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# Exploring Chinese university students' foreign language enjoyment, engagement and willingness to communicate in EFL speaking classes

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Growing research attention has focused on examining the role of emotions in Second Language Acquisition (SLA), with particular emphasis on positive emotions and student engagement as significant factors in promoting various aspects of human behavior and cognition. Despite the significance of Willingness to Communicate (WTC) in understanding learners' communicative behaviors in a foreign language, there still exist gaps in understanding how positive emotions like Foreign Language Enjoyment (FLE) and behavioral engagement relate to WTC. This study investigates the relationships among FLE, behavioral engagement, and WTC within the Chinese English as a Foreign Language (EFL) context, drawing upon the Broaden-and-Build theory. Therefore, the study examined how 690 Chinese EFL college students perceive FLE and behavioral engagement related to their WTC by using a quantitative method. The findings revealed significant positive relationships between FLE and behavioral engagement with WTC, with FLE showing a stronger association than behavioral engagement. Moreover, FLE and WTC could significantly and strongly predict WTC. These findings offer valuable insights for educational practices and policy development, suggesting the potential benefits of incorporating enjoyment-focused strategies in language learning. Additionally, this research contributes to our understanding of how positive emotions, particularly enjoyment, may work alongside other factors to enhance students' communicative competence and overall experience in language learning.

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## Introduction

Emotions play a fundamental role in language education. These emotional variables encompass positive and negative emotions, and they are considered to be central to the learning process (Derakhshan et al., 2022; Huang et al., 2024; Lin and Wang, 2024). While emotions were historically overlooked due to the prevalent cognitive perspective of language learning, the introduction of Krashen's (1985) Affective Filter Hypothesis into Second Language Acquisition (SLA) inspired scholars to recognize the pivotal role of emotions in second language (L2) learning, especially in regard to the negative emotions of anxiety increased recognition of emotional factors, particularly anxiety (MacIntyre et al., 2019). According to MacIntyre and Gregersen (2012), the integration of positive psychology into SLA research has highlighted the crucial role of positive emotions in enhancing both language learning outcomes and learner well-being. This shift from focusing solely on negative emotions to including positive emotions reflects broader developments in psychology that recognize the unique contributions of positive emotional experiences to learning and development.

The prevalence of positive psychology and its fundamental theories have motivated many scholars to incorporate positive emotions, especially enjoyment, in SLA research. Especially, Fredrickson's (2001) Broaden-and-Build theory provides a comprehensive framework for understanding how positive emotions function in language learning. In the language learning context, when students experience enjoyment, they are more likely to explore and engage with the target language, creating optimal conditions for cognitive processing, motivation, and social interaction (MacIntyre and Gregersen, 2012). This theoretical framework has extended beyond traditional anxiety-centric approaches and highlights a more holistic perspective on positive emotions in language learning. Consequently, recent L2 research has increasingly centered on investigating positive emotions in language learning contexts (Li, 2021).

Apart from understanding the concept and role of positive emotions, much research has examined the interplay between positive emotions, especially enjoyment, and other key variables in language learning (Yu, 2022). As suggested by MacIntyre and Charos (1996), the principal objective of language education is to attain the ability to use language to communicate, regardless of the purpose of language learning. Dewaele and Dewaele (2018) assert that language learning can be facilitated through the positive impacts of emotions on learners' Willingness to Communicate (WTC), particularly when instructors effectively stimulate positive emotional responses (Dewaele, 2015). Moreover, this relationship between positive emotions, specifically enjoyment as the most prevalent positive emotion (Dewaele and MacIntyre, 2019), and WTC has been empirically validated across multiple studies (Bensalem, 2022; Dewaele and Pavelescu, 2021; Kun et al., 2020). Additionally, engagement serves as a crucial mediator between the teaching and learning processes (Hiver et al., 2021). Recent research indicates that emotions significantly predict engagement levels (Derakhshan and Fathi, 2023; Pekrun, 2006), with positive emotions facilitating resource exploration and adaptive abilities, while negative emotions potentially impair learning through reduced cognitive focus (Ding and Wang, 2024; Fredrickson, 2001; Reschly et al., 2008). Considering the fundamental role of enjoyment on learning outcomes and psychological well-being (Seligman, 2018), investigating these factors is essential to gaining fundamental insights into SLA research.

However, research in SLA remains insufficient in understanding how students' Foreign Language Enjoyment (FLE) and engagement relate to subsequent learning outcomes such as WTC. Although existing literature has investigated the associations between emotions and engagement (Dewaele and Li, 2021;

Feng and Hong, 2022; Guo, 2021; Khajavy, 2021) and between enjoyment and WTC (Li et al., 2022; Khajavy et al., 2018; Peng and Wang, 2024), limited empirical attention has been directed towards the interrelationships amongst these variables. This research gap is especially relevant within Chinese English as a Foreign Language (EFL) contexts, where the interplay between FLE, behavioral engagement, and WTC has yet to be investigated.

Therefore, drawing upon Fredrickson's (2001) Broaden-and-Build theory, the research seeks to expand the theoretical framework of enjoyment by investigating its relationship with L2-specific variables, specifically behavioral engagement and WTC. This study specifically concentrated on behavioral engagement, as it demonstrably influences both classroom interaction dynamics and the broader learning environment. The research employed a quantitative methodological approach to examine the interrelationships between behavioral engagement, enjoyment, and WTC among Chinese undergraduate students in English-speaking classrooms. The hypothesized model integrating the three variables was tested using structural equation modeling (SEM). Therefore, the research questions are as follows:

RQ1: Are there any significant interrelationships between FLE, behavioral engagement, and WTC among Chinese EFL learners?

RQ2: Do FLE and behavioral engagement significantly predict Chinese EFL students' WTC?

## Literature review

### Positive psychology in SLA and broaden-and-build theory.

Positive psychology has emerged as a foundational framework for understanding language learning processes, marking a significant shift from traditional approaches that primarily focused on negative emotions in SLA. This shift, initiated by Seligman and Csikszentmihalyi's (2000) seminal work, redirected attention toward human strengths and optimal functioning rather than weaknesses (Polly et al., 2009). In the context of SLA, this reorientation has particular significance because emotions, though crucial to language learning (Dewaele, 2015), were historically disregarded as unreasonable elements (Joe et al., 2017). Since its introduction to SLA research, it has transformed the understanding of how positive emotions influence language learning success and student well-being (Li, 2018).

The study is theoretically grounded in Fredrickson's (2001) Broaden-and-Build theory, which emerged from the positive psychology movement in SLA. The theory aligns with positive psychology's aim to promote factors that contribute to human flourishing, showing how positive emotions in language learning can build enduring personal resources and enhance learning outcomes (MacIntyre and Gregersen, 2012). The integration of positive psychology principles and the Broaden-and-Build theory in SLA research has created an "emotional wave" (MacIntyre et al., 2016), emphasizing the need to consider both positive and negative emotions in understanding language learning processes and their complex interactions in the learning process (Li et al., 2018).

