergraduate English majors to communicate within the classroom, beyond the classroom, and in digital settings?

2. How are affective variables (self-confidence, motivation, attitude, foreign language anxiety, and L2 grit) related to willingness to communicate across these three contexts?

3. Which of the five affective variables (motivation, attitude, self-confidence, foreign language anxiety, and L2 grit) are significant predictors of willingness to communicate within the classroom, beyond the classroom, and in digital settings?

METHOD

Participants

A total of 158 Chinese EFL undergraduates majoring in English education were selected through random sampling from a provincial key normal university in Sichuan Province, China, to participate in the questionnaire survey. These students span four grades: 49 freshmen (31%), 26 sophomores (16.5%), 40 juniors (25.3%), and 43 seniors

(27.2%), ranging in age from 17 to 24. Reflecting the typical demographic of normal universities, the cohort comprised 142 female students (89.9%) and only 16 male students (10.1%). Regarding their English learning experience, 67 students (42.4%) had studied English for more than 10 years, 65 students (41.1%) for 6 to 10 years, and 26 students (16.5%) for 3 to 5 years. Additionally, 102 students (64.6%) spent more than 6 hours on the internet daily, while 56 students (35.4%) spent 1 to 3 hours online each day, none reported spending no time online. Despite the internet's crucial role in their daily lives, 78 students (49.4%) communicated with others in English online a few times a month, 51 students (32.3%) engaged in English communication a few times a week, 15 students (9.5%) preferred daily online English communication, and 14 students (8.9%) communicated in English several times daily.

Instrument

A three-part questionnaire was used in this study. The first part comprises 9 items aimed at gathering demographic information from participants. This includes details such as their university affiliation, academic year, age, gender, major, etc. The second part, consisting of 15 items, draws from and adapts studies by Lee and Drajati (2020) and Lee and Lu (2023). This section focuses on assessing students' willingness to communicate across three distinct communication contexts: inside the classroom (5 items), outside the classroom (5 items), and in digital settings (5 items). Respondents rate each item on a five-point Likert scale, ranging from "definitely unwilling" to "definitely willing", with scores assigned from 1 to 5 respectively. The third part contains 41 items and explores five affective variables: self-confidence (8 items), motivation (8 items), attitude (6 items), foreign language anxiety (10 items), and L2 grit (9 items). The self-confidence scale items are adapted from Lee and Drajati (2019), assessing participants' perceived confidence in understanding and communicating in English. Motivation items evaluate participants' enthusiasm for learning English, motivational intensity, and attitudes toward English learning, using the Attitude/Motivation Test Battery (AMTB) designed by Gardner (1985) and Gardner et al. (1997). Attitude items are also derived from Gardner's AMTB, measuring participants' attitudes towards their English course and English teacher. Items on foreign language anxiety are adapted and modified from both Lee and Drajati (2019) and the Foreign Language Classroom Anxiety Scale (FLCAS) by Horwitz et al. (1986), assessing the extent of nervousness experienced by Chinese English majors when speaking English or facing evaluation. Finally, L2 grit items are based on Termouri et al.'s (2022) study on language-domain-specific grit, aiming to gauge participants' sustained effort and stable interest in English learning. Responses to these affective scales are recorded on a five-point Likert scale: 1 for "strongly disagree", 2 for "disagree", 3 for "neutral", 4 for "agree", and 5 for "strongly agree". However, in the L2 grit scale, the scale descriptions differ slightly: 1 represents "not like me at all", 2 represents "not much like me", 3 represents "somewhat like me", 4 represents "mostly like me", and 5 represents "very much like me". Additionally, items 2, 4, 7, and 8 are reverse-scored.

