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The effect of foreign language enjoyment on the willingness to communicate of non-English majors: the mediating role of L2 grit and academic buoyancy

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Introduction: Foreign language enjoyment (FLE) has emerged as a significant factor influencing learners' willingness to communicate (WTC) given its critical role in shaping communicative behaviors in language learning. However, the relationship between second/foreign language (L2) grit, academic buoyancy, FLE and WTC remains under-explored. To address this research gap, this study surveyed 486 Chinese non-English majors studying English-as-a-foreign-language (EFL) to examine the effect of FLE on WTC, as well as the mediating effects of L2 grit and academic buoyancy.

Methods: The study primarily employs research methods such as descriptive analysis, Pearson correlation analysis, regression analysis and mediation effect analysis.

Results: The research findings revealed medium levels of L2 grit and WTC, and high levels of FLE and academic buoyancy. The results of the Pearson correlation analysis revealed significant correlations between WTC and FLE, L2 grit and academic buoyancy ($p < 0.01$). Regression analysis confirmed that FLE and academic buoyancy were significant predictors of WTC, whereas L2 grit was not. Mediation analysis identified academic buoyancy as a mediator, establishing the pathway "FLE—Academic buoyancy—WTC" for the effect of FLE on WTC.

Discussion: These findings could provide practical guidance for cultivating and enhancing the WTC of non-English majors in L2 learning.

KEYWORDS

willingness to communicate, foreign language enjoyment, academic buoyancy, grit, mediation effect

1 Introduction

Willingness to communicate (WTC) is a pivotal determinant of communicative behavior and language acquisition, and has attracted considerable interest in the field of second language (L2) teaching and learning (Peng and Woodrow, 2010). This construct has been shown to have a positive influence on learners' academic outcomes. Khajavy et al. (2016) suggested that individuals with increased WTC in a foreign language are likely to achieve higher academic performance. This is attributed to their increased engagement in language use through communication, which fosters a desire to participate in authentic educational settings. Such engagement is conducive to learning and ultimately facilitates the mastery of a foreign language. In addition, learners' WTC may be shaped by other positive emotional states, such as motivation (Kruk, 2022) and enjoyment of the foreign language (Lee, 2020). Among these, foreign language enjoyment (FLE) has emerged in recent years as one of the predominant emotions in the L2 learning context (Dewaele and MacIntyre, 2014). FLE refers to the enjoyment that learners feel while learning a foreign language (Dewaele and MacIntyre, 2014). FLE encapsulates the positive emotions and attitudes that learners experience when engaging with or learning a foreign language; it serves not only to stimulate

learners' interest, motivation and WTC but also to sustain their enthusiasm for learning (Botes et al., 2022). This sustained passion enables them to devote more time and energy to the pursuit of language skills (Tsang and Dewaele, 2024).

With the rise of positive psychology, L2 research has also shifted its focus to the impact of positive psychological factors on L2 learning (Li et al., 2023), as the long-term and arduous nature of L2 learning particularly requires learners to possess positive psychological qualities. L2 grit is a positive personality trait that refers to an individual's perseverance and passion for long-term goals, and it includes two dimensions: perseverance of effort (PoE) and consistency of interest (CoI) (Duckworth et al., 2007). Zhao and Wang (2023) revealed that PoE and CoI predicted emotions (enjoyment and boredom) and learning achievements. Positive personality traits play a dominant role through individual cognition, emotion, and behavior, such as maintaining physical and mental health and achieving good academic achievements (Park et al., 2004). In addition, academic buoyancy is the ability of students to successfully overcome difficulties and challenges encountered in their daily academic life, and is a positive adaptive psychological mechanism. As a positive psychological quality, academic buoyancy is beneficial for students to actively self-regulate and maintain a high level of engagement when facing daily learning difficulties (Elahi Shirvan and Alamer, 2022; Wei et al., 2020).

In recent years, many studies have examined the emotional and psychological impact of various factors on language learning, particularly with regard to the WTC of L2 learners. For example, Ma et al. (2024) identified four categories of factors influencing participants' WTC in English: individual, socio-cultural, educational, and environmental factors. Zhang and Dai (2024) demonstrated that learning motivation and academic self-efficacy had significant and positive effects on Chinese EMI students' WTC. Zou et al. (2025b) examined the effect of EFL learners from China and Iran engaging in informal digital learning of English (IDLE) on their FLE and WTC. They discovered that Chinese students' IDLE involvement did not significantly impact FLE, but in the Iranian EFL context, FLE mediated the link between IDLE and WTC. Moreover, EFL learners' IDLE participation positively and significantly boosted WTC in both contexts. Wang et al. (2021) identified factors such as age, gender and personality traits as contributing to learners' WTC. Meanwhile, MacIntyre et al. (1998) emphasised that fostering WTC is a key objective of L2 teaching. Teaching that fails to cultivate students' WTC cannot be called effective teaching, as WTC is a direct factor that influences participation in L2 communicative behavior. Based on the context of L2 learning in China, Wen and Clément (2003) pointed out that Chinese students tend to perform better in written examinations but have weaker oral skills. One of the main reasons for this is a lack of communicative willingness. Therefore, L2 research should focus on stimulating students' WTC in order to improve their academic performance. However, the impact of positive psychological factors on WTC in L2 has been relatively underexplored, particularly concerning the combined effects of multiple factors. FLE, L2 grit, and academic buoyancy represent three critical psychological constructs relevant to L2 learning. While their individual

effects on WTC have been examined in isolation, no study has yet investigated the joint influence of L2 grit and academic buoyancy on the relationship between FLE and WTC in an L2 context. Against this backdrop, the present study aims to investigate the relationship between FLE and WTC among non-English majors, particularly focusing on the moderating roles of L2 grit and academic buoyancy. By elucidating these interconnections, the study seeks to deepen our understanding of the mechanisms through which FLE influences WTC, generating actionable insights for improving EFL pedagogy and learning practices.

2 Literature review

2.1 Willingness to communicate (WTC)

WTC is conceptualised as a readiness to engage in communication with specific individuals or groups at a given time (MacIntyre and Legatto, 2011). MacIntyre et al. (1998) argued that WTC is a situational tendency, defining it as a learner's intention to use L2 to communicate with a particular group of people at a particular time, in relation to the context of L2 communication. They also proposed a WTC model that accounts for the linguistic, communicative, and social psychological variables affecting WTC. This model has been validated in several studies (Dewaele and Alfawzan, 2018; Khajavy et al., 2017) and offers an opportunity to integrate psychological, linguistic, and communicative approaches to L2 research. In an L2 context, WTC refers to the tendency to seize opportunities for interaction, a facet emphasised by many language theories that stress the indispensability of interaction and communication in L2 acquisition (Mystkowska-Wiertelak and Pawlak, 2014; Pawlak et al., 2016). Several studies have analysed WTC from different perspectives. For example, Dewaele (2019) explored the role of emotions in shaping WTC and found that anxiety inversely predicted WTC, whereas enjoyment and frequency of language use positively correlated with WTC. Lee and Lee (2020) examined the extent to which affective factors (i.e., motivation, self-confidence, risk-taking, L2 speaking anxiety, and grit) and virtual intercultural experiences are linked to L2 WTC in in-class, out-of-class, and digital settings, using data from 176 Korean undergraduate and graduate EFL students. The study revealed that students with higher levels of L2 motivation and grit, and lower levels of L2 speaking anxiety, exhibited higher levels of L2 WTC in the classroom. Secondly, students majoring in English with higher levels of L2 self-confidence and risk-taking had higher L2 WTC outside the classroom. Thirdly, individuals who were younger and had higher levels of L2 self-confidence, as well as engaging more frequently in virtual intercultural experiences, exhibited higher levels of L2 WTC in digital settings. Namaziandost et al. (2024) explored the impact of autonomy and academic engagement on WTC in an EFL context, investigating 387 English majors in Iran. Their findings suggest that enhancing EFL students' autonomy and academic engagement could significantly promote their WTC in English. Li (2024) examined the impact of grit on L2 WTC among 238 Chinese junior high school students, revealing significant positive correlations between L2 WTC and grit's two dimensions (PoE and CoI), with PoE and CoI serving as significant positive predictors. Furthermore, Li (2025) also examined how PoE and CoI affected two types of L2 WTC (meaning-focused and form-focused) among 820 Chinese undergraduate English majors, and explored the potential mediating roles of three sources of FLE (FLE-private, FLE-atmosphere, and FLE-teacher) in their relationship.

