

Investigation of the Role of Grit and the Willingness to Communicate in English of Chinese Graduate Students in an English Medium Instruction Academic Context

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Abstract

This study examined grit and the willingness to communicate (WTC) in English, in an English-medium-instruction (EMI) academic context, by using mixed-methods research to combine quantitative research data (using a questionnaire) and qualitative research data (based on semi-structured interviews) to respond to three research objectives: 1) to investigate the level of grit and WTC in English of Chinese graduate students in an EMI academic context; 2) to explore the relationships between grit and WTC in English of Chinese graduate students in an EMI academic context; and 3) to examine how gritty students persist in maintaining their interest in using English to communicate in an EMI academic context. Sixty-six Chinese graduate students studying in a Bilingual Education Program in a Thai EMI academic context were randomly selected as questionnaire respondents. Nine gritty students were then voluntarily recruited from among the 66 for semi-structured interviews. The questionnaire findings showed that the Chinese graduate students had a moderate level of grit (mean = 2.75, SD = 0.76) and WTC in English (mean = 3.48, SD = 0.76), and there was a significant positive correlation between grit and WTC in English in an EMI academic context ($p = 0.00$, $r = 0.52$). Additionally, the findings were enhanced by incorporating specific instances of strategies suggested by gritty students in the semi-structured interviews. These strategies included language mediation, language tool assistance, and language interaction. The findings further support the role of grit in shaping the WTC in English of the Chinese graduate students with respect to the EMI context. The article suggests future research to design interventions and to incorporate strategies to enhance Chinese graduate students' grit and WTC in English in similar EMI academic contexts, as well as to foster the development of their overall academic goals more generally.

Keywords: Chinese Graduate Students, EMI Academic Context, Grit, WTC in English

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การสืบสอบบทบาทของกริท (Grit) และความเต็มใจในการสื่อสารภาษาอังกฤษของนักศึกษา ระดับบัณฑิตศึกษาชาวจีน ในบริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอน

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บทคัดย่อ

การศึกษานี้มุ่งสืบสอบกริทและความเต็มใจในการสื่อสารเป็นภาษาอังกฤษในบริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอน โดยใช้การวิจัยในรูปแบบผสมวิธี ในการเชื่อมโยงข้อมูลเชิงปริมาณ (ที่ใช้แบบสอบถาม) และข้อมูลเชิงคุณภาพ (ที่มีฐานจากการสัมภาษณ์กึ่งโครงสร้าง) เพื่อตอบวัตถุประสงค์วิจัย 3 ข้อ ได้แก่ 1) เพื่อตรวจสอบระดับของกริท และความเต็มใจในการสื่อสารเป็นภาษาอังกฤษของนักศึกษาระดับบัณฑิตศึกษาชาวจีนในบริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอน 2) เพื่อศึกษาความสัมพันธ์ระหว่างกริท และความเต็มใจในการสื่อสารเป็นภาษาอังกฤษของนักศึกษาระดับบัณฑิตศึกษาชาวจีนในบริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอน 3) เพื่อตรวจสอบว่าผู้เรียนที่มีระดับกริทสูงจะยังคงรักษาระดับความสนใจในการใช้ภาษาอังกฤษในบริบทการใช้ภาษาอังกฤษเป็นสื่อในการสอนได้หรือไม่ นักศึกษาระดับบัณฑิตศึกษาชาวจีนจำนวน 66 คนที่กำลังศึกษาในหลักสูตรการศึกษาสองระบบภาษาในบริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอนได้รับการคัดเลือกแบบสุ่มให้เป็นผู้ตอบแบบสอบถาม นักศึกษาที่มีระดับกริทสูงจำนวน 9 คน ได้รับการคัดเลือกโดยสมัครใจจากนักศึกษาจำนวน 66 คนให้เข้าสัมภาษณ์ ข้อค้นพบจากแบบสอบถามพบว่านักศึกษาระดับบัณฑิตศึกษาชาวจีนมีระดับกริทอยู่ในระดับปานกลาง (ค่าเฉลี่ย = 2.75 ส่วนเบี่ยงเบนมาตรฐาน = 0.76) และมีระดับความเต็มใจในการสื่อสารเป็นภาษาอังกฤษอยู่ในระดับปานกลาง (ค่าเฉลี่ย = 3.48 ส่วนเบี่ยงเบนมาตรฐาน = 0.76) มีค่าสหสัมพันธ์ระหว่างกริทและความเต็มใจในการสื่อสารเป็นภาษาอังกฤษเป็นไปในเชิงบวก และมีนัยสำคัญในทางสถิติ ($p = 0.00$, $r = 0.52$). นอกจากนี้ยังมีข้อค้นพบจากการสัมภาษณ์นักศึกษาที่มีระดับกริทสูงว่าได้ใช้กลยุทธ์เฉพาะด้าน ซึ่งรวมถึงการใช้ภาษาเป็นสื่อการใช้เครื่องมือที่ใช้ช่วยในการสร้างความเข้าใจภาษา และการใช้การปฏิสัมพันธ์เชิงภาษา มีข้อค้นพบเพิ่มเติมที่สนับสนุนบทบาทของกริทที่เอื้อต่อความเต็มใจในการสื่อสารเป็นภาษาอังกฤษของนักศึกษาระดับบัณฑิตศึกษาชาวจีนในบริบทการใช้ภาษาอังกฤษเป็นสื่อการสอน มีข้อเสนอแนะจากบทความนี้ในการวิจัยในอนาคตว่าควรศึกษาเรื่องนี้เพิ่มเติมด้วยการวิจัยเชิงทดลองและศึกษาการใช้กลยุทธ์ที่จะเสริมสร้างกริทและความเต็มใจในการสื่อสารเป็นภาษาอังกฤษในบริบทที่คล้ายคลึงกันที่ใช้ภาษาอังกฤษเป็นสื่อการสอน รวมถึงการศึกษาเพื่อพัฒนาเป้าหมายในเชิงวิชาการทั่วไป