Before implementing the survey, two professionals in Teaching English as a Second Language (TESL) evaluated the questionnaire items for content validity. Additionally,

exploratory factor analysis (EFA) and Cronbach's alpha (α) were utilized to ensure the questionnaire's construct validity and reliability. Initially, four negatively-keyed items (L2 grit items 2, 4, 7, and 8) were reverse-scored. Subsequently, EFA was conducted to evaluate the questionnaire's construct validity. Prior to conducting EFA, the data's normality and suitability for factor analysis were confirmed. Furthermore, the data met the prerequisites for factor analysis, as evidenced by a KMO (Kaiser-Meyer-Olkin) statistic of 0.865 (above the 0.5 threshold) and a significant Bartlett's Test of Sphericity ($\chi^2 = 7093.165$, df = 1540, $p < 0.001$). Next, a principal axis factoring method, employing varimax rotation, was then applied to the initial 56 items. To identify the appropriate number of factors and select items, the analysis relied on several criteria: communalities > 0.5, factor loadings > 0.4, eigenvalues > 1, cumulative variance explained > 60%, and theoretical coherence of the factor structure (Hair et al., 1995). As a result, three problematic items (one in self-confidence, one in motivation, and one in L2-grit) were excluded from further analysis based on these criteria. Although the communality of the fifth item in WTC outside the classroom was 0.495, which is below the typical cut-off values, the item was retained based on theoretical support (Fabrigar & Wegener, 2012). Regarding reliability, Cronbach's α values ranged from .826 to .941 across eight subscales, indicated strong internal consistency for each scale.

Data Collection and Data Analysis

First, approval was obtained from the dean of the School of Foreign Languages at the provincial key normal university in Sichuan Province, China to request cooperation from students for the investigation. Next, the participants were informed of the study's goals and assured of confidentiality and anonymity. They were explicitly advised of their right to withdraw at any stage and gave their informed consent prior to participation. Furthermore, the whole questionnaire was translated from English into Chinese using the back-translation method, ensuring better understanding for the participants. The questionnaire was designed and distributed to participants using Wen Juan Xing (WJX), an internet-based survey system in China available at https://www.wjx.cn/. In this study, the Quick Response Code (QR code) for the survey was initially shared with the dean of the School of Foreign Languages at this normal university. Then, with the assistance of the English instructors, the QR code was disseminated to students through QQ or WeChat groups. Each respondent was expected to allocate about 10 minutes to finish the questionnaire survey.

The questionnaire data were analyzed through descriptive statistics, Pearson's correlation, and hierarchical multiple regression using IBM SPSS Statistics 29. Initially, descriptive data were employed to answer Research Question 1, examining participants' levels of WTC and affective variables across three different contexts. Subsequently, Pearson's correlation was utilized to address Research Question 2, exploring the relationships between the five affective variables and WTC within the classroom, beyond the classroom, and in digital environments. Finally, hierarchical multiple regression analyses were conducted to address Research Question 3, identifying the significant predictors among the five affective variables on WTC within the three distinct contexts. This study received ethical clearance from the Ethics Committee for Research Involving Human Subjects, with approval number JKEUPM-2024-220.

FINDINGS

Descriptive statistics

Table 1 below presents descriptive data on students' willingness to communicate across three distinct environments and related affective variables. A mean score below 2.5 for WTC and affective variables is considered "low"; a score between 2.5 and 3.5 is regarded as "intermediate"; and a score above 3.5 is classified as "high."

Table 1
Descriptive statistics

Variables	Min	Max	M	SD
WTC within the classroom	1	5	3.26	0.79
WTC beyond the classroom	1	5	2.76	0.88
WTC in digital settings	1	5	3.62	0.86
Self-confidence	1	5	3.22	0.83
Motivation	2	5	3.59	0.71
Attitude	1	5	3.90	0.70
Foreign Language Anxiety	1	5	3.56	0.77
L2 grit	2	5	3.41	0.64

This table indicates that students exhibit the highest WTC level in the digital environment (M = 3.62, SD = 0.86), a moderate WTC level both within the classroom (M = 3.26, SD = 0.79) and beyond the classroom (M = 2.76, SD = 0.88), with WTC in the out-of-class environment being the lowest. Regarding affective variables, participants showed high levels of motivation (M = 3.59, SD = 0.71), attitude (M = 3.90, SD = 0.70), and foreign language anxiety (M = 3.56, SD = 0.77), while demonstrating moderate levels of self-confidence (M = 3.22, SD = 0.83) and L2 grit (M = 3.41, SD = 0.64).

Correlation analysis

Table 2 shows the relationship between WTC and the five affective variables in three various contexts.