Abbreviations: L2, Second/foreign language; EFL, English as a foreign language; FLE, Foreign language enjoyment; WTC, Willingness to communicate; PoE, Perseverance of effort; CoI, Consistency of interest; IDLE, Informal digital learning of English; GLM, Growth language mindset.

The study revealed that PoE significantly and positively predicted both types of L2 WTC, and that FLE-private and FLE-atmosphere partially mediated the associations between PoE and both types of L2 WTC. Therefore, drawing on the above literature and positive psychology theory, it can be concluded that FLE, as a positive L2 emotion, can predict WTC. As WTC in L2 is a critical indicator of learning effectiveness, it is urgent to explore the extent to which it is influenced by FLE. Meanwhile, as mental health and personality traits gain increasing recognition for their pivotal role in shaping L2 learning outcomes, scholars have advocated for adopting a more holistic framework to understand L2 learners (Li, 2019). Therefore, it is also interesting to explore the mediating role of L2 grit and academic buoyancy in the relationship between FLE and WTC.

2.2 Foreign language enjoyment (FLE)

FLE has evolved from the concept of enjoyment, and it is one of the most common positive emotions in L2 learning (Dewaele and Alfawzan, 2018). Identified by Dewaele and MacIntyre (2014) as the emotional key to unlocking learners' potential in L2 learning, FLE manifested as positive emotions engendered by overcoming learning obstacles, completing learning tasks, and fulfilling psychological needs within the language learning process. It was emphasized by Dewaele and MacIntyre (2016) that FLE plays a dual role in fostering positive L2 learning experiences and mitigating the persistent effects of negative emotions by enhancing attention and awareness of language learning to facilitate coping with learning difficulties. Li et al. (2020) revealed that FLE can promote L2 learning through cognition and motivation. However, this enables learners to unleash their creativity and explore unfamiliar language worlds. FLE experiences helped learners to better participate in language learning, process language knowledge, and acquire language (Boudreau et al., 2018). Furthermore, as a positive emotion, FLE can extend to buffer the adverse impacts of negative emotions, cultivate learners' psychological grit, and fortify their resolve, thereby fostering enduring accumulation of L2 proficiency (Dewaele et al., 2019). Therefore, FLE can broaden an individual's instantaneous resources and stimulate their language potential by enhancing their motivation and WTC (Bensalem et al., 2023; Yu and Ma, 2024; Shao, 2025). For instance, Bensalem et al. (2023) investigated whether grit and FLE could predict L2 WTC among 446 Saudi and Moroccan college-level EFL students. The study revealed that both were significant predictors of L2 WTC, with FLE being a stronger significant predictor of L2 WTC among Saudi students. Yu and Ma (2024) explored the impact of FLE on L2 WTC among 2,426 undergraduate students, considering growth language mindset (GLM) and grit as potential mediators. The study revealed that FLE directly influenced L2 WTC and exerted indirect effects through three pathways: GLM alone, grit alone, and the chain-mediated pathway involving both GLM and grit. Shao (2025) recently investigated the relationships between perceived teacher clarity, WTC and FLE among 276 Chinese undergraduate EFL learners, examining the mediating role of FLE in the link between teacher clarity and WTC. The study revealed that FLE positively influenced WTC and served as a mediating factor in the relationship between perceived teacher clarity and WTC. Therefore, while existing research provides valuable insights into the impact of FLE on WTC, further exploration of this field is needed. This study aims to investigate the effect of FLE

on WTC among Chinese non-English majors, providing valuable information for researchers and practitioners seeking to improve FLE interventions and boost learners' WTC.

2.3 L2 grit

Grit, a recently recognised personality trait, is characterised by unwavering perseverance and sustained enthusiasm for long-term goals (Duckworth et al., 2007). As a key indicator for measuring learning effectiveness, it is highly valued in L2 learning and encompasses two key dimensions: PoE and CoI (Duckworth et al., 2007). PoE refers to the ability to maintain diligent effort and striving in the face of adversity while pursuing long-term goals. CoI refers to the tendency to maintain enthusiasm and interest in one's goals even in the face of setbacks (Duckworth et al., 2007). Duckworth and Quinn (2009) suggested that grit is a key determinant of academic success and a significant predictor of individual performance, potentially surpassing intelligence and innate ability in predicting successful learning outcomes. With the growing prominence of positive psychology, research on grit has expanded from general educational settings to the L2 field (Fathi et al., 2023b). As a result, researchers have developed grit scales tailored to language learning contexts (Sudina and Plonsky, 2021; Teimouri et al., 2022). These context-specific scales adeptly uncover the nuanced interplay between grit and language learning, thereby enhancing our understanding of this intricate relationship (Oxford, 2016). For example, Teimouri et al. (2022) developed a nine-item L2 grit scale, with five items related to PoE and four related to CoI. This scale was validated in a study that examined the relationship between L2 grit, motivation, and L2 performance among 191 L2 learners. As successful mastery of L2 depends heavily on learners' sustained effort, the concept of 'grit' and its connection to language achievement is highly relevant in this context. Research has found that L2 grit was positively related to students' language learning motivation and achievement above and beyond domain-general grit (Teimouri et al., 2022). Related studies have found that L2 grit positively predicted learning achievements and WTC (Lee and Hsieh, 2019; Lee and Lee, 2020; Lan et al., 2021; Lee, 2020; Yin and Zhou, 2025; Zou et al., 2025a). For example, Lee and Hsieh (2019) and Lee and Lee (2020) found that students with higher levels of L2 motivation, grit, L2 confidence, and a lower level of L2 speaking anxiety had higher L2 WTC. Lan et al. (2021) suggested that the ideal L2 self was positively related to L2 WTC among 842 Chinese undergraduates, and that grit mediated this relationship. Lee (2020) reported that PoE and classroom enjoyment were predictors of L2 WTC among 647 Korean EFL learners, whereas CoI was not. More recently, Yin and Zhou (2025) investigated how foreign language peace of mind, grit, and the classroom environment collectively stimulate learners' WTC. Zou et al. (2025a) explored the mediating role of FLE in the relationship between Chinese English-major students' L2 grit and their engagement in L2 learning processes. They found that PoE and FLE exerted a significantly positive and direct impact on student engagement. PoE also had a notably positive and direct effect on FLE, whereas CoI showed no effect on learners' FLE. Meanwhile, CoI had a slightly positive and direct influence on student engagement. Additionally, PoE positively and indirectly influenced student engagement, with FLE acting as a partial mediator, while FLE did not mediate the relationship between CoI and student engagement. Although previous

studies have revealed the impact of the sub-dimensions of L2 grit on learning engagement and L2 performance, further research is still needed. This study therefore aims to further explore the relationship between L2 grit and WTC among Chinese non-English majors. While previous studies have revealed the impact of L2 grit and its sub-dimensions (PoE and CoI) on L2 performance and WTC, more research is needed. This study aims to explore this relationship further.