คำสำคัญ: นักศึกษาระดับบัณฑิตศึกษาชาวจีน, บริบทวิชาการที่ใช้ภาษาอังกฤษเป็นสื่อในการสอน, กริท, ความเต็มใจในการสื่อสารเป็นภาษาอังกฤษ

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Introduction

Communication is an indispensable part of learning a language; the primary reason for this process is to use language to communicate (MacIntyre & Charos, 1996). It is believed that one part of communication involves the interlocutors' willingness to communicate with each other, and that this willingness affects their communicative behavior. (McCroskey & Baer, 1985; Kalsoom et al., 2020; Ahmed AbdelAl Ibrahim & Rakhshani, 2024). Willingness to communicate (WTC) in English is defined as a readiness to enter into discourse at a specific time with a specific person or persons using English. It plays a crucial role in the English communication process and can be a decisive factor for identifying when one decides to initiate communication in English (MacIntyre et al., 1998; Fathi et al., 2021; Waluyo & Bakoko, 2022). Becoming an effective communicator in English classes is the long-term goal of most EFL learners, and to accomplish this goal requires that the learner maintain his or her grit over a long duration (Keegan, 2017; Alamer, 2021). Grit, as a non-cognitive personality trait first proposed by Duckworth et al. (2007), is defined as one's passion and perseverance for long-term goals. It is comprised of the two key factors of perseverance of effort (PE) and consistency of interest (CI).

China's Belt and Road Initiative has encouraged many Chinese graduate students to go abroad to the various member nations of the Association of Southeast Asian Nations (ASEAN) for English Medium Instruction (EMI) in their higher education. EMI is defined as the use of English to teach academic subjects in countries where English is not the first language of most of the population. It has become a mainstream element in the globalization of higher education institutions in non-English speaking countries (Dearden, 2014). However, the transition to studying in EMI academic programs has been a difficult task for Chinese graduate students due to various factors, including culture, English language proficiency, WTC, and the academic expectations within the specific EMI academic context (Skyrme, 2007; Yu et al., 2020; Ma et al., 2022). Many Chinese graduate students fail to adapt in the transition from teacher-led and exam-oriented English classes, guided by the influence of traditional Confucian Chinese culture, to a university EMI setting, where the classes are focused on English for academic purposes. They often begin to show lower WTC and grit in using English to communicate (Skyrme, 2007; Liu, 2013). Grit, including passion and effort, are the secrets to success. This can well explain the importance of sustained effort and interest on the part of language learners in the English-learning process, and gritty EFL communicators will work harder to participate in speaking for extended periods, while maintaining and fostering their