Table 2
Correlations between WTC and the affective variables

	1	2	3	4	5	6	7	8
1.WTC inside the classroom	1	.261**	.519**	.583**	.639**	.433**	-.290**	.285**
2.WTC outside the classroom		1	.236**	.340**	.212**	.147	-.115	.084
3.WTC in digital context			1	.499**	.589**	.274**	-.095	.181*
4.Self-confidence				1	.617**	.411**	-.341**	.361**
5.Motivation					1	.553**	-.157*	.664**
6.Attitude						1	-.041	.394**
7.Foreign Language Anxiety							1	-.157**
8.L2 Grit								1

Note. *p<.05, **p<.01.

As indicated in Table 3, WTC inside the classroom displayed significant correlations with all five affective variables. Specifically, it exhibited positive correlations with self-

confidence, motivation, attitude, and L2 grit, and a negative correlation with foreign language anxiety. Notably, motivation demonstrated a particularly strong positive correlation with WTC within the classroom ($r = .639$, $p < 0.01$). WTC in digital contexts also demonstrated significant associations with the five affective variables, with the exception of foreign language anxiety. However, WTC outside the classroom showed significant correlations only with self-confidence and motivation in this context.

Hierarchical regression analysis

In response to research question 3 regarding the significant predictors of WTC within the classroom, beyond the classroom, and in digital contexts, hierarchical linear regression analyses were performed, with results shown in Tables 3 to 5.

Table 3
Hierarchical regression model forecasting WTC within the classroom

	Model 1		Model 2	
	B (SE)	B	B (SE)	B
Constant	3.335(1.637)		1.178(1.355)	
Age	-0.018(0.083)	-0.033	0.035(0.062)	0.063
Gender	-0.020(0.210)	-0.008	-0.018(0.162)	-0.007
Undergraduate Year	0.052(0.102)	0.078	-0.063(0.077)	-0.094
Years of English learning	0.202(0.096)	0.186	0.025(0.075)	0.023
Internet use frequency	-0.191(0.134)	-0.116	-0.132(0.102)	-0.080
Internet use for English communication	0.132(0.068)	0.156	0.045(0.053)	0.053
Self-confidence			0.181(0.080)	0.189*
Motivation			0.648(0.113)	0.584**
Attitude			0.124(0.086)	0.111
Foreign language anxiety			-0.171(0.069)	-0.166*
L2 grit			0.296(0.101)	0.240*
R2		0.086		0.516
Adjusted R2		0.049		0.478
Change of R2				0.430

Note：B = Beta (standardized regression coefficient), SE = Standard error; **p < .01, *p < .05

As shown in Table 3, self-confidence ($B = 0.189$, $p < 0.05$), motivation ($B = 0.584$, $p < 0.01$) and L2 grit ($B = 0.240$, $p < 0.05$) emerged as significant positive predictors of WTC inside the classroom, with motivation being identified as a strong predictor. Conversely, foreign language anxiety ($B = -0.166$, $p < 0.05$) was found to be the negative predictor. Collectively, these variables explained 47.8% of the variance in WTC within the classroom.

Table 4
Hierarchical regression model forecasting WTC beyond the classroom

	Model 1 B (SE)	B	Model 2 B (SE)	B
Constant	3.479(1.811)		2.278(1.981)	
Age	-0.091(0.091)	-0.145	-0.068(0.091)	-0.109
Gender	-0.108(0.232)	-0.037	0.041(0.237)	0.014
Undergraduate Year	0.182(0.113)	0.244	0.131(0.112)	0.176
Years of English learning	0.138(0.106)	0.113	0.070(0.110)	0.057
Internet use frequency	0.045(0.148)	0.024	0.096(0.149)	0.052
Internet use for English communication	0.239(0.075)	0.249	0.227(0.078)	0.237**
Self-confidence			0.275(0.117)	0.254*
Motivation			-0.041(0.165)	-0.032
Attitude			0.136(0.125)	0.108
Foreign language anxiety			-0.037(0.100)	-0.032
L2 grit			0.147(0.147)	0.106
R2		0.123		0.189
Adjusted R2		0.087		0.126
Change of R2				0.066

Note：B = Beta (standardized regression coefficient), SE = Standard error; **p < .01, *p < .05

In Table 4, self-confidence (B = 0.254, p < 0.05) and Internet use for English communication (B = 0.237, p < 0.01) emerged as significant positive predictors of WTC outside the classroom, with the latter being highlighted as a strong predictor. The combined influence of the two variables explained 12.6% of the variance in WTC beyond the classroom setting.