2.4 Academic buoyancy

Academic buoyancy refers to learners' ability to overcome the daily setbacks, challenges and stresses in L2 learning (Martin and Marsh, 2008). Learners' success is determined not only by motivation, but also by the persistence of motivation (Yun et al., 2018). Academic buoyancy is the quality that sustains motivation, enabling learners to overcome setbacks and maintain sustained effort. It explains learners' ability to recover from and progress beyond the inevitable challenges of long-term language learning (Yun et al., 2018). In this context, the concept of academic buoyancy is proposed as a means of addressing how students navigate the inevitable ups and downs of daily academic life, as well as how they cope with frequent, demanding learning scenarios (Martin et al., 2013). Accordingly, academic buoyancy is relevant to a significant proportion of students in various educational settings. Martin et al. (2010) have uncovered five motivational predictors of academic buoyancy – referred to as the '5Cs' of academic buoyancy: confidence (self-efficacy), coordination (planning), commitment (persistence), composure (low anxiety), and control (low uncertain control). These motivational antecedents have been found to be important across a range of ages, ethnicities and genders, as well as in longitudinal datasets. Datu and Yang (2021) demonstrated that academic buoyancy was positively linked to higher academic achievement, as well as to both controlled and autonomous motivational orientations. Notably, academic buoyancy exerted an indirect effect on achievement through autonomous motivation, suggesting that intrinsic motivation may serve as a mediating mechanism through which academic buoyancy relates to perceived academic success. Taken together, the evidence from these studies suggests that academic buoyancy is an essential skill that enables students to successfully overcome setbacks and academic difficulty (Collie et al., 2017). The above studies have examined the impact of academic buoyancy on L2 learning from different perspectives. However, to our knowledge, little research has been conducted on the relationship between academic buoyancy and WTC. Therefore, investigating the effect of academic buoyancy on WTC would be an interesting research topic to fill this gap.

2.5 Correlation between FLE, L2 grit, academic buoyancy, and WTC

FLE, L2 grit and academic buoyancy are key emotional and personality factors that significantly impact learners' WTC. Some scholars have conducted relevant research on the correlation between these factors and WTC. For instance, Zhang et al. (2024) examined the relationship between FLE, language learning motivation, communication confidence, and WTC among 441 Chinese undergraduates. They found that FLE positively predicted WTC via motivation and confidence. Meanwhile, Yang and Lin (2024)

investigated the role of FLE and the perceived classroom climate in predicting the WTC of Chinese EFL learners. They found that both FLE and the perceived classroom climate had a positive impact on the WTC. Therefore, this study proposes the hypothesis that FLE positively influences WTC. In addition, Noughabi and Ghasemi (2024) explored how L2 grit mediated the relationship between informal digital learning of English (IDLE) and WTC among 313 Iranian EFL learners. The study revealed that L2 grit fully mediated the association between IDLE and WTC. Consequently, this study proposes the hypothesis that L2 grit positively influences WTC. Furthermore, academic buoyancy is a construct that highlights positive students' attributes such as optimism, self-confidence and adaptability, which are crucial for engaging actively with academic challenges (Martin and Marsh, 2008; Yun et al., 2018). As a result, buoyant learners demonstrate greater engagement and resilience when overcoming L2 learning difficulties. In an L2 learning context, academic buoyancy can reduce academic anxiety and enhance the effectiveness of students' strategic learning behaviors, such as goal setting and collaboration (Collie et al., 2017). Xu and Wang (2024) revealed that L2 learners with academic buoyancy managed their emotions more effectively and coped better with learning challenges, which increase their engagement in the learning process. Therefore, this study also proposes the hypothesis that academic buoyancy positively influences WTC. Additionally, two frequently cited theories, i.e., Broaden-and-Build theory (Fredrickson, 2001, 2003) and Control-Value theory (Pekrun, 2006), form the basis of research on L2 emotions (Li, 2024). According to the Broaden-and-Build theory, experiencing positive emotions broadens people's momentary thought-action repertoires, which in turn serves to build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources (Fredrickson, 2001). The Control-Value Theory offers a framework to understand the intricate relationship between emotions, motivation, and academic achievement. According to this theory, positive academic emotions facilitate cognition (e.g., self-regulation), motivation and behaviors (e.g., learning strategies and engagement), thereby enhancing academic performance (Pekrun, 2006). In addition, this study also proposes the hypothesis that FLE positively influences both academic buoyancy and L2 grit. As noted earlier, while many studies have examined FLE, WTC and L2 grit in isolation, few studies have considered their combined effects on WTC among Chinese EFL learners, particularly non-English majors. To the best of our knowledge, the mediating role of L2 grit and academic buoyancy in the relationship between FLE and WTC remains unclear and will be the focus of this study. Overall, existing research mainly focuses on the influence of individual emotional or personality factors. The interaction between these three factors and their combined impact on WTC has not yet been fully explored. To address this research gap, this study aims to reveal the impact of FLE on WTC among Chinese non-English majors and to explore the mediating role of L2 grit and academic buoyancy.

2.6 The present study

In light of the above background information, it can be concluded that the relationship between FLE, L2 grit, academic buoyancy, and WTC has essentially been confirmed. To our knowledge, few studies have examined how FLE jointly affects WTC through academic buoyancy and L2 grit as mediators. This limits our understanding of how positive personality traits and positive emotions influence

learners' L2 WTC. Therefore, this study aims to address this gap in existing research. Based on previous research, L2 grit is an internal variable affecting L2 emotions (Li et al., 2020) and is closely related to FLE, predicting L2 WTC (Teimouri et al., 2022). However, its mediating effects on the relationship between FLE and WTC remain unclear. This study therefore attempts to construct a mediation model (Figure 1) to reveal the intrinsic relationship between FLE and WTC, considering the mediation variables of L2 grit and academic buoyancy. Specifically, we propose the following hypothesis:

H1: FLE positively influences WTC.

H2: FLE positively influences academic buoyancy.

H3: Academic buoyancy positively influences WTC.

H4: FLE positively influences L2 grit.

H5: L2 grit positively influences WTC.

The above literature review highlights the scarcity of research focusing on the impact of FLE on WTC among Chinese non-English majors. Based on these observations, the current study aims to address the following research questions:

RQ1: What are the overall levels of, and correlations between, FLE, L2 grit, academic buoyancy and WTC?

RQ2: Do FLE, L2 grit and academic buoyancy predict WTC?

RQ3: Do L2 grit and academic buoyancy mediate the correlation between FLE and WTC?

3 Methodology

3.1 Participants

For this study, 524 non-English major sophomore students from five different disciplines at a provincial university in Northeast China were initially recruited as participants. After the exclusion of problematic data, 486 respondents were used as a valid sample for this research. Among them, 61 (12.6%) majored in industrial engineering, 279 (57.4%) in mechanical engineering, 86 (17.7%) in

energy and power engineering, 32 (6.6%) in agricultural mechanization engineering, and 28 (5.8%) in agricultural intelligent equipment engineering. Among them, 405 were male (83.3%) and 81 were female (16.7%). The ages of the participants ranged from 18 to 20 years. Of these participants, 58 were aged 18 (11.9%), 309 were aged 19 (63.6%), and 119 were aged 20 (24.5%).

3.2 Instruments

3.2.1 FLE scale

The participants' FLE was measured using the version of the FLE scale developed by Li et al. (2018) for Chinese EFL learners. The 11-item FLE scale was scored using a five-point Likert scale ranging from "1 = strongly disagree" to "5 = strongly agree." The internal consistency reliability of the scale was assessed using Cronbach's alpha (α) value, and an α value of 0.942 was obtained, indicating a high level of internal consistency.

3.2.2 L2 grit scale

The level of L2 grit among participants was measured using the L2 grit scale designed by Teimouri et al. (2022). It was administered to the Chinese EFL learners in this study. The scale comprises two interdependent facets: Perseverance of Efforts (PoE) and Consistency of Interest (CoI). In this study, the overall reliability coefficients (α) for the L2 grit scale and its two sub-dimensions (PoE and CoI) were as follows: 0.872 (total scale), 0.931 (PoE), and 0.825 (CoI), indicating acceptable internal consistency.