enthusiasm in oral activities to ensure the success of their communications (Duckworth et al., 2007; Sadoughi & Hejazi, 2023). Therefore, it is necessary to investigate the role of grit and WTC in English of Chinese graduate students within the EMI academic context.

It appears to be beyond dispute that the research on the relationship between grit and WTC in English has been brought into the limelight. Positive correlations between grit and WTC in English have been found experimentally in various Asian learning contexts through quantitative research methods (Lee & Drajadi, 2019; Lee, & Lee, 2019; Lee & Hsieh, 2019; Fathi et al., 2021; Ebn-Abbasi et al., 2022). For example, Lee & Drajadi (2019) empirically demonstrated that grit is a significant predictor of WTC for Indonesian students in English programs, facilitating their active engagement in English communication. Similarly, Lee & Lee (2019) found that gritty Korean EFL students show higher levels of WTC in English in the classroom. Fathi et al. (2021) used structural equation modeling to show that Iranian EFL students with higher levels of grit exhibited increased WTC in English. The main weakness in their study was that they adopted the Grit Scale and the Short Grit Scale developed by Duckworth et al. (2007) and Duckworth & Quinn (2009), which is insufficient to explain the particularity of grit in second-language learning. Teimouri et al. (2020) addressed this gap by developing the Language-Domain-Specific Grit Scale to provide a nuanced approach to assessing grit that was relevant to second language acquisition.

Although early investigations of grit and WTC in English have been encouraging, several gaps remain. First, while WTC in English has been extensively studied in various settings as an individual trait (Lee & Hsieh, 2019; Lee & Drajadi, 2019; Lee & Lee, 2020), or as a contextual state (Cao & Philp, 2006; Peng & Woodrow, 2010), or from the dynamic situational perspective (Kang, 2005; Khajavy et al., 2014), it has been less explored in the EMI academic context. Second, most studies on grit and WTC in English have used quantitative research methods (Waluyo & Bakoko, 2022; Lee, 2020; Lee & Lee, 2019), with limited use of mixed-methods research that would investigate the interrelationships between grit and WTC in English more comprehensively. Further, research has primarily focused on undergraduate or younger students (Mulyono & Saskia, 2021; Alrabai, 2022), with fewer studies of advanced EFL students such as graduate students. Consequently, the present research adopts a mixed-methods approach and combines a quantitative research method (questionnaire) and a qualitative method (semi-structured interviews), with the qualitative research enhancing the results of the quantitative research, to provide an in-depth understanding of the grit and WTC in English of Chinese graduate students in an EMI academic context.

Grit is a valuable trait. It enhances students' effort and interest in communicating in English, provides motivation, and reduces anxiety when speaking in public. This enables more confident and fluent English use in classes. Investigating the role of grit and WTC in English in EMI academic contexts offers practical insights for both students and educators for improving English learning and communication. The researchers suggest a correlation investigation between the grit and WTC in English of Chinese graduate students in an EMI academic context by addressing the following three research questions:

RQ1: What is the level of grit and the WTC in English of Chinese graduate students in an EMI academic context?

RQ2: What are the relationships between grit and the WTC in English of Chinese graduate students in an EMI academic context?

RQ3: How do gritty students maintain persistence of interest in using English to communicate in an EMI academic context?

Literature Review

The Challenges of Chinese Graduate Students in English Medium Instruction (EMI) Academic Contexts

EMI is used to teach academic content, particularly in non-English speaking countries. It has gained traction globally as an effective pedagogical approach (Dearden, 2014). As globalization intensifies, EMI is being widely implemented in institutions of higher education worldwide to enhance English proficiency and academic skills (Macaro et al., 2017).