Table 5
Hierarchical regression model forecasting WTC in digital context

	Model 1 B (SE)	B	Model 2 B (SE)	B
Constant	3.123(1.729)		1.537(1.517)	
Age	-0.005(0.087)	-0.008	0.025(0.070)	0.042
Gender	-0.296(0.222)	-0.106	-0.399(0.182)	-0.144*
Undergraduate Year	0.104(0.108)	0.145	0.005(0.086)	0.007
Years of English learning	0.256(0.101)	0.217	0.140(0.084)	0.119
Internet use frequency	0.041(0.142)	0.023	-0.022(0.114)	-0.012
Internet use for English communication	0.106(0.072)	0.115	-0.026(0.060)	-0.028
Self-confidence			0.125(0.090)	0.120
Motivation			0.940(0.127)	0.779**
Attitude			-0.138(0.096)	-0.114
Foreign language anxiety			0.068(0.077)	0.061
L2 grit			0.403(0.113)	0.301**
R2		0.136		0.486
Adjusted R2		0.101		0.446
Change of R2				0.350

Note：B = Beta (standardized regression coefficient), SE = Standard error; **p < .01, *p < .05

Regarding the regression model for the digital context, as presented in Table 5, motivation, L2 grit, and gender were found to collectively explain 44.6% of the variance in WTC. Both motivation (B = 0.779, p < 0.01) and L2 grit (B = 0.301, p < 0.01) were the strong positive predictors in this context, whereas gender (B = -0.144, p < 0.05) was identified as a negative predictor.

DISCUSSION

This study examined the correlation between WTC and five affective variables across three contexts: within the classroom, beyond the classroom, and in digital environments, and led to three significant results. Firstly, Chinese English major undergraduates displayed the strongest WTC in digital settings, echoing previous empirical evidence (Chotipaktanasook & Reinders, 2016; Lee & Hsieh, 2019; Mulyono & Saskia, 2021). This finding supports MacIntyre et al.'s (1998) heuristic model of WTC, which highlights the importance of situational and contextual factors in shaping learners' communication behavior. Digital communication, in particular, provides a more relaxed and less face-threatening environment (Lee & Hsieh, 2019; Lee & Lee, 2020), thereby reducing students' nervousness and anxiety while enhancing their confidence. Moreover, the convenience of online networks and the availability of numerous online resources offer significant support and assistance. Since much of online communication is text-based, students have more time to think and compose their responses (Lee & Hsieh, 2019), which helps them avoid embarrassment and errors, reduce anxiety, and ultimately enhance their WTC.

Secondly, this study confirmed that foreign language anxiety (FLA) was strongly and negatively associated with students' WTC in classroom settings, supporting earlier work (Dewaele & Dewaele, 2018; Khajavy et al., 2016; Lee & Hsieh, 2019). In contrast, no significant link emerged between FLA and WTC in either out-of-class or digital environments, consistent with the findings of Mulyono and Saskia (2021). This context-dependent effect reinforces Horwitz et al.'s (1986) conceptualization of FLA as highly situation-specific and underscores the classroom as the setting where anxiety most strongly undermines WTC. A likely explanation is that, influenced by traditional Chinese culture and Confucianism, students view teachers as authoritative figures (Wei & Chen, 2022). Speaking in front of teachers and peers therefore heightens anxiety due to concerns about formality, language accuracy, and the risk of making mistakes (Mulyono & Saskia, 2021), all of which threaten learners' face. Asian L2 learners, in particular, are more likely to experience nervousness and embarrassment in such evaluative situations (Lee & Lee, 2020). By contrast, out-of-class and digital environments, with their variable interlocutors and topics, are generally less intimidating for communication.