3.2.3 Academic buoyancy scale

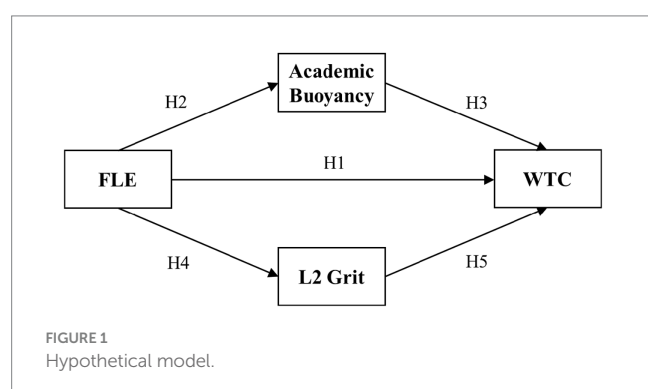
The participants' academic buoyancy was measured using the scale developed by Yun et al. (2018). This 6-item scale was rated on a five-point Likert scale, ranging from "1 = strongly disagree" to "5 = strongly agree." In this study, the overall reliability coefficient (α) for the academic buoyancy scale was 0.958, indicating a high level of internal consistency.

3.2.4 WTC scale

The WTC was measured by adopting the WTC scale developed by Peng and Woodrow (2010). This scale consists of a 10-item structure and was rated on a five-point Likert scale, ranging from "1 = strongly disagree" to "5 = strongly agree." In this study, the overall reliability coefficient (α) for the WTC scale was 0.968, indicating a high level of internal consistency.

3.3 Data collection

The questionnaire included basic information (such as gender, age, major, etc.), and the scale items were administered in Chinese. The students were instructed to complete the questionnaire via the "Wenjuanxing" online survey system,¹ and the resulting data were collected via this system. Questionnaires with short response times or patterned responses were considered invalid so as to improve the authenticity of the data. After the exclusion of the invalid



¹ <https://www.wjx.cn/>

questionnaires, 486 valid questionnaires were confirmed, resulting in an effective response rate of 92.75%.

3.4 Data processing

The data were standardized, and various analyses were then conducted using SPSS v26.0 software. These analyses comprised reliability and validity tests, descriptive analyses, Pearson correlation analyses, and regression analyses. The mediation effect analysis was conducted using PROCESS v4.1 (Model 4).

4 Results

4.1 Overall levels of, and correlations between, FLE, L2 grit, academic buoyancy and WTC

The descriptive statistics and correlations between the variables are shown in Table 1. The results showed that the data for each variable generally followed a normal distribution (Kim, 2013). L2 grit and WTC were at an intermediate level, with means of 3.228 and 3.361 (median of 3.00), respectively. FLE and academic buoyancy were at a high level, with means of 3.631 and 3.574, respectively. Furthermore, the results of the correlation analysis (Table 1) revealed a significant positive correlation ($p < 0.01$) between FLE, L2 grit, academic buoyancy, and WTC, with respective correlation coefficients of 0.635, 0.834, and 0.731. Moreover, the correlation coefficients between L2 grit and academic buoyancy, as well as between L2 grit and WTC, were 0.721 and 0.583, respectively. The correlation coefficient between academic buoyancy and WTC was 0.793.

4.2 The predictive effect of FLE, L2 grit and academic buoyancy on WTC

As shown in Table 2, FLE and academic buoyancy significantly predicted WTC, whereas L2 grit did not predict WTC due to its insignificance. When FLE and academic buoyancy were entered into the regression model as predictive variables for WTC, the coefficients R^2 of the model were 0.803, F was 291.15, and p was less than 0.001, indicating a good model fit. FLE and academic buoyancy had varying degrees of a positive predictive effect on WTC. Furthermore, the 95% confidence interval did not cross zero, indicating that the results were credible and that each path reached a significant level. As can be seen in Table 2, FLE significantly and positively predicted WTC ($\beta = 0.229$, $p < 0.001$), and academic buoyancy also significantly and positively predicted WTC ($\beta = 0.597$, $p < 0.001$).

4.3 The mediation effect of L2 grit and academic buoyancy in the relationship between FLE and WTC

To assess the mediating effect of L2 grit and academic buoyancy in the relationship between FLE and WTC, it was assumed that FLE was the antecedent variable, L2 grit and academic buoyancy were the mediating variables and WTC was the outcome variable. The PROCESS v4.1 (Model 4) developed by Hayes (see <http://www.afhayes.com/>) was used to test the bootstrap mediation effect, and compare the effect sizes of the various mediation paths. The results of mediating effect test are depicted in Figure 2.

TABLE 1 Descriptive statistics and correlations between variables ($N = 486$).

Variables	1	2	3	4
1. FLE	1			
2. L2 grit	0.635**	1		
3. Academic buoyancy	0.834**	0.721**	1	
4. WTC	0.731**	0.583**	0.793**	1
Mean value	3.631	3.228	3.574	3.361
Standard deviation	0.854	0.625	0.914	1.014
Skewness (standard error)	-0.194 (0.111)	0.244 (0.111)	-0.337 (0.111)	-0.264 (0.111)
Kurtosis (standard error)	-0.186 (0.221)	2.106 (0.221)	0.214 (0.221)	-0.324 (0.221)

** $p < 0.01$, * $p < 0.05$.

TABLE 2 The predictive effect of FLE and academic buoyancy on WTC.

Regression model		Goodness of fit indexes			Coefficient			95% confidence interval of B	Collinearity statistics	
Predictive variables	Outcome variable	R	R^2	F	β	B	t		Tolerance	VIF
FLE	WTC	0.803	0.644	291.15***	0.229	0.271	4.619***	[0.156, 0.387]	0.301	3.318
Academic buoyancy					0.597	0.662	10.828***	[0.542, 0.782]	0.243	4.115

*** $p < 0.001$, ** $p < 0.01$. β are standardized Coefficients, B represents unstandardized Coefficients. 'L2 Grit' was not shown due to statistical insignificance.

As shown in Figure 2, the total effect size between FLE and WTC was 0.7311 ($p < 0.001$), and the direct effect size between them was 0.2285 ($p < 0.001$), thereby supporting H1. FLE positively predicted both L2 grit and academic buoyancy. The effect size of FLE on academic buoyancy (0.8344, $p < 0.001$) was relatively higher than that on L2 grit (0.6355, $p < 0.001$), thereby supporting H2 and H4. The effect size of academic buoyancy on WTC was significant at 0.5966 ($p < 0.01$), thereby supporting H3. This indicates that academic buoyancy plays a mediating role in the relationship between FLE and WTC. However, the effect of L2 grit on WTC was not significant at 0.0075 ($p > 0.05$), leading to the rejection of H5. Table 3 shows the results of the path analysis of the mediation effect. The 95% confidence intervals for the above paths all reached a level of significance.

As shown in Table 3, the 95% confidence interval did not straddle zero (ranging from 0.3959 to 0.6149) for the path “FLE → Academic Buoyancy → WTC,” suggesting that academic buoyancy significantly mediated the effect of FLE on WTC. However, the 95% confidence interval did straddle zero (from −0.0436 to 0.0566) for the path “FLE → L2 Grit → WTC,” indicating that L2 grit failed to mediate the effect of FLE on WTC. The total mediating/indirect effect size was 0.5026 ($a_1b_1 + a_2b_2$), accounting for 68.75% of the total effect of FLE on WTC. The indirect effect sizes of FLE on WTC were 0.4978 (i.e., a_1b_1) and 0.0047 (i.e., a_2b_2) respectively, via the two mediators, namely academic buoyancy and L2 grit. Additionally, C1, provided in the PROCESS output, indicated the difference between the specific indirect effect of FLE on WTC through academic buoyancy and L2 grit (i.e., $a_1b_1 - a_2b_2 = 0.4931$), together with the 95% confidence interval of 0.3696 to 0.6149. This showed that the indirect effect through

academic buoyancy was significantly stronger than that through L2 grit, accounting for 68.09 and 0.66% of the total effect, respectively.