The Broaden-and-Build theory presents a distinctive perspective on how positive emotions facilitate language learning by proposing that positive emotions serve two complementary functions: they 'broaden' learners' momentary thought-action repertoires and 'build' their enduring personal resources (Fredrickson et al., 2008). The theory distinguishes between the functions of positive and negative emotions in language learning. While negative emotions narrow attention and promote specific behavioral tendencies, positive emotions create inclinations toward exploration and play, broaden attention, and build resources for future action (Fredrickson, 2001). These resources

can include social support, coping skills, and self-efficacy, which enhance learners' resilience in language learning (Fredrickson, 2001). Specifically, the theory suggests that positive emotions like FLE can facilitate language learning by creating optimal conditions for cognitive processing, motivation, and social interaction (MacIntyre and Gregersen, 2012). More importantly, the Broaden-and-Build theory has provided crucial insights into understanding emotional dynamics in language classrooms in SLA research (Dewaele and MacIntyre, 2014) and how emotional experiences interact with other crucial variables in language learning, such as engagement and WTC, ultimately influencing learning outcomes and communicative behavior. This theoretical framework is particularly relevant to our study as it helps explain how FLE might enhance both engagement and WTC in Chinese EFL classrooms.

**Foreign language enjoyment.** Positive emotions play a fundamental role in SLA, particularly in broadening learners' cognitive processes and building their linguistic competencies (Fredrickson, 2001). Scholars have examined the various functions and impacts of positive emotions in their studies (Dewaele and MacIntyre, 2014; Li, 2020; Wang et al., 2021, 2022).

Among these positive emotions, FLE has emerged as a particularly significant construct in SLA research. Dewaele and MacIntyre (2019) identified enjoyment as the most frequently observed positive emotion in language classrooms, especially as a counterbalance to the traditionally studied foreign language anxiety. FLE was defined by Li et al. (2018) as a positive emotion influenced by "peers, teachers, the environment, and a sense of accomplishment" (p. 193). This concept has gained increasing attention within the positive psychology movement in SLA over the last 10 years (Dewaele et al., 2017).

Empirical evidence strongly supports the positive influence of FLE on various learning outcomes within the positive psychology framework. The pioneering research by Dewaele and MacIntyre (2014) demonstrated that positive and negative emotions serve distinct functions in language learning rather than existing as opposite poles on the same axis. Specifically, much research has demonstrated the positive effect of positive emotions on motivation, engagement, and academic achievement (Li, 2020). The theoretical foundation for these impacts lies in enjoyment's capacity to expand learners' thought-action repertoire, thereby enhancing their ability to develop language resources and facilitate learning (MacIntyre and Gregersen, 2012). Furthermore, the development and validation of a culturally adapted Chinese FLE Scale by Li et al. (2018) offers a three-dimensional framework encompassing private, teacher, and atmosphere, contributing to context-specific conceptualizations of FLE.

Therefore, it reveals that while significant progress has been made in understanding FLE, there remain substantial gaps in existing research. While substantial evidence supports its positive impact on language learning outcomes, the nomological network of enjoyment remains incompletely explored. Particularly, the complex interrelationships between FLE and other variables in L2 contexts need further investigation, suggesting a promising direction for future research in this field. In other words, while FLE has emerged as a crucial construct in SLA research, further studies are needed to fully comprehend its complex interactions within the field of SLA.

**Engagement.** As previously noted, engagement is a key element of positive psychology (Seligman, 2011; Wang and Wang, 2024). Initially considered a relatively novel concept compared to constructs like motivation (Reschly and Christenson, 2012), engagement has gained increasing attention from researchers and

has become more prominent in educational research (Pan et al., 2023; Pekrun and Linnenbrink-Garcia, 2012; Wang et al., 2024; Wu et al., 2024). Engagement is defined as the concept of "how actively involved a student is in a learning task and the extent to which that physical and mental activity is goal-directed and purpose-driven" (Hiver et al., 2021, p.3). This definition emphasizes the importance of both physical participation and cognitive investment, suggesting the need for clear objectives and personal meaning in educational activities (Gao et al., 2025; Guo and Wang, 2024; Wang et al., 2025; Wang and Reynolds, 2024). The concept of student engagement in SLA has evolved from two dimensions—behavioral and emotional (Van Uden et al., 2013)—to three, with the addition of cognitive aspects (Fredricks et al., 2004). Recently, a four-dimensional model has included agentic engagement (Reeve, 2013). This shift showed that L2 learning represents a complex interplay of cognitive, affective, and social variables (Sato, 2017). More importantly, among these dimensions, behavioral engagement is most closely associated with academic performance (Lee, 2014) and learner achievement (Wong et al., 2024). This dimension is generally characterized by the observable persistence and effort that learners invest in educational activities (Hughes et al., 2008).

Notably, engagement serves as a crucial bridge between teaching and learning, facilitating meaningful learning experiences (Hiver et al., 2021). Many researchers have examined its positive relationship with multiple learning outcomes across academic, social, and affective domains (Reeve, 2012). Specifically, engagement has been linked to achievement, motivation, and self-efficacy (Mystkowska-Wiertelak, 2021). That is to say, engagement is often considered a psychological mediator that influences student performance through many contextual factors (Reyes et al., 2012; Benner et al., 2008).

More importantly, emotions and engagement are crucial components in SLA research, significantly impacting both learning and psychological well-being (Feng and Hong, 2022). Boekaerts (2016) highlights that both positive and negative emotions significantly influence engagement. Notably, engagement has been positively linked to FLE in language learning (Feng and Hong, 2022; Khajavy, 2021; Linnenbrink-Garcia et al., 2011). When studying engagement, researchers need to explore how positive emotions can influence students' engagement (Boekaerts, 2016). For example, Khajavy (2021) found that FLE positively predicted engagement among Iranian L2 learners. In the Chinese EFL context specifically, Feng and Hong (2022) demonstrated this relationship while noting that Chinese students generally reported lower enjoyment levels compared to the Western counterparts. Furthermore, this relationship is supported by Fredrickson's (2001) Broaden-and-Build theory, which argues that positive emotions of enjoyment can enhance engagement. Apart from that, research examining the relationship between engagement and WTC is crucial for understanding classroom interaction dynamics. Mystkowska-Wiertelak's (2021) study of English majors found significant correlations between engagement and WTC dimensions and found that these constructs were also heavily influenced by social factors. Although earlier research predominantly explored the bivariate relationships between enjoyment and engagement (Do and Schallert, 2004) or the relationships between engagement and WTC, there remain few empirical studies investigating the mechanisms underlying these relationships. Therefore, it is crucial to investigate the intricate mechanisms underlying these concepts.

In summary, previous SLA studies have primarily concentrated on linguistic perspectives of engagement, such as grammatical and lexical features. However, the broader definition of engagement in education includes psychological dimensions, which have often been neglected. In this study, we primarily focus on

behavioral engagement, which is defined as “the involvement time, persistence to learning activities and efforts of participation” (Teng and Wang, 2021, p.3). It includes participation in interactions with classmates and teachers, and the quality of these social interactions. Behavioral engagement is particularly relevant because it directly influences the dynamics of classroom interaction and the overall learning environment. The rationale for focusing on behavioral engagement in this study lies in that it is more observable and measurable than other dimensions, and it can facilitate systematic assessment and analysis within an educational context (Fredricks et al., 2004). Furthermore, behavioral engagement was found to be intrinsically linked to academic success (Hughes et al., 2008), as students who are more behaviorally engaged may demonstrate greater persistence, effort, and active participation, all of which are crucial for effective learning (Reeve, 2012). Given that engagement is crucial for academic success, it is essential to investigate its psychological dimensions within SLA to gain deeper insights into this field.