Lastly, self-confidence, motivation, and L2 grit emerged as the most significant predictors of WTC, though their effects varied across contexts. In classroom and out-of-class settings, self-confidence was a strong predictor, consistent with previous studies (Ghonsooly et al., 2012; Khajavy et al., 2016; Lee & Drajati, 2019; Mulyono & Saskia, 2021; Peng & Woodrow, 2010). As learners' self-confidence grows over time, their willingness to initiate conversations, both within and beyond the classroom, noticeably increases. Motivation and L2 grit were also found to positively predict WTC, particularly in classroom and digital environments, with motivation exerting the stronger influence. This aligns with prior research (Balouchi et al., 2021; Mulyono & Saskia, 2021; Yashima et al., 2004), which identifies motivation as a key driver of language use and WTC in both formal and online settings. L2 grit, likewise, played a meaningful role. Previous work has shown that learners with higher grit levels report

greater WTC in both classroom and digital contexts (Lee, 2022; Lee & Lee, 2020), and Wang's (2023) study on Chinese sophomores further confirmed that domain-specific L2 grit predicts WTC. The present findings extend these insights, suggesting that a sustained and long-term interest in English fosters greater willingness to communicate among English majors, echoing Teimouri et al.'s (2022) grit framework within the L2 learning domain. Taken together, these findings highlight the situated and multi-layered nature of WTC, as proposed by MacIntyre et al.'s (1998) heuristic model, and demonstrate how affective variables interact with contextual factors to shape learners' communicative behaviors.

Based on these research findings, this study provides three instructional recommendations for EFL educators. Firstly, this research emphasizes that self-confidence, motivation, and L2 grit are crucial affective factors significantly associated with WTC across various contexts. To enhance learners' self-confidence, EFL teachers should provide timely positive feedback and encouragement, acknowledging students' progress and achievements in oral English (Lee & Drajati, 2019). Meanwhile, foster an environment that encourages risk-taking and prioritizes communication over linguistic perfection and accuracy (Lee et al., 2022). These can help alleviate students' anxiety and enhance their confidence in English communication. Moreover, EFL teachers should work on developing English majors' intrinsic motivation for language learning, as this can enhance their self-confidence and, consequently, their WTC in English (Khajavy et al., 2016). Additionally, EFL educators can assist students by helping them set both short-term semester goals and long-term objectives. Achieving these goals can provide students with a sense of accomplishment, thereby boosting their confidence and fostering a more resilient character.

Secondly, since foreign language anxiety negatively impacts learners' WTC in the classroom, EFL educators should create a relaxed and enjoyable classroom environment to alleviate anxiety and enhance students' WTC. Khajavy et al. (2021) noted that teachers generally have more influence over creating enjoyable experiences than managing anxiety. Dewaele and Dewaele (2017) identified peer judgment as a major source of anxiety. Therefore, EFL teachers should promote cooperation, collaboration, and mutual support among students, as these practices can help alleviate anxiety and foster a more relaxed and enjoyable classroom environment (Fatima et al., 2020; Khajavy et al., 2016).

Finally, since this study finds that students show the highest WTC in digital contexts, teachers should leverage digital technologies such as social media and online games in learning activities (Lee et al., 2022). Next, encourage students to use AI to practice oral communication, since recent studies have shown that AI chatbots can effectively reduce learners' anxiety, boost self-confidence and enhance WTC (Kim & Su, 2024). Nevertheless, issues like access and appropriate use may pose challenges. Moreover, hybrid learning practices should be promoted in EFL teaching. Teachers should utilize online communication platforms to enhance classroom communication skills, boost college students' interest in English, and extend classroom learning into boundless extracurricular and extramural opportunities (Fang & Mai, 2023).