However, Chinese graduate students face several challenges in the EMI academic context. Academic language barriers pose a considerable challenge that makes Chinese graduate students struggle with the advanced level of the English of the academic reading, writing, and discussion requirements. For example, understanding complex academic texts and following fast-paced lectures can be particularly discouraging (Jiang et al., 2019). The academic language challenge is compounded by the cultural differences in learning in the EMI academic context. Due to the differences in learning styles and Confucian values that emphasize collectivism, rote learning, and passivity, Chinese graduate students face challenges in transitioning from a teacher-centered, exam-oriented learning environment to the interactive, student-centered approaches typical in EMI academic contexts (Cao & Philp, 2006; Li & Ruan, 2015). Additionally, psychological factors such as fear of making mistakes or anxiety about public speaking, may further hinder their WTC in English and impede their active

participation in class (Wen & Clément, 2003). An example of this is Chinese graduate students' reluctance to ask questions or engage in discussion due to fear of a negative evaluation (Cheng, 2000). Furthermore, the academic expectations in EMI contexts often include a higher level of critical thinking or independent research skills at the academic level, which can be overwhelming for Chinese graduate students not previously exposed to such requirements and who lack familiarity with the academic content (Hu & Lei, 2014). Coping with these challenges requires targeted support strategies to help Chinese graduate students navigate the EMI academic context effectively.

Grit in Language Learning

Grit is defined as a personality trait characterized by interest and perseverance for long-term goals. It was first proposed by Duckworth et al. (2007), who also validated the Grit Scale to measure this trait and divided grit into two factors: consistency of interest and perseverance of effort. This conceptual model has since been widely used in various research contexts. Teimouri et al. (2020) first developed the Language Domain Specific Grit Scale to measure grit in second-language contexts, based on the original Grit Scale. The Language Domain Specific Grit Scale better measures the language outcomes of non-native English-speaking students in second and foreign language learning.

In the context of language learning, grit has been found to play a positive role in learners' performance. Researchers have explored the impact of grit on various aspects of language acquisition, including motivation, enjoyment, anxiety, WTC in English, and achievement. For example, Changlek & Palanukulwong (2015) surveyed sixth graders in Thailand and found that high-achievers were grittier than low-achievers in EFL learning. Lee & Lee (2019) conducted a study on Korean EFL learners and found that those with higher grit levels demonstrated better language learning outcomes and greater persistence in overcoming language challenges. Similarly, Wei et al. (2019) found that Chinese EFL students with higher grit were more likely to engage in productive language learning activities such as seeking out speaking opportunities and practicing regularly.

In addition, the role of grit extends beyond individual characteristics and requires the strengthening influence of the educational environment. For example, research by Yao et al. (2024) highlighted that grit, as an internal trait, does not predict language learning as strongly as enjoyment as an environmental factor. This suggests that the influence of grit alone does not play a major role in language learning. A supportive mindset and comfortable classroom

environments could enhance grit and foster better language learning outcomes. Teachers should consider both individual traits and contextual factors when designing language learning interventions.

Moreover, Zhao & Wang (2023) reviewed 32 empirical studies between grit and other factors from 2017 to 2022 and found that most of the previous studies had not addressed well the issues of the factor structure of grit, nor the diversity of the research methodologies, and that most studies were predominantly quantitative and used the Short Grit Scale developed by Duckworth & Quinn (2009). Therefore, future research on grit is needed to explore the factor structure, with respect to the participants and contexts of the given study and to vary the diversity of research methods.

The Willingness to Communicate (WTC) in English of Chinese Graduate Students

WTC in English is defined as a readiness to engage in communication when using English. It is a crucial factor that influences language acquisition and proficiency (MacIntyre et al., 1998). WTC in English is itself influenced by several factors, including motivation, confidence, and environmental contexts, according to the pyramid-shaped model of MacIntyre et al. (1998). However, this model is largely considered inapplicable to the unique cultural context of English learning in China. Studies of WTC in English should extend to contemplate a broader dynamic structure, rather than a simple stable state, to avoid falling into stereotypical sociocultural assumptions (Peng, 2012). Wen & Clément (2003) emphasized the importance of a novel WTC in an English model tailored to Chinese English-learning contexts. Among Chinese graduate students, WTC in English is influenced by the sociocultural context, individual traits, and the specific educational environment.