**Willingness to communicate (WTC).** WTC in SLA represents a complex and dynamic construct that significantly influences foreign language teaching and learning outcomes. Initially conceptualized by McCroskey and Richmond (1987) as a stable trait in L1 contexts, WTC has evolved to encompass “a readiness to enter into discourse at a particular time with a specific person or persons, using an L2” in L2 contexts (MacIntyre et al., 1998, p. 547). The evolution reflects the recognition that L2 WTC varies considerably among learners due to their diverse linguistic competencies and communicative opportunities (Khajavy et al., 2018).

The theoretical framework of L2 WTC has undergone significant development over the past 20 years, transforming from viewing it as both a situational and trait variable (MacIntyre et al., 1998) to encompassing process-oriented, ecological, and dynamic perspectives (Cao and Philp, 2006; Cao, 2009; MacIntyre and Legatto, 2011). This model emphasizes that effective L2 communication requires not only linguistic competence but also psychological readiness (Khajavy et al., 2018). Furthermore, the pyramid model suggests that WTC variations emerge from interactions between linguistic, communicative and contextual factors (Khajavy et al., 2018). This is validated across diverse contexts, including the Korean context (Joe et al., 2017), the Chinese context (Peng and Woodrow, 2010), the Japanese context (Yashima, 2002) and the Iranian context (Khajavy et al., 2016).

Empirical research has identified numerous factors influencing L2 WTC, including both long-term processes and immediate situational variables (Khajavy et al., 2018). In Chinese EFL contexts, Peng and Woodrow (2010) established the classroom environment’s predictive role in WTC development, while Wang (2019) demonstrated WTC’s dynamic nature through moment-to-moment fluctuations. However, there still exists a significant research gap in understanding the relationship between contextual psychological factors, particularly enjoyment, and L2 WTC. While Dewaele and MacIntyre (2016) suggested that teachers can more effectively influence students’ language enjoyment compared to anxiety, the complex interplay between positive emotions and WTC remains underexplored. This limitation is particularly noteworthy given the multitude of potential WTC predictors. Therefore, it is necessary to further explore the associations between FLE and WTC across diverse learning contexts, potentially enhancing our understanding of effective L2 communication environments. Emotions and engagement play critical roles in learning and psychological well-being (Feng and Hong, 2022), yet a significant research gap exists in understanding the nomological network of enjoyment in

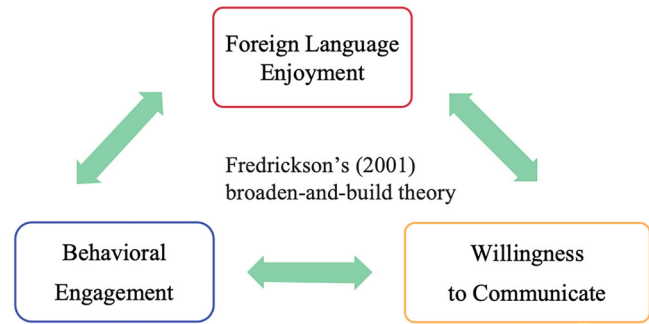
SLA (Botes et al., 2020). While previous studies often examined simple bivariate relationships between these variables, recent research suggests more complex interconnections between FLE, behavioral engagement, and WTC in language learning contexts.

The positive relationship between FLE and engagement has been consistently supported across multiple studies (Feng and Hong, 2022; Khajavy, 2021; Nalipay et al., 2021). This alignment with Fredrickson’s (2001) Broaden-and-Build theory demonstrates that positive emotions enhance engagement by increasing involvement in learning activities. Similarly, research has consistently shown positive correlations between FLE and WTC in language classrooms (Bensalem, 2022; Dewaele and Pavelescu, 2021; Peng and Wang, 2024), with enjoyment being identified as the most prevalent positive emotion facilitating communication willingness (Dewaele and MacIntyre, 2019). However, several contradictions emerge in the literature. First, while FLE generally shows positive effects across contexts, studies reveal significant cultural differences. Feng and Hong (2022) found that Chinese students report higher anxiety and lower enjoyment compared to Western samples, suggesting that the relationship between emotions and engagement may be culturally mediated. Second, contradictory findings exist regarding the stability of these relationships. While some studies present these relationships as relatively stable (Khajavy et al., 2018), Dewaele and Pavelescu’s (2021) longitudinal research reveals that emotions and their connection to WTC are highly dynamic and fluctuate over time. Third, while Kun et al., (2020) found strong positive correlations between FLE and WTC among Chinese tertiary students with high FLE levels, the relationship varies significantly among students with different proficiency levels and in different learning contexts.

Several research gaps still exist. First, while the dynamic nature of emotions in relation to WTC has been established, the specific mechanisms driving these fluctuations remain unclear, particularly in the Chinese EFL context. Second, most studies examine these variables in pairs rather than investigating their simultaneous interactions in speaking classes. Therefore, this complex interplay between emotions, engagement, and WTC, along with the contradictory findings in different contexts, necessitates a more comprehensive approach to understanding how these variables function together in language learning. It is crucial for developing more effective teaching practices that account for the full range of emotional and behavioral dynamics in language learning environments.

**The conceptual framework.** The selection of FLE, behavioral engagement, and WTC as key constructs in this study is theoretically grounded in Fredrickson’s (2001) Broaden-and-Build theory and specifically justified by their crucial roles in EFL speaking contexts. These three constructs form an interconnected framework that captures both the emotional and behavioral dimensions of language learning. FLE was selected as it represents the most prevalent positive emotion in language classrooms (Dewaele and MacIntyre, 2019) and aligns with the broadening function. In the Chinese EFL context, where speaking anxiety often acts as a barrier (Jiang and Dewaele, 2019), the potential of FLE to counteract negative emotions makes it particularly relevant. Behavioral engagement, defined as students’ active participation in language learning activities, is more observable and measurable than other dimensions of engagement. This behavioral aspect is especially critical in Chinese EFL classrooms, where traditional teaching methods may limit active participation opportunities. WTC was chosen as the outcome variable as it embodies the ‘building’ aspect of the theory and represents the ultimate goal of language education: students’ readiness to engage





**Fig. 1 The conceptual framework of the study.** This figure illustrates the hypothesized relationships between the key constructs examined in this research.

| Table 1 Participants' demographic characteristics (N = 690). |            |           |         |
|--|------------|-----------|---------|
| Variables  | Level      | Frequency | Percent |
| Gender   | Male       | 231       | 33.5%   |
|  | Female     | 459       | 66.5%   |
| Age  | Max.       | Min.      | Average |
|  | 26         | 17        | 19.97   |
| Grade  | First-year | 335       | 48.6%   |
|  | Sophomore  | 186       | 27.0%   |
|  | Junior     | 69        | 10.0%   |
|  | Senior     | 100       | 14.5%   |
| CET-4 Score  | Below 425  | 187       | 27.1%   |
|  | 425-550    | 415       | 60.1%   |
|  | Above 550  | 88        | 12.8%   |
| CET-6 Score  | Below 425  | 300       | 43.5%   |
|  | 425-550    | 313       | 45.4%   |
|  | Above 550  | 77        | 11.2%   |

in L2 communication, which is particularly significant in the Chinese EFL context where students often demonstrate high linguistic competence but lower communication willingness (MacIntyre et al., 2019). Therefore, in the context of this study, it is plausible that FLE facilitates increased behavioral engagement in classroom activities, which in turn develops students' WTC in language learning.