CONCLUSION

This study investigated the relationship between five affective variables and WTC within the classroom, beyond the classroom, and in digital contexts among Chinese English major undergraduates. Three major results emerged from this study. First, students are most willing to engage in communication in digital context, whereas they are least willing to do so outside the classroom. Second, foreign language anxiety negatively affects WTC solely within the classroom setting. Third, self-confidence, motivation, and L2 grit emerged as the strongest predictors of WTC, though their effects varied across contexts. These findings underscore the multifaceted nature of WTC and demonstrate that MacIntyre et al.'s (1998) heuristic WTC model remains relevant and adaptable in digital communication environments, with affective variables continuing to predict WTC even in virtual contexts. This highlights the model's robustness in today's technology-enhanced language learning landscape and contributes to advancing both WTC theory and pedagogical practices across diverse cultural and educational contexts.

Nevertheless, there are certain limitations to this research. Firstly, participants were exclusively drawn from a single normal university in China, which limits the generalizability of the findings to other universities and regions. In addition, the gender imbalance among participants, with nearly 90% being female, further constrains the applicability of the results to more gender-balanced populations. Secondly, the study focuses on trait-like WTC from a static perspective, neglecting the potential for WTC to fluctuate across different contexts and time periods. This oversight suggests a need for further research into how WTC evolves over time and across various situations (Lee & Lee, 2020). Additionally, while WTC was assessed across different contexts, the study did not evaluate the five affective variables in each context. For instance, learners' anxiety levels might differ between face-to-face and digital interactions. Future research should consider measuring these affective variables across different contexts to provide a more nuanced understanding of how emotions change in various settings. Finally, this study relied solely on quantitative data, and the lack of qualitative data limits the depth of insights into learners' experiences and the underlying reasons behind their WTC. Future studies could incorporate interviews and observations to gain richer, more detailed perspectives.

Despite these limitations, this study corroborates earlier research on the relationship between affective variables and extends these findings within the Chinese EFL context. It provides specific contributions to WTC theory by showing how self-confidence, motivation, and L2 grit continue to predict WTC in informal digital learning settings. Moreover, it offers valuable insights for EFL educators, helping them support English majors in improving their WTC in various communicative contexts, which, in turn, can enhance their communication skills in real-world interactions.

REFERENCES

Bai, S. (2023). The predictive effects of foreign language anxiety and boredom on willingness to communicate among Chinese struggling EFL learners. *Heliyon*, *9*, e19610. https://doi.org/10.1016/j.heliyon.2023.e19610

Balouchi, S., Samad, A., Ab Jalil, H., & Noordin, N. (2021). Motivation, international posture, and willingness to communicate as predictors of L2 communication in online contexts. *International Journal of Learning Technology*, *16*, 158-177. https://doi.org/10.1504/IJLT.2021.117766

Bensalem, E., Derakhshan, A., Alenazi, F. H., Thompson, A. S., & Harizi, R. (2024). Modeling the contribution of grit, enjoyment, and boredom to predict English as a foreign language students' willingness to communicate in a blended learning environment. *Perceptual and Motor Skills*, *132*(1), 144-168. https://doi.org/10.1177/00315125241289192

Chen, Y., & Zhang, Z. (2022). A study of willingness to communicate model of Chinese college students in extramural and extracurricular online English learning contexts. *Foreign Languages and Literature(bimonthly)*, *38*(6), 151-160.

Chotipaktanasook, N., & Reinders, H. (2016). Willingness to communicate in social media: An investigation of the long-term effects. *Asian EFL Journal*, *18*(4), 6-25.

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

Dewaele, J.-M., & Dewaele, L. (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. https://doi.org/10.22599/jesla.37

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087-1101. https://doi.org/10.1037/0022-3514.92.6.1087

Fabrigar, L. R., & Wegener, D. T. (2012). *Exploratory Factor Analysis - Understanding Statistics*. New York: Oxford University Press.

Fang, X., & Mai, H. (2023). The impact of affective variables on Chinese EFL students' willingness to communicate in in-class, out-of-class, and digital contexts. *Journal of Weifang Engineering Vocational College*, *36*(3), 91-98,103. https://doi.org/10.3969/j.issn.1009-2080.2023.03.015

Fatima, I., Mohamed Ismail, S. A. M., Pathan, Z., & Memon, U. (2020). The power of openness to experience, extraversion, L2 self-confidence, classroom environment in predicting L2 willingness to communicate. *International Journal of Instruction*, *13*, 909-924. https://doi.org/10.29333/iji.2020.13360a