5 Discussion

5.1 Overall levels of, and correlations between, FLE, L2 grit, academic buoyancy and WTC

The descriptive statistics in Table 1 revealed distinct profiles among the four constructs under investigation. Notably, participants reported significantly higher levels of FLE ($M = 3.631$, $SD = 0.854$) and academic buoyancy ($M = 3.574$, $SD = 0.914$) compared to L2 grit ($M = 3.228$, $SD = 0.625$) and WTC ($M = 3.361$, $SD = 1.014$). This pattern suggests that while Chinese non-English majors demonstrate moderate levels of L2 grit and WTC, they exhibit stronger levels of FLE and academic buoyancy. These findings align with but also extend existing research (e.g., Fathi et al., 2021; Yang et al., 2024; Chen et al., 2025). For instance, although Fathi et al. (2021) reported comparable grit ($M = 3.28$, $SD = 0.85$) and WTC ($M = 3.46$, $SD = 1.17$) levels among Iranian English majors, the higher FLE and academic buoyancy observed in our study may reflect contextual differences in Chinese educational settings. Similarly, Yang et al. (2024) reported that, in their study of a sample of 619 Chinese university students including 327 males (52.8%) and 292 females (47.2%), the levels of grit ($M = 4.057$, $SD = 0.454$), FLE ($M = 3.649$, $SD = 0.558$), and L2 WTC ($M = 3.694$, $SD = 0.796$) were all above the moderate range. The differences in results compared with those of the current study may attribute to the fact that students have different educational contexts and environments, and to different gender ratios among participants. Meanwhile, Chen et al. (2025) revealed that the levels of L2 grit ($M = 3.399$, $SD = 0.605$) and L2 WTC ($M = 3.437$, $SD = 0.643$) of 664 Chinese EFL learners, of whom 583 were undergraduates, were both above the medium range. The results reported were slightly higher than those of the current study, which may be due to the students having different educational backgrounds and majors. Overall, the descriptive analysis revealed the overall level of FLE, L2 grit, academic buoyancy and WTC among Chinese non-English majors, providing a better understanding of the current situation of Chinese non-English majors.

Correlation analysis (Table 1) revealed significant positive correlations between WTC and FLE, L2 grit, and academic buoyancy of 0.731, 0.583, and 0.793, respectively. Similar findings were reported by Fathi et al. (2021), who found a correlation of 0.47 ($p < 0.01$) between WTC and grit among 163 undergraduate

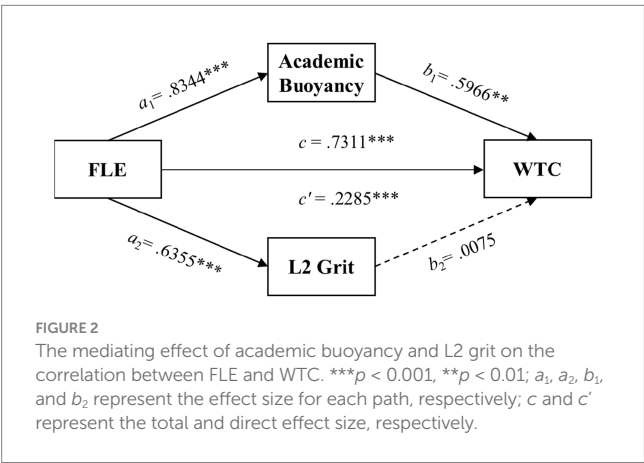


TABLE 3 Analysis of the mediation model.

Pathway	Indirect effect size	Standard error	95% Confidence interval	Indirect/total effect
Total indirect effect	0.5026	0.0534	[0.3989, 0.6112]	68.75%
FLE → Academic buoyancy → WTC	0.4978	0.0522	[0.3959, 0.6019]	68.09%
FLE → L2 Grit → WTC	0.0047	0.0259	[−0.0436, 0.0566]	0.66%
C1 (Academic buoyancy—L2 Grit)	0.4931	0.0629	[0.3696, 0.6149]	

All coefficients are completely standardized coefficients.

English major students in Iran. Yang et al. (2024) also reported significant positive correlations between WTC and FLE and grit, at 0.689 and 0.665 ($p < 0.001$) among 619 Chinese university students, respectively. The differences in results compared with those of the current study may be due to the participants' different cultural and educational settings, as well as disciplinary and professional backgrounds. The correlation coefficients in Table 1 also showed that FLE and academic buoyancy were more strongly correlated with WTC than L2 grit among Chinese non-English majors. These findings underscored the multifaceted nature of WTC in L2 contexts, particularly among Chinese non-English majors. The stronger correlations observed between WTC and both FLE ($r = 0.731$) and academic buoyancy ($r = 0.793$) compared to L2 grit ($r = 0.583$) warrant particular attention. This pattern suggested that affective factors (FLE) and adaptive cognitive-emotional mechanisms (academic buoyancy) may play more influential roles in shaping students' WTC than perseverance-oriented traits such as grit. It should be noted that caution should be exercised when interpreting the results of this comparison, as the research participants do not study at the same level or in the same learning environment (Li, 2024). To some extent, these findings also align with previous research indicating that EFL teachers could increase their learners' level of WTC and potentially boost their English communicative competence by fostering a positive classroom atmosphere, encouraging genuine interest in the foreign language and facilitating frequent use of the foreign language (Lee, 2020; Dewaele and Dewaele, 2018). Therefore, future research should involve a longitudinal study investigating changes in FLE, grit and WTC in L2 learners, in order to reveal more clearly the dynamic nature of these constructs.

5.2 The predictive effect of FLE, L2 grit and academic buoyancy on WTC

Table 2 shows that FLE and academic buoyancy had a significant positive predictive effect on WTC. This indicated that FLE and academic buoyancy were positive predictors of WTC among Chinese non-English majors. These findings align with and extend previous research while offering theoretical insights. First, the predictive power of FLE on WTC corroborates Kun et al.'s (2020) finding that teacher-related FLE dimensions particularly influence L2 WTC among 128 Chinese EFL learners. This supports Fredrickson's (2001, 2003) Broaden-and-Build Theory, as the results demonstrate how positive emotions (enjoyment) generated through teacher interactions create cognitive-emotional resources that facilitate communicative risk-taking. These findings also resonate with Lee's (2020) study of 647 Korean EFL learners, where PoE and classroom enjoyment are predictors of L2 WTC among all cohorts, while CoI is not. Theoretically, these results align with the Control-Value Theory (Pekrun, 2006), where positive emotions and value appraisals jointly enhance engagement. Additionally, academic buoyancy was considered a protective factor that could help students resist the negative effects of academic pressure and setbacks, while promoting their academic development and mental health (Martin and Marsh, 2008). Moreover, learners with higher levels of academic buoyancy and FLE were more likely to overcome academic difficulties and enjoy L2 learning (Yun et al., 2018). This

study explored the relationship between FLE and WTC, deepening our understanding of the effect of FLE on the WTC of Chinese non-English majors. The results confirmed that improving FLE and academic buoyancy could be an effective approach to improving WTC for non-English majors.

It should be noted that L2 grit failed to predict WTC in this study due to its insignificant effects. This may be due to two aspects: (1) mediation by psychological constructs. Research by Ebn-Abbasi et al. (2024) revealed that L2 grit indirectly influences WTC through mediators such as the ideal L2 self and a growth language mindset, rather than exerting a direct effect. This suggests that PoE and CoI for language learning may need to activate self-conceptual or cognitive-motivational pathways to manifest in communicative behavior. For instance, learners with high L2 grit might initially develop a clear vision of their ideal L2 self, which motivates them to communicate. (2) Measurement limitations. Existing L2 grit scales primarily assess PoE and CoI in formal learning contexts (Teimouri et al., 2022). These instruments may not capture dimensions of L2 grit relevant to spontaneous communication, such as risk-taking propensity or adaptability in real-time interactions, thereby limiting predictive validity for WTC. Overall, the non-significant direct effect of L2 grit on WTC underscored the complexity of motivational pathways in language acquisition. While L2 grit fostered perseverance, its translation into communicative behavior may depend on psychological mediation and context-specific adaptations of measurement instruments. Future research should explore dynamic models that integrate L2 grit with situational factors (e.g., classroom climate and technology-mediated communication) to better predict WTC.