Figure 1 shows the conceptual framework of the study. The present framework divides WTC into two dimensions according to Peng and Woodrow's model (2010): form-focused activities, which emphasize specific language features and meaning-focused activities, which emphasize message exchange. The variable FLE is composed of three dimensions, which were established from the Chinese FLE Scale in Li et al.'s (2018) study. These dimensions are defined as follows: FLE-Private, which is personal pleasure from progress and performance; FLE-Teacher, which is the pleasure from EFL teacher support; FLE-Atmosphere, which is the enjoyment from positive classroom atmosphere. The variable behavioral engagement is adapted from Khajavy's (2021) scale, including four items measuring engagement in behavioral aspects.

Methodology

**Participants.** The study included 690 Chinese EFL college students (Female = 231, Male = 459) who were from multiple educational institutions in different areas of China. The study employed convenience sampling, a method defined as the selection of readily available and willing participants who meet the research criteria (Best and Kahn, 2006). All participants were

university students at different academic levels, ranging from freshmen to seniors, within an EFL context. The participants were selected based on several two considerations. First, we focused on Chinese EFL college students as they represent a significant population in English language education, allowing us to examine the language learning experience of Chinese learners in an authentic learning context. Second, by including students from multiple institutions across different regions of China, we aimed to capture a diverse sample that reflects varying institutional and regional contexts, and it can enhance the generalizability of our findings within the Chinese EFL context. A total of 919 college students taking English speaking courses were sampled from seven universities across six provinces (Hubei, Guangdong, Henan, Hebei, Zhejiang, and Shanxi). After excluding 229 students (30.71%) due to incomplete or invalid responses, the final sample comprised 690 participants.

The final sample consisted of 690 undergraduate students (see Table 1 for detailed demographic characteristics). The sample reflected the typical gender distribution in Chinese foreign language programs, with female students comprising approximately two-thirds of participants. The average age was ~20 years, with nearly half being 1st-year students. Participants' English proficiency was measured through the College English Test (CET), a standardized national test in China with two levels: CET-4 (intermediate) and CET-6 (advanced). CET-4 is typically a graduation requirement, while CET-6 serves as an advanced qualification, with 425 being the passing score for both tests. Regarding English proficiency, the majority of participants scored between 425 and 550 on both the CET-4 and CET-6 examinations, indicating an intermediate level of English competency.

**Instruments.** The present study utilized three modified and validated questionnaires to collect data, all presented in Chinese, to ensure accurate comprehension. The survey consisted of two parts, including the demographic information and the three scales: FLE, WTC, and behavioral engagement. Designed by the researchers, the demographic information form was used to collect data on participants' gender, age, grade, CET-4 score, and CET-6 score. All items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), selected for its optimal balance between measurement precision and response efficiency (Preston and Colman, 2000). The questionnaires underwent several revisions to enhance clarity and validity based on expert feedback and pilot testing with three students.

For the purpose of this study, three modified and validated questionnaires were used to collect data, including three dimensions: FLE, engagement, and WTC, including 23 items.

**Foreign Language Enjoyment Scale.** The scale for assessing FLE was adapted from the Chinese FLE Scale in Li et al.'s (2018) study. The scale includes 11 items from three dimensions: Private, Teacher, and Atmosphere. One example of the modifications of the scales included changing "I've learnt interesting things" to "I've learnt interesting information in classes") to enhance clarity and specificity in the EFL classroom context. Notably, the reliability of the adapted FLE scale in this study was calculated as 0.91 for Private, 0.93 for Teacher, and 0.83 for Atmosphere, indicating high reliability for the items.

**WTC scale.** The scale was designed to assess students' willingness to speak English in speaking classes, adapted from Peng and Woodrow's (2010) scale. The scale includes 10 items measuring WTC from two dimensions: meaning-focused activities and form-focused activities. The WTC scale also underwent translation and back-translation by two bilingual experts. It is

| Table 2 The Reliability of the Questionnaires. |                 |       |                        |
|--|-----------------|-------|------------------------|
| Constructs                                     | Dimension       | Items | Cronbach's coefficient |
| FLE  | Private         | Q1    | 0.91                   |
|  |                 | Q2    |                        |
|  |                 | Q3    |                        |
|  |                 | Q6    |                        |
|  | Teacher         | Q7    | 0.93                   |
|  |                 | Q8    |                        |
|  |                 | Q9    |                        |
|  |                 | Q4    |                        |
| Atmosphere                                     |                 | Q5    | 0.83                   |
|  |                 | Q10   |                        |
|  |                 | Q11   |                        |
|  |                 | Q12   |                        |
| Behavioral Engagement (BE)                     |                 | Q13   | 0.88                   |
|  |                 | Q14   |                        |
|  |                 | Q16   |                        |
|  |                 | Q17   |                        |
| WTC  | Meaning-focused | Q18   | 0.91                   |
|  |                 | Q19   |                        |
|  |                 | Q20   |                        |
|  |                 | Q21   |                        |
|  | Form-focused    | Q22   | 0.96                   |
|  |                 | Q23   |                        |
|  |                 |       |                        |
|  |                 |       |                        |

noteworthy that a prior study reported reliability coefficients for the WTC scale as 0.91 for meaning-focused activities, and 0.96 for form-focused activities, indicating high reliability.

**Behavioral engagement scale.** The behavioral engagement scale was adapted from Khajavy (2021). The scale includes 4 items, measuring the behavioral engagement within the L2 speaking class (e.g., ‘I put effort into learning English’). In this study, the reliability for the adapted scale was 0.88 for the items in behavioral engagement, indicating that the items exhibit high reliability.

Table 2 shows the reliability of the FLE, WTC, and behavioral engagement scales. This table displays Cronbach’s Alpha values for three validated scales, demonstrating dependable internal consistency.

**Data collection.** The study was conducted online using the survey platform Wenjuanxing ([www.wjx.cn](http://www.wjx.cn)). Participants were recruited through convenience sampling from undergraduate English courses from multiple educational institutions in different areas of China, to select participants based on their accessibility and proximity (Etikan et al., 2016). The sampling strategy involved collaborating with EFL instructors who agreed to share the survey link with their students across various academic departments. Data was gathered from students who were conveniently accessible and chose to participate voluntarily in the study. Prior to data collection, ethical approval was obtained from the Research Ethics Committee of North China University of Water Resources and Electric Power, and all participants provided informed consent. A preliminary pilot study was conducted with three students to find out any potential issues with the instruments before the main research. Participants were informed of the study’s aims and gave their informed consent before the survey was distributed. Feedback was gathered from the piloting group students regarding any unclear or misleading questions. Revisions were made to all instruments based on pilot study results and participants’ feedback. The finalized scales were presented to all participants in the actual study. The confidentiality and anonymity of

| Table 3 Relationships of FLE, behavioral engagement, and WTC. |         |         |     |
|---|---------|---------|-----|
| Variable  | FLE     | BE      | WTC |
| FLE   | 1       |         |     |
| BE  | 0.703** | 1       |     |
| WTC   | 0.656** | 0.685** | 1   |

\*\*p < 0.01.

the participants’ personal information are strictly maintained, thereby ensuring the ethical principles integral to the study.