Wen & Clément (2003) suggested that ‘societal context’ includes the social-educational environment as well as actual communicative situations in class. For example, Kang (2005) and Cao & Philp (2006) found that WTC in English is not a static trait, but that it fluctuates based on classroom dynamics such as group size, familiarity with one’s interlocutors, and group cohesiveness. This dynamic quality supports the importance of creating supportive and interactive classroom environments to enhance WTC in English for Chinese graduate students. In addition, the strong collectivism advocated by Confucian culture makes students feel more at ease when participating in group work as opposed to individual tasks.

Personality traits such as risk-taking and tolerance for ambiguity are also linked to WTC in English. Chinese graduate students often exhibit a high concern for “face”, which can lead to anxiety about making mistakes in public and thus lower their WTC in English (Gao & Ting-Toomey, 1998). Positive feedback and evaluation from teachers can reduce students’ anxiety and enhance their willingness to participate in communicative activities (Peng, 2012).

WTC in English among Chinese graduate students is a complex interplay of factors and involves the context and the presence of others in the classroom setting. Future research should consider the dynamics of the classroom, particularly through longitudinal and mixed-method research, to provide deeper insights into the WTC in English of Chinese graduate students.

The Previous Research on the Relationship Between Grit and WTC in English

The previous key findings on the relationship between grit and WTC in English are shown in Table 1 below.

Table 1

Key Research Findings on the Grit — WTC in English Relationship

Researcher	Year	Context	Methods	Key Findings
Lee & Lee	2019	Korea	Quantitative	Gritty students exhibit higher levels of WTC in English in class.
Lee & Hsieh	2019	Taiwan	Quantitative	Positive correlation between grit and WTC in English in class, out of class, and in digital class.
Lan et al.	2021	China	Quantitative	Grit is central to achieving communicative success and developing a future self-image as being ‘capable’.
Cheng	2021	Taiwan	Quantitative	Grit alone may not guarantee increased effort in improving speaking skills.
Fathi et al.	2021	Iran	Quantitative	Students with lower anxiety and higher grit levels exhibited more WTC in English.
Ebn-Abbasi et al.	2022	Iran	Quantitative	Perseverance of effort (a component of grit) is a predictor of WTC in English.
Yao et al.	2024	China	Quantitative	Positive relationships between grit, enjoyment, and WTC in English.

The previous research, across diverse contexts, shows that higher levels of grit positively influence WTC in English. In an EMI academic context, where Chinese graduate students are

required to use English for academic purposes, the relationship between grit and WTC becomes particularly relevant. However, previous research on grit and WTC in English has relied mostly on quantitative studies, potentially overlooking subjective experiences of grit and WTC in English. Additionally, the currently used grit measurement instruments are generally domain-general and lacking focus on language-domain-specific grit. In other words, current scoring rubrics are too general and fail to capture aspects of grit that are specific to language learning. Future research should employ a mixed-methods approach and adopt a language-domain-specific grit scale to better understand the relationship between grit and WTC in English.

The Concepts of Grit and WTC in English in the EMI Academic Context

In EMI academic contexts, understanding the constituent elements of grit and WTC in English is crucial for developing effective educational strategies and interventions. Grit involves perseverance of effort and consistency of interest, despite challenges and setbacks, in mastering academic English. Perseverance of effort refers to the continuous effort students put into their studies. Research indicates that students with high perseverance are more likely to overcome obstacles in language learning (Lee, 2020). In EMI academic contexts, perseverance is crucial. Chinese graduate students typically need to engage with complex academic materials in a non-native language. Consistency of interest, the second dimension of grit, involves maintaining long-term interest in learning English. Studies have shown that maintaining interest is particularly challenging for Chinese graduate students due to the test-oriented educational environment and the high pressure to perform, in which, and under which, they learn English (Li et al., 2019; Ma et al., 2022).