Freiermuth, M., & Jarrell, D. (2006). Willingness to communicate: Can on-line chat help? *International Journal of Applied Linguistics*, *16*, 189-212. https://doi.org/10.1111/j.1473-4192.2006.00113.x

Freiermuth, M. R., & Ito, M. F. (2020). Seeking the source: The effect of personality and previous experiences on university students' L2 willingness to communicate. *Learning and Motivation*, *71*, 101640. https://doi.org/10.1016/j.lmot.2020.101640

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*. https://doi.org/10.4304/jltr.3.1.112-117

Gardner, R. C. (1985). *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation*. London: Edward Arnold.

Ghonsooly, B., Khajavy, G. H., & Asadpour, S. F. (2012). Willingness to communicate in English among Iranian non–English major university students. *Journal of language and Social Psychology*, *31*(2), 197-211. https://doi.org/10.1177/0261927X12438538

Hair, J., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis (4th ed.)*. New Jersey: Prentice-Hall Inc.

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign Language Classroom Anxiety. *The Modern language journal*, *70*(2), 125-132. https://doi.org/10.2307/327317

Hu, Z., & Chang, Y. (2019). A study on the willingness to communicate in the context of mobile learning. *Language Education*, *7*(2), 22-28. http://112.126.70.247/yyjy/EN/Y2019/V7/I2/22

Jannah, L. R. I., Sholihah, F. A., & Ni'mah, D. (2024). Student's willingness to communicate in English in EFL digital context: A narrative inquiry. *Journey: Journal of English Language and Pedagogy*, *7*(2), 190-198. https://doi.org/10.33503/journey.v7i2.830

Kalsoom, A., Soomro, N., & Pathan, Z. (2020). How social support and foreign language anxiety impact willingness to communicate in English in an EFL classroom. *International Journal of English Linguistics*, *10*(2), 80-91. https://doi.org/10.5539/ijel.v10n2p80

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

Kim, A., & Su, Y. (2024). How implementing an AI chatbot impacts Korean as a foreign language learners' willingness to communicate in Korean. *System*, *122*, 103256. https://doi.org/10.1016/j.system.2024.103256

Lee, J. S. (2020). Informal digital learning of English and strategic competence for cross-cultural communication: Perception of varieties of English as a mediator. *ReCALL*, *32*(1), 47-62. https://doi.org/10.1017/S0958344019000181

Lee, J. S. (2022). The role of grit and classroom enjoyment in EFL learners' willingness to communicate. *Journal of Multilingual and Multicultural Development*, *43*(5), 452-468. https://doi.org/10.1080/01434632.2020.1746319

Lee, J. S., & Drajati, N. A. (2019). Affective variables and informal digital learning of English: Keys to willingness to communicate in a second language. *Australasian Journal of Educational Technology*, *35*. https://doi.org/10.14742/ajet.5177

Lee, J. S., & Hsieh, J. C. (2019). Affective variables and willingness to communicate of EFL learners in in-class, out-of-class, and digital contexts. *System*, *82*, 63-73. https://doi.org/10.1016/j.system.2019.03.002

Lee, J. S., & Lee, K. (2020). Affective factors, virtual intercultural experiences, and L2 willingness to communicate in in-class, out-of-class, and digital settings. *Language Teaching Research*, *24*(6), 813-833. https://doi.org/10.1177/1362168819831408

Lee, J. S., Lee, K., & Chen Hsieh, J. (2022). Understanding willingness to communicate in L2 between Korean and Taiwanese students. *Language Teaching Research*, *26*(3), 455-476. https://doi.org/10.1177/1362168819890825

Lin, Y., & Curle, S. (2025). Understanding willingness to communicate in English Medium Instruction: Cultural and pedagogical influences on Chinese university students. *The Asia-Pacific Education Researcher*. https://doi.org/10.1007/s40299-025-00973-3

MacIntyre, P., Baker, S., Clément, R., & Donovan, L. (2003). Talking in order to learn: Willingness to communicate and intensive language programs. *Canadian Modern Language Review*, *59*, 589-607. https://doi.org/10.3138/cmlr.59.4.589