**Data analysis.** The study employed a quantitative-method research design to understand the relationship among FLE, behavioral engagement, and WTC among Chinese EFL students. Data analysis was performed utilizing SPSS 27 and AMOS 27 software packages. First, invalid responses were removed, and outliers were identified to test the normality to ensure data quality (Collier, 2020). The data showed a normal distribution, satisfying requirements for further analysis (Hu and Bentler, 1999). Then, the descriptive analysis was used to evaluate the frequency of the items in the three variables. After that, the reliability and validity were measured using Cronbach’s alpha ( $\alpha$ ) and Confirmatory Factor Analysis (CFA) (Collier, 2020). Finally, SEM was conducted to evaluate the proposed model and to explore the complex relations among the three variables (Collier, 2020). The standardized coefficients derived from SEM revealed the relationships among the variables.

**Results**  
**Interrelationships of FLE, behavioral engagement, and WTC.** Initially, data review techniques were applied to identify any missing information or outliers and to evaluate the normality of the dataset. This thorough screening process was designed to ensure the integrity and reliability of the dataset, facilitating subsequent analyses (Kline, 2015). Our preliminary analysis showed that the values of skewness and kurtosis were all within acceptable ranges (skewness < 2, kurtosis < 7; Hu and Bentler, 1999). While the Shapiro-Wilk test results ( $p < 0.05$ ) indicated potential deviation from normality, given our large sample size ( $n = 690$ ) and the Central Limit Theorem, it can be reasonably assumed that the data followed a near-normal distribution. 229 cases were removed based on the exclusion criteria.

According to Table 3, there are strong correlations among FLE, behavioral engagement, and WTC. Firstly, a significant positive correlation exists between FLE and behavioral engagement (0.656\*\*). A similar positive association was observed between FLE and WTC (0.656\*\*). Moreover, a strong positive correlation between behavioral engagement and WTC (0.685\*\*) was also found. This implied that students who are more behaviorally engaged in their English-speaking classes may have a higher level of WTC. Moreover, as shown in Table 4, the relationship was noticeable and moderately strong. Overall, it reveals the significant correlations between behavioral engagement, FLE, and WTC.

**Predictive effect of FLE and behavioral engagement on WTC.** For the subsequent CFA and SEM, sampling adequacy was confirmed by the Kaiser-Meyer-Olkin test ( $KMO = 0.940$ ) and Bartlett’s test of sphericity ( $p < 0.001$ ), indicating suitability for future analysis (Kaiser, 1974).

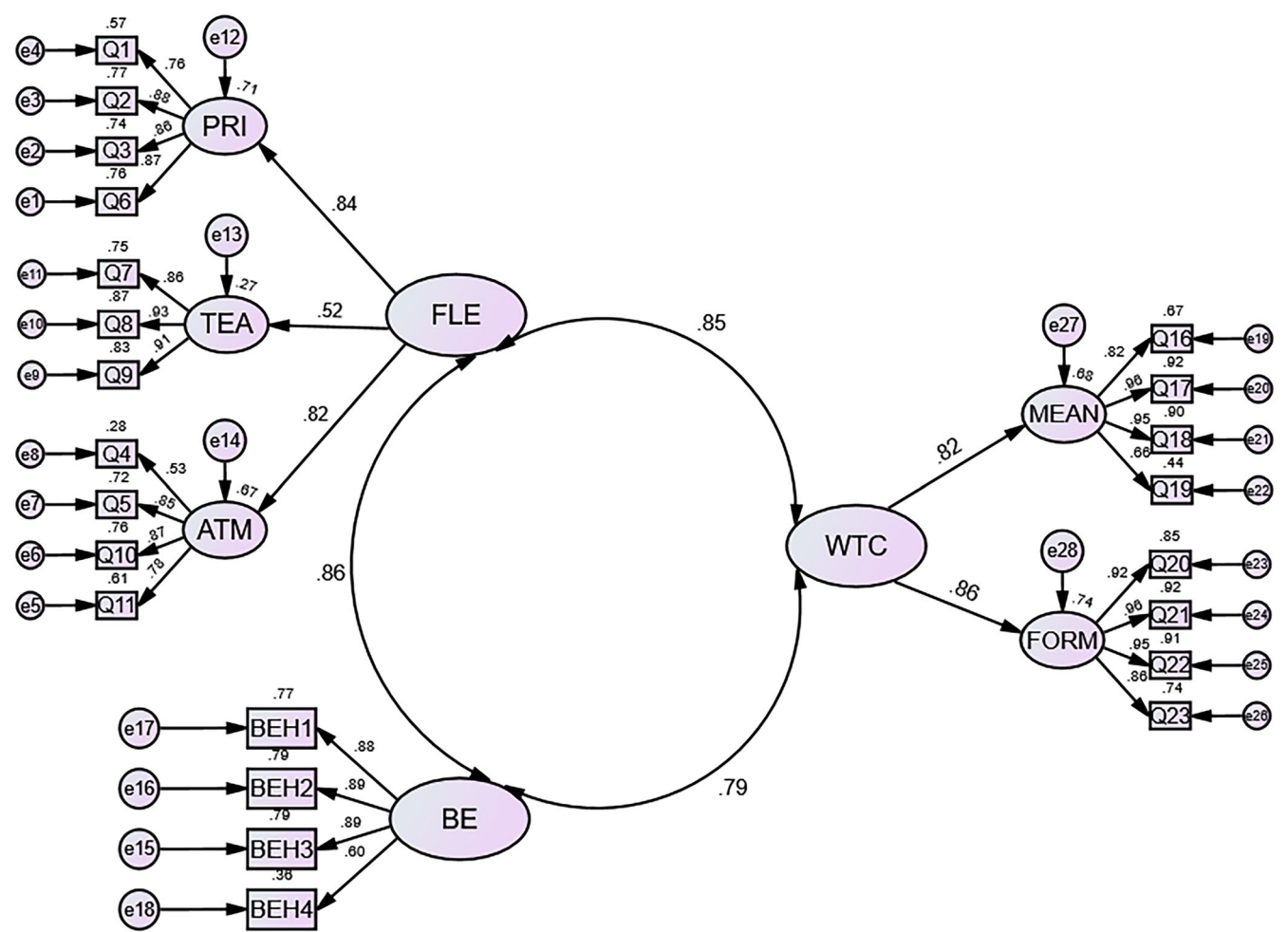
The measurement model was then constructed by AMOS. The initial model indicates a good fit with the data, as shown in Fig. 2. Goodness-of-fit was indicated by several key elements, as shown

in Table 4. The CMIN/df ratio, representing the chi-square statistic divided by the degrees of freedom, is 4.87, which satisfies the requirement of being less than or equal to 5.0 (Marsh and Hocevar, 1985). This indicates that the discrepancy between the observed and expected covariance matrices can be accepted. The RMSEA is 0.075, within the acceptable range of less than 0.080, suggesting a reasonable approximation error. The CFI, which accounts for sample size, is 0.942, surpassing the minimum requirement of 0.9, suggesting that the model fits the data well compared to an independent model. The PNFI, which adjusts the normed fit index for model complexity, is 0.814, comfortably above the requirement of greater than 0.5, implying that the