WTC in English is essential for active participation in classroom activities and academic discussions, including public speaking, teacher interaction, and peer interaction. Public speaking is a significant component of WTC in English in an academic setting. Chinese graduate students often exhibit reticence in speaking up due to cultural factors such as fear of losing face (Liu & Jackson, 2011). This reticence impacts their overall WTC in English in EMI academic contexts. Teacher interaction is another crucial aspect of WTC in English. Effective teacher-student communication is vital for academic success, especially in EMI academic contexts, where the language barrier can hinder understanding and performance (Peng, 2012). Peer interaction facilitates language practice and helps build confidence. Studies have shown that

students who frequently interact with peers in English develop better communication skills and exhibit higher WTC (Cao & Philp, 2006).

Thus, the review of the literature highlights the importance of the concepts of grit and WTC in English for Chinese graduate students in EMI academic contexts. These ideas are critical for understanding Chinese graduate students' language learning behavior and developing targeted interventions. The questionnaire items in this study were carefully designed to reflect these elements, and thus provided valuable insights into the factors influencing Chinese graduate students' success in the EMI academic context.

Research Methodology

A sequential, mixed-methods approach was used in this study, combining quantitative research using a questionnaire, followed by qualitative research using semi-structured interviews. The goal was to provide both robust and comprehensive insights (Clark, 2017). The questionnaire was initially used to collect primary data and identify key participants for the subsequent semi-structured interviews. By integrating the data collected from the questionnaire with that from the interviews, the study was able to comprehensively investigate the role of grit and the WTC in English of the Chinese graduate students in the EMI academic context in the study.

Population and Sample

The subjects of this research were 80 Chinese graduate students in the 2021 and 2022 academic years of the Bilingual Education Program at a private university in Thailand. The students were chosen purposefully out of the Bilingual Education Program deliberately in order to effectively reflect the characteristics of EMI, in that they predominantly employed English for their academic subjects, instructional delivery, seminars, and discussions, while falling back on their native Chinese language for supplementary learning and private study. Using the Taro Yamane formula, a sample of 66 was generated by simple random sampling, comprising equal proportions from the academic years 2021 and 2022. The demographic composition evinced a notable predominance of females (81.8%) compared to males (18.2%). The participants' ages ranged from 21 to 40 years old, with the majority falling within the 26 to 30 age bracket (60.5%), followed by those aged 21 to 25 (36.4%). A significant proportion (84.8%) reported more than 10 years of English language learning experience. Nine gritty

students who had higher levels of grit and WTC in English, based on the questionnaire results, were then voluntarily recruited as key participants for the semi-structured interviews.

Research Instruments

A questionnaire, composed of three parts, was designed to elicit participants' demographic information, grit, and WTC in English. (See Appendix 1.) The selected questionnaire items were grounded in the literature on grit and WTC, ensuring that they accurately reflected the concepts being measured in the EMI academic context. Initially developed in English, the questionnaire was then translated into Chinese, with back-translation to ensure clarity. The first part (4 items) was the basic information section about the participants' age, gender, academic year, and years of English learning. The second part (9 items) assessed grit by using a five-point Likert-type language-domain-specific grit scale, which was taken from Teimouri et al. (2020). The items were refined to ensure that they accurately reflected the perseverance of effort and consistency of interest necessary for success in an EMI academic context. For example, the original item, "When it comes to English, I am a hard-working learner", was refined to, "I am a hard-working learner trying to master the academic English required for my lectures". Such refinements better reflected the perseverance of effort in the EMI academic context specifically. The third part (10 items) measured WTC in English on a scale adopted by Peng & Woodrow (2010). This ten-item scale, also using a five-point Likert-type format, was also refined to gauge the extent to which students are willing to engage in English communication within an EMI academic context, including public speaking, teacher interaction, and peer interaction. For example, the original item, "I am willing to ask my group mates in English for the meaning of words I do not know", was refined to, "I am willing to ask my group mates in English for the unfamiliar academic terms". This more accurately reflected the academic activities in the given EMI academic context.