5.3 The mediation role of L2 grit and academic buoyancy on the relationship between FLE and WTC

Figure 2 and Table 3 show that academic buoyancy played a mediating role between FLE and WTC. This indicated that FLE indirectly affected WTC by increasing academic buoyancy. The current results were also supported by previous studies (Arabai, 2022; Fathi et al., 2023a; Thomas and Allen, 2021). More specifically, Arabai (2022) examined the effect of positive emotions (enjoyment and grit) on L2 WTC among 328 Saudi EFL learners, revealing that FLE was an important predictor of L2 WTC. Similarly, in an online survey of 601 Iranian EFL learners, Fathi et al. (2023a) validated that FLE directly and positively predicted L2 WTC. Furthermore, Thomas and Allen (2021) examined the influence of emotional intelligence and academic buoyancy on student engagement among 253 EFL learners in the southwestern United States. The study revealed that academic buoyancy was found to be directly related to emotional engagement and to partially mediate the relationship between student engagement and emotional intelligence. These existing findings and current research results further emphasized the significant impact of FLE and academic buoyancy on WTC among Chinese non-English majors. From a theoretical perspective, according to the Broaden-and-Build theory (Fredrickson, 2001, 2003) and the Control-Value theory (Pekrun, 2006), enjoyment, as a process-oriented learning emotion, can enhance learners' overall cognitive level and effectively integrate personal resources, thus helping to improve their WTC. Higher levels

of FLE and academic buoyancy can stimulate learners' personal enjoyment and encourage them to adopt proactive coping methods to overcome difficulties, ultimately improving their WTC (Dewaele and Li, 2021). Students with higher levels of academic buoyancy have significantly higher WTC and overall academic performance; even for those identified as having moderate learning disabilities, this influence is still strong (Martin et al., 2013). Yun et al. (2018) also revealed that academic buoyancy had the potential to significantly influence key outcomes for instructed L2 learners. This study further extended our understanding of how academic buoyancy influenced the relationship between FLE and WTC. It confirmed that increased FLE and academic buoyancy were important factors that stimulate non-English majors to actively participate in classroom activities and communicate in English (Wang, 2023).

Based on the research findings, the following recommendations regarding EFL teaching in Chinese universities were made: (1) L2 teachers should focus on creating a positive and enjoyable learning environment to enhance students' FLE. Specifically, they should foster a positive learning atmosphere in the classroom and encourage active use of English for interaction to improve students' communication skills. This can be achieved through interactive and engaging teaching methods, such as group discussions, role-playing, and real-life language applications. Encouraging students to set personal goals and providing constructive feedback can also enhance their enjoyment and motivation. (2) L2 teachers should help students enhance their academic buoyancy. Specifically, they should help students develop strategies to cope with academic setbacks. This could involve teaching stress management skills, providing emotional support, and encouraging a growth mindset. Creating a supportive classroom atmosphere where students can safely make mistakes and learn from them can also significantly enhance their academic resilience. Overall, L2 teachers should enhance students' FLE and academic buoyancy in L2 learning and increase their interest in English. These research findings could inspire further research and provide practical guidance on cultivating WTC among non-English majors in L2 learning.

6 Conclusion

This study investigated the impact of FLE on WTC among Chinese non-English majors, and examined the mediating role of L2 grit and academic buoyancy in this relationship. Descriptive results showed that levels of L2 grit and WTC were in the medium range, while FLE and academic buoyancy were high. Pearson correlation analysis revealed that students' WTC was significantly and positively correlated with FLE, L2 grit, and academic buoyancy ($p < 0.01$), with FLE and academic buoyancy having the greatest influence. Regression analysis indicated that FLE and academic buoyancy significantly predicted WTC, whereas L2 grit did not. Analysis of the mediation effect showed that academic buoyancy played a mediating role in the relationship between FLE and WTC, confirming the effect path "FLE - academic buoyancy - WTC" for FLE on WTC. These findings could inspire further research and provide practical guidance on how to improve and cultivate WTC of non-English majors in L2 learning.

It should be noted that this study undoubtedly has its limitations. The participants were primarily non-English majors,

and larger sample sizes or higher-grade student groups could not be tested. As the study adopted a cross-sectional design, it was unable to track dynamic changes in L2 grit, FLE, and WTC levels. Furthermore, the mediating variables focus solely on L2 grit and academic buoyancy, ignoring other factors that influence WTC. Future work should adopt a mixed-methods approach, as a quantitative approach may not reveal detailed and nuanced findings. However, this study has implications for language teaching and future research. It found that integrating FLE and academic buoyancy enhances the explanatory power of WTC in L2 learning. Further research is required to investigate the relationship between personality and emotion and the shared mechanism through which they impact WTC. This study demonstrates the dominant roles of the Control-Value theory and the Build-and-Broaden theory in elucidating the nature of L2 emotions and academic buoyancy in WTC studies. It confirms the suitability of positive personality psychology for studying L2 WTC and promotes the integration of the research fields of applied linguistics and psychology. Based on these findings, L2 teachers should foster students' academic buoyancy in professional learning and enhance their WTC in English. L2 teachers should also create a positive L2 learning environment in which students can experience positive emotions during classroom activities, encouraging active engagement in English interactions to enhance L2 communication skills.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

All procedures performed in studies involving human participants were in accordance with general ethical guidelines in psychology. This article does not contain any studies with animals performed by any of the authors. Informed consent was obtained from all individual participants included in the study. The studies involving human participants were reviewed and approved by Office of Educational Administration of College of Arts and Sciences of Northeast Agricultural University. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

CB: Data curation, Writing – original draft, Conceptualization, Formal analysis. JH: Supervision, Writing – review & editing, Resources.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2025.1614742/full#supplementary-material>