| Table 4 Evaluation of the CFA Goodness of Fit. |          |          |            |           |            |
|--|----------|----------|------------|-----------|------------|
| Threshold                                      |          |          |            |           |            |
| Criteria                                       |          | Terrible | Acceptable | Excellent | Evaluation |
| CMIN   | 1081.171 |          |            |           |            |
| df   | 222      |          |            |           |            |
| CMIN/df  | 4.87     | >5       | >3         | <1        | Acceptable |
| RMSEA  | 0.075    | >0.08    | <0.08      | <0.06     | Acceptable |
| GFI  | 0.883    | <0.9     | >0.9       | >0.95     | Excellent  |
| CFI  | 0.942    | <0.9     | >0.9       | >0.95     | Excellent  |
| PNFI   | 0.814    | <0.5     | >0.5       |           | Acceptable |
| TLI  | 0.934    | <0.9     | >0.9       | >0.95     | Excellent  |

model is both parsimonious and fits the data well despite its complexity. Lastly, the TLI, another comparative fit index that penalizes the model complexity, is 0.934, exceeding the required threshold of 0.9, indicating a very good fit. Overall, every measure of model fit aligns with or surpasses the established standards, indicating that the model meets all criteria satisfactorily. Although the GFI value is 0.88, which is slightly below 0.9, all other model fit indices are within acceptable ranges, and notably, GFI is sensitive to sample size and is often considered a less reliable indicator of model fit (Tomas et al., 2006). Given that this is a second-order model with increased complexity, the obtained GFI value can be considered acceptable, as values above 0.80 have been deemed appropriate for complex models (Byrne, 2013).

The CFA was employed to assess composite reliability (CR) and average variance extracted (AVE) for each factor, following Collier’s (2020) procedural guidelines. Table 5 provides an evaluation of the discriminant validity and CR of each construct. The results showed that all constructs meet the thresholds of CR > 0.7 and AVE > 0.5, confirming strong reliability and convergent validity. This further supports the discriminant validity of the administered questionnaires. Discriminant validity was also confirmed when the square root of AVE for each construct (highlighted in bold in the above table) was greater than its associations with other constructs (Fornell and Larcker, 1981). Overall, high reliability and discriminant validity among the latent constructs were confirmed. The measurement model was



**Fig. 2 The Final Modified CFA Model with Standardized Estimates.** This figure presents the confirmatory factor analysis model after modifications, showing relationships between latent variables and their indicators.



| Table 5 Composite reliability and discriminant validity of the variables. |                       |       |                       |              |              |
|---|-----------------------|-------|-----------------------|--------------|--------------|
| Variable  | Composite Reliability |       | Discriminant Validity |              |              |
|   | CR                    | AVE   | BE                    | FLE          | WTC          |
| FLE   | 0.779                 | 0.550 | <b>0.742</b>          |              |              |
| BE  | 0.891                 | 0.677 | 0.703***              | <b>0.822</b> |              |
| WTC   | 0.829                 | 0.708 | 0.656***              | 0.685***     | <b>0.841</b> |
| *** <i>p</i> < 0.001.   |                       |       |                       |              |              |

| Table 6 Evaluation of the SEM Goodness of Fit. |         |          |            |           |            |
|--|---------|----------|------------|-----------|------------|
| Threshold                                      |         |          |            |           |            |
| Criteria                                       |         | Terrible | Acceptable | Excellent | Evaluation |
| CMIN   | 1081.54 |          |            |           |            |
| df   | 222     |          |            |           |            |
| CMIN/df  | 4.87    | >5       | >3         | <1        | Acceptable |
| RMSEA  | 0.075   | >0.08    | <0.08      | <0.06     | Acceptable |
| GFI  | 0.883   | <0.9     | >0.9       | >0.95     | Excellent  |
| CFI  | 0.942   | <0.9     | >0.9       | >0.95     | Excellent  |
| PNFI   | 0.814   | <0.5     | >0.5       |           | Acceptable |
| TLI  | 0.934   | <0.9     | >0.9       | >0.95     | Excellent  |

then constructed by AMOS. The measurement model indicates a good fit with the data, as shown in Fig. 2.

As mentioned earlier, before analyzing the data in the structural model, the SEM assumptions were confirmed. The results of the evaluation of the SEM goodness fit were shown in Table 6.

After that, the structural model was constructed by AMOS. The measurement model exhibited overall satisfactory fit characteristics, as depicted in Fig. 3 and Table 6. The chi-square ratio (CMIN/df = 4.87) met the conventional criterion of less than 5.0 (Marsh and Hocevar, 1985). The root mean square error of approximation (RMSEA = 0.075) remained below the 0.080 threshold, confirming adequate precision. Both comparative indices demonstrated robust performance, with CFI reaching 0.942 and TLI achieving 0.934, surpassing their respective 0.9 benchmarks. The parsimonious normed fit index (PNFI = 0.814) substantially exceeded its 0.5 criterion, supporting the efficiency of the model. While the goodness-of-fit index (GFI = 0.88) was marginally below the traditional 0.9 threshold, this metric is known to be sample-size dependent and less decisive in model evaluation (Tomas et al., 2006). Moreover, for higher-order structural models of this complexity, GFI values exceeding 0.80 are considered satisfactory (Byrne, 2013). In sum, the comprehensive assessment of multiple fit indices demonstrates that the model exhibits a good fit.

The SEM of this analysis is shown in Fig. 3. Table 7 reveals that the relationship between FLE and WTC is statistically significant ( $p < 0.001$ ), indicating significant relationships between the variables within the structural equation model. In addition, the effect size for the relationship between behavioral engagement and WTC is also statistically significant ( $p < 0.05$ ). Additionally, it also demonstrates the significant positive effect of FLE on WTC ( $\beta = 0.650$ ,  $p < 0.001$ ), as well as the significant positive effect of behavioral engagement on WTC ( $\beta = 0.228$ ,  $p < 0.05$ ).