Semi-structured interviews were then conducted to explore the various strategies employed by gritty key participants with regard to exploring the persistence of their interest in using English to communicate within their Bilingual Education Program. The semi-structured interview questions are presented in Appendix 2. Given the limited research on grit and WTC in English within an EMI academic context, the eight interview questions were adopted and adapted from various studies. The questions on the EMI context were derived from Song (2018) and Du & Jackson (2018), concerning Chinese students in EMI classrooms. The grit-related questions were based on Freiermuth et al. (2021), regarding second-language learners'

grit. The questions on WTC in English were adopted from Cao & Philp (2006), who studied Chinese students' WTC in English. Finally, the interview questions were carefully screened, modified, adapted, and ultimately adopted, to fit the given EMI academic context.

Validity and Reliability of the Research Instruments

To ensure content validity, three Thai experts were invited to evaluate and provide feedback on the questionnaire items and semi-structured interview questions. Content validity was assessed using the Index of Item Objective Congruence, which measures the consistency between content and objectives on a scale of -1, 0, and 1. The validated questionnaire collected quantitative data, which was followed by the semi-structured interviews to gather qualitative data.

Before formal data collection from the 66 students in the study was carried out, a reliability test was conducted with a pilot group of 30 students from the same academic year from another Thai university. Cronbach's alpha coefficients for the grit and WTC in English scales were 0.921 and 0.961, respectively. Items with high reliability were reviewed again by increasing the sample size of the pilot group in order to maintain internal consistency and reduce redundancy. The research received ethical approval from the Research Ethics Review Board of the private university where the students were attending before the data collection began. All the data collection procedures were strictly confidential and carefully executed to ensure the ethical treatment of the research participants.

Data Collection

The researchers administered the questionnaire to 66 respondents and conducted interviews with 9 volunteers. The questionnaire was distributed online using WEN JUANXING, an online data collection platform, over one week from October 9 to October 19, 2023. All participants were informed of the consent form and information sheet, before completing the questionnaire. Semi-structured interviews were carried out with 9 volunteer gritty key participants, who exhibited higher levels of grit and WTC in English to explore how they maintained persistence of interest in using English to communicate in the EMI academic context. The interviews, conducted primarily in English with allowances for Chinese if needed, were recorded and transcribed into English. Each interview lasted approximately 35 minutes, and the interview data collection occurred over two weeks, from October 22 to November 4, 2023.

Data Analysis

Sequential data analysis was conducted using SPSS 26 for quantitative data, followed by NVIVO for qualitative data, with qualitative data used to explain and enhance the quantitative data. A total of 66 questionnaires were distributed and collected. Descriptive statistical analysis, including minimum, maximum, mean, and standard deviation, was performed to determine levels of grit and WTC in English based on a five-point Likert scale. The criteria for the answers to the grit and WTC in English items were categorized as follows: highest level (4.50-5.00), high level (3.50-4.49), moderate level (2.50-3.49), low level (1.50-2.49), and lowest level (1.00-1.49), corresponding to the responses, “Very much like me” and “Definitely willing”, “Mostly like me” and “Probably willing”, “Somewhat like me” and “Perhaps willing”, “Not much like me” and “Probably not willing”, and “Not like me at all” and “Definitely not willing”, respectively. Pearson correlation analysis was used to investigate the relationship between grit and WTC in English, determining statistical significance and contributing to the findings on this relationship.

After determining a correlation between grit and WTC in English in the quantitative data analysis, the qualitative data was analyzed to supplement the quantitative data and to explore just exactly how the gritty Chinese graduate students’ grit affected their WTC in English. The coding procedure for the qualitative data analysis is shown below.

After collecting the semi-structured interview transcripts, key interviewees were numerically coded based on their responses (e.g., M1 for Male Interviewee 1, F2 for Female Interviewee 2, and so on). The analysis followed the grounded theory (Glaser & Strauss, 1967), employing a three-level coding system as a framework for data analysis. First, open coding was used to label key relevant words. For instance, responses such as, “*Previewing academic course content and using a dictionary to look up technical terms in Chinese helps me feel more at ease in EMI classes*”, or “*Extra reading related to the course increases my academic knowledge and boosts my confidence in speaking in EMI class*”, were highlighted, with keywords being such items as “Chinese” and “English extra reading.” The second level of coding allowed the researchers to categorize these key coding words and identify major categories, which was done by selecting words that were relevant to the categories. Examples included “Chinese translation” and “English comprehension.” These categories were extracted from the students’ transcripts themselves and were correlated between the two languages, whether Chinese or English, so that they could be paired together. Finally, the researchers identified themes that explained all other categories. For example, the theme