References

- Alrabai, F. (2022). Modeling the relationship between classroom emotions, motivation, and learner willingness to communicate in EFL: applying a holistic approach of positive psychology in SLA research. *J. Multiling. Multicult. Dev.* 45, 2465–2483. doi: 10.1080/01434632.2022.2053138
- Bensalem, E., Thompson, A. S., and Alenazi, F. (2023). The role of grit and enjoyment in EFL learners' willingness to communicate in Saudi Arabia and Morocco: a cross-cultural study. *J. Multiling. Multicult. Dev.* 46, 749–764. doi: 10.1080/01434632.2023.2200750
- Botes, E., Dewaele, J.-M., and Greiff, S. (2022). Taking stock: a meta-analysis of the effects of foreign language enjoyment. *Stud. Second Lang. Learn. Teach.* 12, 205–232. doi: 10.14746/ssl.2022.12.2.3
- Boudreau, C., MacIntyre, P. D., and Dewaele, J.-M. (2018). Enjoyment and anxiety in second language communication: an idiodynamic approach. *Stud. Second Lang. Learn. Teach.* 8, 149–170. doi: 10.14746/ssl.2018.8.1.7
- Chen, X., Alruwaili, A. R., Azari Noughabi, M., Ghasemi, A., and Zhen, C. (2025). The mediating role of psychological Capital in the Relationship between EFL learners' L2 grit and L2 WTC. *Front. Psychol.* 16:1621340. doi: 10.3389/fpsyg.2025.1621340
- Collie, R. J., Perry, N. E., and Martin, A. J. (2017). "School context and educational system factors impacting educator stress" in Educator stress. Aligning perspectives on health, safety and well-being. eds. T. McIntyre, S. McIntyre and D. Francis (Cham: Springer).
- Datu, J. A. D., and Yang, W. (2021). Academic buoyancy, academic motivation, and academic achievement among Filipino high school students. *Curr. Psychol.* 40, 3958–3965. doi: 10.1007/s12144-019-00358-y
- Dewaele, J.-M. (2019). The effect of classroom emotions, attitudes toward English, and teacher behavior on willingness to communicate among English foreign language learners. *J. Lang. Soc. Psychol.* 38, 523–535. doi: 10.1177/0261927X19864996
- Dewaele, J.-M., and Alfawzan, M. (2018). Does the effect of enjoyment outweigh that of anxiety in foreign language performance? *Stud. Second Lang. Learn. Teach.* 8, 21–45. doi: 10.14746/ssl.2018.8.1.2
- Dewaele, J.-M., Chen, X., Padilla, A. M., and Lake, J. (2019). The flowering of positive psychology in foreign language teaching and acquisition research. *Front. Psychol.* 10:2128. doi: 10.3389/fpsyg.2019.02128
- Dewaele, J.-M., and Dewaele, L. (2018). Learner-internal and learner-external predictors of willingness to communicate in the FL classroom. *J. Eur. Second Lang. Assoc.* 2, 24–37. doi: 10.22599/jesla.37
- Dewaele, J.-M., and Li, C. (2021). Teacher enthusiasm and students' social-behavioral learning engagement: the mediating role of student enjoyment and boredom in Chinese EFL classes. *Lang. Teach. Res.* 25, 922–945. doi: 10.1177/13621688211014538
- Dewaele, J.-M., and MacIntyre, P. D. (2014). The two faces of Janus? Anxiety and enjoyment in the foreign language classroom. *Stud. Second Lang. Learn. Teach.* 4, 237–274. doi: 10.14746/ssl.2014.4.2.5
- Dewaele, J.-M., and MacIntyre, P. D. (2016). "Foreign language enjoyment and foreign language classroom anxiety: the right and left feet of the language learner" in Positive psychology in SLA. eds. T. Gregersen, P. D. MacIntyre and S. Mercer (Bristol: Multilingual Matters), 215–236.
- Duckworth, A. L., Peterson, C., Matthews, M. D., and Kelly, D. R. (2007). Grit: perseverance and passion for long-term goals. *J. Pers. Soc. Psychol.* 92, 1087–1101. doi: 10.1037/0022-3514.92.6.1087
- Duckworth, A. L., and Quinn, P. D. (2009). Development and validation of the short grit scale (GRIT-S). *J. Pers. Assess.* 91, 166–174. doi: 10.1080/00223890802634290
- Ebn-Abbasi, F., Fattahi, N., Azari Noughabi, M., and Botes, E. (2024). The strength of self and L2 willingness to communicate: the role of L2 grit, ideal L2 self and language mindset. *System* 123:103334. doi: 10.1016/j.system.2024.103334
- Elahi Shirvan, M., and Alamer, A. (2022). Modeling the interplay of EFL learners' basic psychological needs, grit and L2 achievement. *J. Multiling. Multicult. Dev.* 45, 2831–2847. doi: 10.1080/01434632.2022.2075002
- Fathi, J., Mohammaddokht, F., and Nourzadeh, S. (2021). Grit and foreign language anxiety as predictors of willingness to communicate in the context of foreign language learning: a structural equation modeling approach. *Issues Lang. Teach.* 10, 1–30. doi: 10.22054/ilt.2021.63362.627
- Fathi, J., Pawlak, M., Mehraein, S., Hosseini, H. M., and Derakhshesh, A. (2023a). Foreign language enjoyment, ideal L2 self, and intercultural communicative competence as predictors of willingness to communicate among EFL learners. *System* 115:103067. doi: 10.1016/j.system.2023.103067
- Fathi, J., Zhang, L. J., and Arefian, M. H. (2023b). Testing a model of EFL teachers' work engagement: the roles of teachers' professional identity, L2 grit, and foreign language teaching enjoyment. *Int. Rev. Appl. Linguist. Lang. Teach.* 62, 2087–2119. doi: 10.1515/iral-2023-0024
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. *Am. Psychol.* 56, 218–226. doi: 10.1037/0003-066X.56.3.218
- Fredrickson, B. L. (2003). The value of positive emotions. *Am. Psychol.* 91, 330–335. doi: 10.1511/2003.26.330
- Khajavy, G. H., Ghonsooly, B., Hosseini Fatemi, A., and Choi, C. W. (2016). Willingness to communicate in English: a microsystem model in the Iranian EFL classroom context. *TESOL Q.* 50, 154–180. doi: 10.1002/tesq.204
- Khajavy, G. H., Ghonsooly, B., and Hosseini Fatemi, A. (2017). Testing a burnout model based on affective-motivational factors among EFL teachers. *Curr. Psychol.* 36, 339–349. doi: 10.1007/s12144-016-9423-5
- Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restor. Dent. Endod.* 38, 52–54. doi: 10.5395/rde.2013.38.1.52
- Kruk, M. (2022). Dynamicity of perceived willingness to communicate, motivation, boredom and anxiety in second life: the case of two advanced learners of English. *Comput. Assist. Lang. Learn.* 35, 190–216. doi: 10.1080/09588221.2019.1677722
- Kun, Y., Senom, F., and Peng, C. F. (2020). Relationship between willingness to communicate in English and foreign language enjoyment. *Universal J. Educ. Res.* 8, 4853–4862. doi: 10.13189/ujer.2020.081057
- Lan, G., Nikitina, L., and Woo, W. S. (2021). Ideal L2 self and willingness to communicate: a moderated mediation model of shyness and grit. *System* 99:102503. doi: 10.1016/j.system.2021.102503