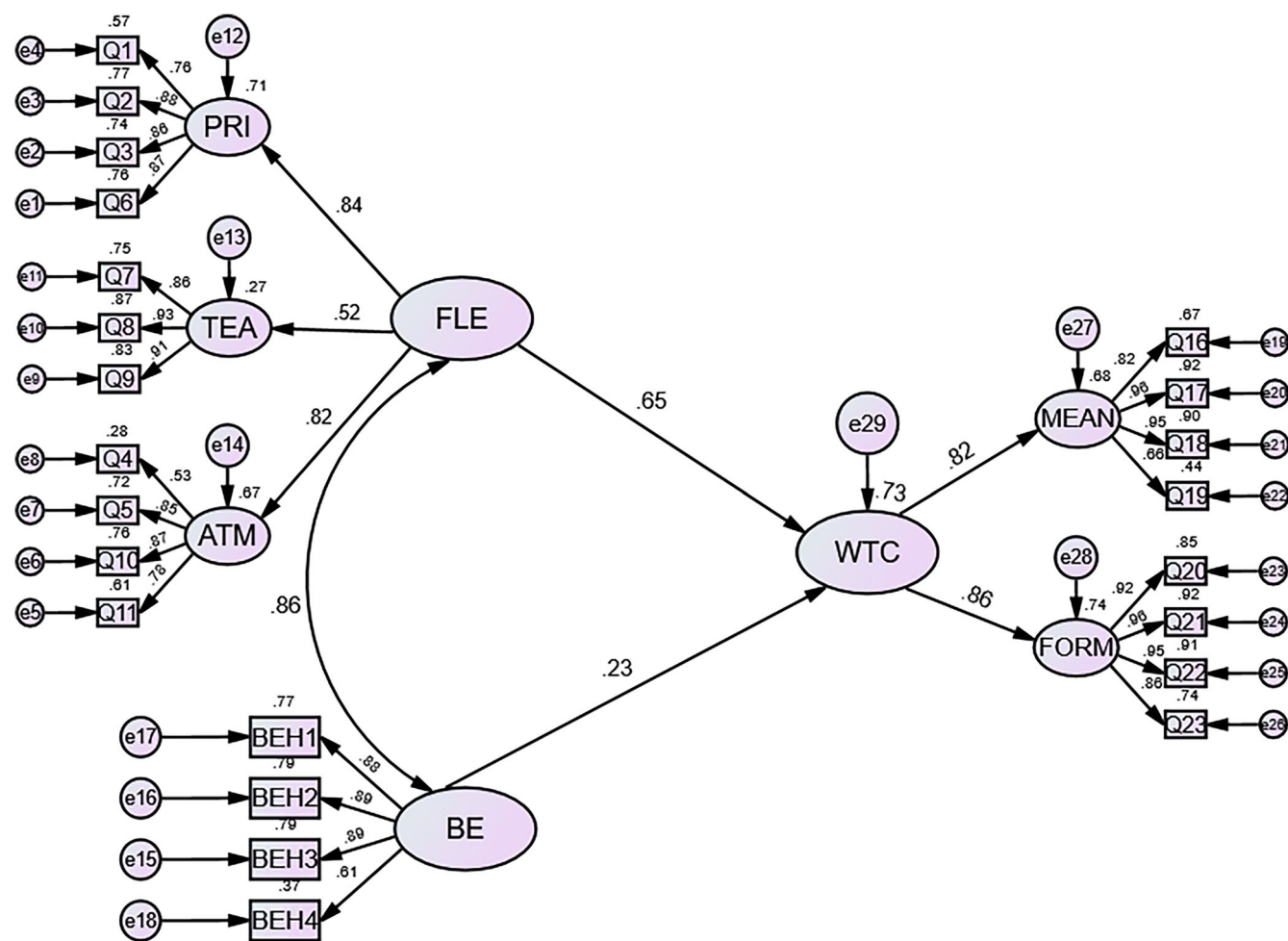
Discussion

This study examined the role of FLE and behavioral engagement on WTC by using a quantitative approach among Chinese EFL

college learners. Specifically, the study explored significant interrelationships between FLE, engagement, and WTC among Chinese EFL college students in English-speaking classes. The results indicated significant positive relationships between both FLE and behavioral engagement with WTC, with FLE showing a stronger association than behavioral engagement. More importantly, it shows the predicting effect of FLE and behavioral engagement on WTC. This study is particularly significant as it contextualizes FLE within the theoretical framework of Fredrickson’s (2001) Broaden-and-Build theory in the Chinese EFL context. According to this theory, positive emotions like enjoyment serve two crucial functions: they broaden students’ momentary thought-action repertoires and build their enduring personal resources. In our study context, when students enjoy the learning process, this positive emotion broadens their perspective on language learning, making them more likely to view communication as an opportunity rather than a threat. This broadening effect then builds lasting educational resources, including increased confidence and WTC. The theory helps explain why, particularly in Chinese university settings where students might be traditionally hesitant to speak up, enjoyment can play such a crucial role in breaking down communication barriers. This theoretical perspective highlights the pivotal role of enjoyment in not only enriching the classroom experience but also in strengthening students’ behavioral engagement and their WTC.

Firstly, the results indicated a statistically significant, moderately significant positive association between FLE and WTC. The positive correlation indicated that higher levels of FLE correspond to increased levels of WTC among EFL students. Consistent with the predictions of the Broaden-and-Build theory, this finding suggests that enjoyment derived from the learning process significantly impacts students’ willingness to engage in communicative activities, particularly within the Chinese educational context where maintaining face and avoiding errors are important cultural considerations. It is noticeable that positive emotions (i.e., enjoyment) generated from personal pleasure derived from progress and performance, enjoyable learning environments, and supportive teacher-student relationships play a pivotal role in this dynamic. In addition, previous research indicates that learners who report higher levels of enjoyment may be more inclined to communicate willingly in their language classes (Dewaele, 2019). This can be explained by the fact that positive emotions reduce anxiety and increase confidence, which are facilitated by positive emotions, making students feel more comfortable and motivated to communicate (Fredrickson, 2001). Moreover, this finding confirms the critical predicting effect of FLE on L2 WTC, as reported in several studies (Bensalem, 2022; Dewaele, 2019; Dewaele and Pavelescu, 2021; Kun et al., 2020; Peng and Wang, 2024). According to Peng (2012), a classroom environment that prioritizes enjoyment through interactive and stimulating activities fosters a sense of community and lowers the affective filter, thereby increasing WTC. This supportive environment encourages students to take linguistic risks and view communication as an opportunity for growth rather than a challenge (Dewaele, 2015). More importantly, this positive relationship between FLE and WTC is supported by Fredrickson’s (2001) Broaden-and-Build theory. This positive effect of enjoyment on WTC can be explained by Fredrickson’s (2001) Broaden-and-Build theory, which highlights the significant impact of positive emotions on learning outcomes. The interplay between FLE and WTC highlights the critical role of emotional well-being in language acquisition, as corroborated by Positive Psychology frameworks (MacIntyre and Gregersen, 2012). Hence, it is crucial to not only focus on language proficiency but also to cultivate a joyful learning experience.





**Fig. 3 The Final Measurement Model with Standardized Estimates.** This figure displays the validated measurement model with standardized path coefficients.

| Table 7 Results of SEM. |      |     |       |       |       |       |       |
|-------------------------|------|-----|-------|-------|-------|-------|-------|
|                         |      | B   | β     | SE    | P     | CR    |       |
| WTC                     | <--- | FLE | 0.713 | 0.650 | 0.113 | 0.000 | 6.282 |
| WTC                     | <--- | BE  | 0.190 | 0.228 | 0.077 | 0.014 | 2.457 |