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

MacIntyre, P. D., & Doucette, J. (2010). Willingness to communicate and action control. *System*, *38*(2), 161-171. https://doi.org/10.1016/j.system.2009.12.013

Maryansyah, Y. (2019). A study on English students' willingness to communicate in English in social media. *Premise: Journal of English Education and Applied Linguistics*, *8*(1), 31-45. https://doi.org/10.24127/pj.v8i1.1930

McCroskey, J. C., & Baer, J. E. (1985). Willingness to communicate: The construct and its measurement. Paper presented at the annual convention of the Speech Communication Association. https://doi.org/10.1080/01463379209369817

Mulyono, H., & Saskia, R. (2021). Affective variables contributing to Indonesian EFL students' willingness to communicate within face-to-face and digital environments. *Cogent Education*, *8*(1), 1911282. https://doi.org/10.1080/2331186X.2021.1911282

Öz, H., Demirezen, M., & Pourfeiz, J. (2015). Willingness to communicate of EFL learners in Turkish context. *Learning and Individual Differences*, *15*, 269-275. https://doi.org/10.1016/j.lindif.2014.12.009

Peng, J. E., & Woodrow, L. (2010). Willingness to communicate in English: A model in the Chinese EFL classroom context. *Language learning*, *60*(4), 834-876. https://doi.org/10.1111/j.1467-9922.2010.00576.x

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

Shamsi, E., & Bozorgian, H. (2022). A review of empirical studies of social media on language learners' willingness to communicate. *Education and Information Technologies*, *27*, 4473–4499. https://doi.org/10.1007/s10639-021-10792-w

Shang, G., & Asaad, H. Q. M. (2022). Factors influencing Chinese EFL learners' willingness to communicate in live online sessions. *Journal of Guizhou Education University*, *38*(9), 40-47. https://doi.org/10.13391/j.cnki.issn.1674-7798.2022.09.008

Tao, J. (2021). POA-based Reading and Speaking Approach to Oral English Teaching. *Contemporary Foreign Language Studies*(3), 96-103. https://doi.org/10.3969/j.issn.1674-8921.2021.03.010

Teimouri, Y., Plonsky, L., & Tabandeh, F. (2022). L2 grit: Passion and perseverance for second-language learning. *Language Teaching Research*, *26*(5), 893-918. https://doi.org/10.1177/1362168820921895

Wang, Y. (2023). The role of L2 grit in willingness to communicate: Mediating effects of foreign language enjoyment and anxiety. *Modern Foreign Languages (Bimonthly)*, *46*(01), 42-55.

Wei, R., Liu, H., & Wang, S. (2020). Exploring L2 grit in the Chinese EFL context. *System*, *93*, 102295. https://doi.org/10.1016/j.system.2020.102295

Wei, X., & Chen, X. (2022). The effects of language mindsets upon L2 willingness to communicate: An analysis of the multiple mediating roles of academic emotions and self-efficacy. *Journal of Xi'an International Studies University*, *30*(4), 58-63. https://doi.org/10.16362/j.cnki.cn61-1457/h.2022.04.005

Wei, X., Chen, X., & Yang, Y. (2022). The roles of emotional intelligence and class social climate in L2 willingness to communicate: Evidence from the moderating model. *Foreign Languages and Their Teaching*, *1*(6), 88-99. https://doi.org/10.13458/j.cnki.flatt.004904

Wu, C., Tian, X., & Jin, H. (2024). Grit and Second Language Learning Engagement: The Mediating Role of Affect Balance. *Behavioral Sciences*, *14*(3), 184. https://www.mdpi.com/2076-328X/14/3/184

Yashima, T., Zenuk-Nishide, L., & Shimizu, K. (2004). The influence of attitudes and affect on willingness to communicate and second language communication. *Language learning*, *54*, 119-152. https://doi.org/10.1111/j.1467-9922.2004.00250.x

Zhuo, L., & Yang, X. (2019). Willingness to communicate of non-English major graduates under SPOC-based blended model. *Journal of Hainan Tropical Ocean University*, *26*(1), 123-128. https://doi.org/10.13307/j.issn.2096-3122.2019.01.18