- Lee, J. S. (2020). The role of grit and classroom enjoyment in EFL learners' willingness to communicate. *J. Multiling. Multicult. Dev.* 43, 452–468. doi: 10.1080/01434632.2020.1746319
- Lee, J. S., and 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. doi: 10.1016/j.system.2019.03.002
- Lee, J. S., and Lee, K. (2020). Affective factors, virtual intercultural experiences, and L2 willingness to communicate in in-class, out-of-class, and digital settings. *Lang. Teach. Res.* 24, 813–833. doi: 10.1177/1362168819831408
- Li, C. (2019). A positive psychology perspective on Chinese EFL students' trait emotional intelligence, foreign language enjoyment and EFL learning achievement. *J. Multiling. Multicult. Dev.* 41, 246–263. doi: 10.1080/01434632.2019.1614187
- Li, G. (2024). The effect of grit on L2 willingness to communicate among Chinese junior high school students: an analysis of the differential roles of foreign language enjoyment and anxiety. *Front. Psychol.* 15:1468464. doi: 10.3389/fpsyg.2024.1468464
- Li, G. (2025). The relationship between grit and L2 willingness to communicate among Chinese undergraduate students: the contributions of foreign language enjoyment and anxiety. *Humanit. Soc. Sci. Commun.* 12:545. doi: 10.1057/s41599-025-04862-4
- Li, C., Dewaele, J.-M., and Jiang, G. (2020). The complex relationship between classroom emotions and EFL achievement in China. *Appl. Linguist. Rev.* 11, 485–510. doi: 10.1515/applirev-2018-0043
- Li, C., Jiang, G., and Dewaele, J.-M. (2018). Understanding Chinese high school students' foreign language enjoyment: validation of the Chinese version of the foreign language enjoyment scale. *System* 76, 183–196. doi: 10.1016/j.system.2018.06.004
- Li, C., Pawlak, M., and Kruk, M. (2023). Achievement emotions and control-value appraisals in foreign language learning. *J. Multiling. Multicult. Dev.* 46, 364–378. doi: 10.1080/01434632.2023.2183961
- Ma, H., Ismail, L., Noordin, N., and Razali, A. B. (2024). From EFL to ESL: unveiling willingness to communicate (WTC) in English among Chinese international students in a multilingual context. *Int. J. Multiling.*, 1–25. doi: 10.1080/14790718.2024.2425980
- MacIntyre, P. D., Clément, R., Dörnyei, Z., and Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: a situational model of L2 confidence and affiliation. *Mod. Lang. J.* 82, 545–562. doi: 10.1111/j.1540-4781.1998.tb05543.x
- MacIntyre, P. D., and Legatto, J. J. (2011). A dynamic system approach to willingness to communicate: developing an idiodynamic method to capture rapidly changing affect. *Appl. Linguist.* 32, 149–171. doi: 10.1093/applin/amq037
- Martin, A. J., Colmar, S. H., Davey, L. A., and Marsh, H. W. (2010). Longitudinal modelling of academic buoyancy and motivation: do the 5Cs hold up over time? *Br. J. Educ. Psychol.* 80, 473–496. doi: 10.1348/000709910X486376
- Martin, A. J., Ginns, P., Brackett, M. A., Malmberg, L.-E., and Hall, J. (2013). Academic buoyancy and psychological risk: exploring reciprocal relationships. *Learn. Individ. Differ.* 27, 128–133. doi: 10.1016/j.lindif.2013.06.006
- Martin, A. J., and Marsh, H. W. (2008). Academic buoyancy: towards an understanding of students' everyday academic resilience. *J. Sch. Psychol.* 46, 53–83. doi: 10.1016/j.jsp.2007.01.002
- Mystkowska-Wiertelak, A., and Pawlak, M. (2014). Fluctuations in learners' willingness to communicate during communicative task performance: conditions and tendencies. *Res. Lang.* 12, 245–260. doi: 10.2478/rela-2014-0019
- Namaziandost, E., Çakmak, F., Heydarnejad, T., and Rezaei, A. (2024). The predictive effects of learner autonomy and academic engagement on willingness to communicate, foreign language learning self-esteem, and L2 grit in an EFL context. *Acta Psychol.* 250:104528. doi: 10.1016/j.actpsy.2024.104528
- Noughabi, M. A., and Ghasemi, A. (2024). Informal digital learning of English and EFL learners' willingness to communicate: investigating the mediating role of L2 grit. *J. Multiling. Multicult. Dev.*, 1–16. doi: 10.1080/01434632.2024.2351087
- Oxford, R. (2016). Teaching and researching language learning strategies: self-regulation in context, second edition. 1st Edn. New York: Routledge.
- Park, N., Peterson, C., and Seligman, M. E. (2004). Strengths of character and well-being. *J. Soc. Clin. Psychol.* 23, 603–619. doi: 10.1521/jscp.23.5.603.50748
- Pawlak, M., Mystkowska-Wiertelak, A., and Bielak, J. (2016). Investigating the nature of classroom willingness to communicate (WTC): a micro-perspective. *Lang. Teach. Res.* 20, 654–671. doi: 10.1177/1362168815609615
- Pekrun, R. (2006). The control-value theory of achievement emotions: assumptions, corollaries, and implications for educational research and practice. *Educ. Psychol. Rev.* 18, 315–341. doi: 10.1007/s10648-006-9029-9
- Peng, J.-E., and Woodrow, L. (2010). Willingness to communicate in English: a model in the Chinese EFL classroom context. *Lang. Learn.* 60, 834–876. doi: 10.1111/j.1467-9922.2010.00576.x
- Shao, W. (2025). Perceived teacher clarity and willingness to communicate in L2: the mediating effect of enjoyment. *Psychol. Sch.* 62, 3066–3078. doi: 10.1002/pits.23520
- Sudina, E., and Plonsky, L. (2021). Academic perseverance in foreign language learning: an investigation of language-specific grit and its conceptual correlates. *Mod. Lang. J.* 105, 829–857. doi: 10.1111/modl.12738
- Teimouri, Y., Plonsky, L., and Tabandeh, F. (2022). L2 grit: passion and perseverance for second-language learning. *Lang. Teach. Res.* 26, 893–918. doi: 10.1177/1362168820921895
- Thomas, C. L., and Allen, K. (2021). Driving engagement: investigating the influence of emotional intelligence and academic buoyancy on student engagement. *J. Furth. High. Educ.* 45, 107–119. doi: 10.1080/0309877X.2020.1741520
- Tsang, A., and Dewaele, J. M. (2024). The relationships between young FL learners' classroom emotions (anxiety, boredom, & enjoyment), engagement, and FL proficiency. *Appl. Linguist. Rev.* 15, 2015–2034. doi: 10.1515/applirev-2022-0077
- Wang, Y. (2023). The role of L2 grit in willingness to communicate: mediating effects of foreign language enjoyment and anxiety. *Modern Foreign Lang.* 46, 42–55. doi: 10.20071/j.cnki.xdwy.2023.01.012
- Wang, H., Peng, A. Q., and Patterson, M. M. (2021). The roles of class social climate, language mindset, and emotions in predicting willingness to communicate in a foreign language. *System* 99:102529. doi: 10.1016/j.system.2021.102529
- Wei, R., Liu, H., and Wang, S. (2020). Exploring L2 grit in the Chinese EFL context. *System* 93:102295. doi: 10.1016/j.system.2020.102295
- Wen, W.-P., and Clément, R. (2003). A Chinese conceptualisation of willingness to communicate in ESL. *Lang. Cult. Curric.* 16, 18–38. doi: 10.1080/07908310308666654
- Xu, X., and Wang, B. (2024). The impact of academic buoyancy and emotions on university students' self-regulated learning strategies in L2 writing classrooms. *Read. Writ.* 37, 49–67. doi: 10.1007/s11145-023-10411-9
- Yang, Y. Y., Cui, Y. Z., and Yao, S. H. (2024). Teacher support, grit and L2 willingness to communicate: the mediating effect of foreign language enjoyment. *BMC Psychol.* 12:383. doi: 10.1186/s40359-024-01877-5
- Yang, L., and Lin, Y. (2024). To talk or to remain silent? Foreign language enjoyment and perceived classroom climate as drivers of change in Chinese EFL learners' willingness to communicate: a latent growth curve analysis. *Innov. Lang. Learn. Teach.*, 1–18. doi: 10.1080/17501229.2024.2391376
- Yin, K., and Zhou, L. (2025). The relative importance of peace of mind, grit, and classroom environment in predicting willingness to communicate among learners in multi-ethnic regions: a latent dominance analysis. *BMC Psychol.* 13, 401–417. doi: 10.1186/s40359-025-02676-2
- Yu, X., and Ma, J. (2024). Modelling the predictive effect of enjoyment on willingness to communicate in a foreign language: the chain mediating role of growth mindset and grit. *J. Multiling. Multicult. Dev.*, 1–18. doi: 10.1080/01434632.2023.2300351
- Yun, S., Hiver, P., and Al-Hoorie, A. H. (2018). Academic buoyancy: exploring learners' everyday resilience in the language classroom. *Stud. Second Lang. Acquis.* 40, 805–830. doi: 10.1017/S0272263118000037
- Zhang, C., and Dai, K. (2024). Enhancing Chinese students' willingness to communicate (WTC) in EMI classrooms: do learning motivation and academic self-efficacy matter? *Learn. Motiv.* 87:101997. doi: 10.1016/j.lmot.2024.101997
- Zhang, Q., Song, Y., and Zhao, C. (2024). Foreign language enjoyment and willingness to communicate: the mediating roles of communication confidence and motivation. *System* 125:103346. doi: 10.1016/j.system.2024.103346
- Zhao, X., and Wang, D. (2023). Grit, emotions, and their effects on ethnic minority students' English language learning achievements: a structural equation modelling analysis. *System* 113:102979. doi: 10.1016/j.system.2023.102979
- Zou, M., Azari Noughabi, M., and Peng, C. (2025a). Modeling the associations between L2 grit, foreign language enjoyment, and student engagement among Chinese EFL English-major learners: a control-value theory perspective. *System* 131:103679. doi: 10.1016/j.system.2025.103679
- Zou, M., Azari Noughabi, M., Sabouri, M., and Zhou, L. (2025b). The contribution of informal digital learning of English (IDLE) to achievement emotions and willingness to communicate: a cross-cultural investigation. *J. Multiling. Multicult. Dev.*, 1–19. doi: 10.1080/01434632.2025.2490076