In addition, there was a positive association between behavioral engagement and WTC in this study, aligned with previous research in the Polish context (Mystkowska-Wiertelak and Bielak, 2023). Behavioral engagement, which includes active participation, consistent effort, and persistence in language learning activities, seems closely tied to various facets of WTC. The data revealed that students who displayed these engagement behaviors in their university English classes were more likely to demonstrate WTC, despite the challenges often present in Chinese EFL contexts such as large class sizes and limited speaking opportunities. One explanation for the positive association between behavioral engagement and WTC is that students who demonstrate higher levels of engagement experience more positive emotions during the learning process, which in turn broadens their thought-action repertoires and builds enduring personal resources. In other words, students who are behaviorally engaged in classes experience more opportunities for positive emotional experiences, leading them to develop more favorable attitudes towards both learning processes and communicative interactions. Moving to a

deeper analysis, one cultural reason in the Chinese EFL setting is that students traditionally maintain passive roles in classrooms (Liu and Jackson, 2011), yet those who demonstrate higher levels of engagement begin to overcome the conventional learning patterns. They tend to view classroom activities as relevant and worthwhile, which fosters a sense of investment and enthusiasm (Fredricks et al., 2004). This is particularly significant in a context where English is primarily learned as a foreign language with limited exposure outside the classroom (Wen and Clément, 2003). In essence, Chinese students who are behaviorally engaged in classes gradually overcome cultural reticence and become more willing to take on communicative tasks (Li and Jia, 2006), beginning to view active participation as an integral part of their learning. More importantly, this aligns with Fredrickson’s (2001) theory, as the positive emotions generated through successful engagement experiences create an upward spiral: when students are behaviorally engaged, they experience more opportunities for positive emotional experiences in the classroom. These positive emotions then broaden their thought-action repertoires, making them more open to communicative opportunities and building their enduring personal resources such as confidence and linguistic competence. This creates a self-reinforcing cycle where engagement leads to positive emotions, which in turn facilitates greater WTC. As this cycle continues, the benefits extend beyond immediate classroom participation. This heightened engagement improves both linguistic outcomes, such as proficiency and communicative competence, and non-linguistic outcomes,

including psychological well-being and sociocultural knowledge. Subsequently, these combined outcomes promote greater interaction with the target language community and increase learners' WTC. Therefore, the relationship between behavioral engagement and WTC highlights that an engaging classroom environment that promotes student interaction and positive emotional experiences is essential for effective language acquisition (Peng, 2012). In other words, students become more empowered to communicate and collaborate in an interactive and engaging learning environment, as these positive experiences build their confidence and broaden their communicative repertoire. While these findings are particularly relevant to Chinese university contexts and similar contexts, they may have broader implications for other EFL environments where cultural and institutional factors influence students' WTC. Future research could explore how these relationships manifest in different cultural and institutional contexts, particularly in other Asian educational settings with similar cultural values.

## Conclusion

This study offers valuable insights into the relationships among FLE, behavioral engagement, and WTC among Chinese EFL college students, as well as the factors that shape WTC. The results and the findings showed that fostering positive emotions and nurturing behavioral engagement can significantly and positively impact students' WTC. These results highlight the interplay between FLE and behavioral engagement in shaping WTC, emphasizing the need to consider both emotional and behavioral perspectives in WTC research. This research contributes to the existing literature by emphasizing the significant impact of FLE and behavioral engagement as key factors influencing WTC. Since emotions are often temporary and short-lived in language education, FLE, being a relatively consistent positive emotional experience, could significantly influence the communication behaviors of Chinese EFL learners. Learners with high levels of FLE typically exhibit greater enthusiasm and confidence in using the target language. This emotional condition makes them less vulnerable to the negative effects of anxiety and other adverse emotions, thereby protecting their WTC in the process of language learning. Furthermore, the importance of behavioral engagement in shaping WTC cannot be overstated. Active participation in classroom activities encourages learners to practice and refine their language skills, thereby increasing their confidence and WTC. A learning environment characterized by positive emotional experiences and active engagement enhances an individual's willingness to participate, self-confidence, and overall communicative proficiency. Moreover, heightened levels of FLE and behavioral engagement within the classroom not only contribute to improved academic performance and cognitive development but also promote the emotional well-being of learners. This, in turn, encourages active participation and collaboration among students, thereby enhancing their social skills and emotional intelligence, ultimately leading to a more cohesive and effective educational environment.

This study has several implications on both a theoretical and practical level. Theoretically, it contributes to the existing literature on positive psychology in language education by highlighting the significance of FLE and behavioral engagement in enhancing WTC among EFL learners. The findings highlight the crucial role that positive psychology constructs play in the Chinese EFL context, offering valuable insights into how these constructs can be enhanced to improve language education. Practically, this research offers significant implications for enhancing WTC in Chinese EFL contexts. First, this study indicates that fostering FLE within the classroom can substantially increase students' WTC. The findings

correspond to Fredrickson's (2001) Broaden-and-Build theory, which suggests that promoting FLE can help students build enduring resources such as linguistic competence, social connections, and confidence. Teachers can achieve this by incorporating engaging and enjoyable activities into their lessons, such as interactive games, collaborative projects, and culturally enriching content. Furthermore, recognizing and celebrating students' achievements, no matter how small, can reinforce positive emotions and foster a more communicative atmosphere. Second, behavioral engagement is crucial for enhancing WTC. Active participation in classroom activities improves language proficiency and increases students' WTC. Strategies like group discussions, role-plays, and problem-solving tasks can promote active engagement and provide opportunities for students to practice communication in a supportive setting. To effectively implement these strategies, teacher training programs should include comprehensive modules on Fredrickson's (2001) Broaden-and-Build theory and its applications in language teaching. Teachers should be prepared with both theoretical understanding and useful resources to establish a classroom setting that optimizes behavioral engagement and FLE and, therefore, enhances WTC.

However, the study also has several limitations. First, although the model showed satisfactory overall fit indices, the relatively low GFI value suggests potential opportunities for enhanced model specification in future empirical studies. Second, the use of self-reported scales as the primary data collection method presents methodological limitations, particularly regarding social desirability bias and measurement reliability. Subsequent studies might consider utilizing objective indicators of these variables, such as direct behavioral observations and performance-based assessments. Third, although this study is a large-scale quantitative investigation involving multiple participants, its reliance on the collection and analysis of numerical data presents certain limitations. Traditional static methodologies may inadequately capture the dynamic and contextual complexities and constructs inherent in the language learning processes. Future research should integrate mixed-methods approaches and real-time data collection techniques to provide a more comprehensive understanding. Moreover, While Broaden-and-Build theory effectively explained our findings, future research could benefit from incorporating additional theoretical frameworks, such as Self-Determination Theory (SDT), to examine how basic psychological needs influence the engagement-WTC relationship or Seligman's (2011) PERMA model to understand how positive emotions and engagement function within the broader context of L2 learning well-being. Furthermore, given its specific focus on Chinese EFL contexts, the applicability of the findings in this study to other sociocultural and linguistic settings may be limited. Future research should investigate the effects of FLE and behavioral engagement in shaping WTC in diverse contexts.

## Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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## Author contributions

Jie Lin and Yongliang Wang wrote the main manuscript text. All authors reviewed the manuscript.

## Competing interests

The authors declare no competing interests.

## Consent for publication

Informed consent for publication was obtained from all individual participants included in the study (Date: 03/05/2024).

## Informed consent

Written Informed consent was obtained from all participants between May 05 and 10, 2024, prior to data collection. Ethical approval  
This study was conducted in accordance with the ethical principles of the Declaration of Helsinki, received approval from the North China University of Water Resources and

Electric Power Ethics Committee (Date: 01/05/2024), and obtained informed consent from all participants (Ethics approval number: NCWUSFS20240501).

## Additional information

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