“Language Mediation Strategy” emerged, meaning that language can serve as a bridge to help Chinese graduate students acquire academic knowledge in EMI academic contexts. Item checks were subsequently conducted by sharing interview summaries with key informants to verify the accuracy of the recorded responses. The reliability of the interview data was assessed using inter-coder consistency, resulting in a Cohen’s Kappa value of 0.86, which indicated a high degree of agreement between the coders.

Research Findings

Findings Related to RQ1

The concepts of grit and WTC in English were analyzed by descriptive statistics, including the mean and standard deviation (S.D.). The findings are displayed in Table 2 and Table 3 below.

Table 2

Descriptive Statistics — Grit in an EMI Academic Context

Element of Grit	Questionnaire Items	Min	Max	mean	S.D.	Interpretation
Perseverance of Effort (PE)	1. I am a diligent learner when it comes to academic English.	1	5	3.23	0.70	Moderate level
	2. I am a hard-working learner trying to master the academic English required for my lectures.	1	5	3.21	0.71	Moderate level
Perseverance of Effort (PE)	3. Once I have decided to learn English, nothing can prevent me from reaching my academic goal.	1	5	3.15	0.73	Moderate level
	4. I will not allow anything to stop me from my progress in learning academic English.	1	5	3.12	0.81	Moderate level
	5. I put much time and effort into improving my academic English language weakness.	1	5	3.11	0.78	Moderate level
Total (PE)		1	5	3.16	0.74	Moderate level
Consistency of Interest (CI)	6. My interest in learning academic English for lectures changes from year to year.	1	5	2.53	0.80	Moderate level

Element of Grit	Questionnaire Items	Min	Max	mean	S.D.	Interpretation
	7. I think I have lost my interest in learning academic English.	1	5	2.05	0.65	Low level
	8. I am not as interested in learning academic English as I used to be.	1	5	2.24	0.84	Low level
	9. I was obsessed with learning academic English in the past but have lost interest recently.	1	5	2.15	0.82	Low level
Total (CI)		1	5	2.24	0.77	Low level
Total (Grit)		1	5	2.75	0.76	Moderate level

Table 2 shows that the grit of the Chinese graduate students was at a moderate level in the EMI academic context (mean = 2.75, S.D. = 0.76). The standard deviation of 0.76 indicates the variability in grit across the individual graduate students, suggesting that there are differences in both perseverance of effort and consistency of interest.

The higher items of grit had to do with the element of perseverance of effort (Questionnaire Items 1-5), with means of 3.23, 3.21, 3.15, 3.12, and 3.11, respectively. These higher items indicate that these Chinese graduate students exhibit a moderate level of perseverance of effort (mean = 3.16, S.D.=0.74), suggesting that they perceive themselves as hardworking English learners, but not highly persistent in completing tasks from the start.

Conversely, the lower items of grit had to do with the element of consistency of interest (Questionnaire Items 6-9), with means of 2.53, 2.05, 2.24, and 2.15, respectively. These lower items reveal that the consistency of interest in an EMI academic context is at a low level (mean = 2.24, S.D. = 0.77), which indicates that these Chinese graduate students are not enthusiastic about learning English and gradually lose interest. This indicates a general struggle to maintain long-term interest and engagement in English language learning within the EMI academic context. This lower level of consistency of interest may fluctuate with the learning experience, while qualitative findings show that gritty students employ strategies for improving their language learning. Even with lower consistency of interest, effective strategies can help Chinese graduate students overcome challenges in maintaining long-term interest in language learning.

Table 3

Descriptive Statistics — WTC in English in an EMI Academic Context

Element of WTC in English	Questionnaire Items	Min	Max	mean	S.D.	Interpretation
Public Speaking	1. I am willing to do an academic role-play standing in front of the class in English.	1	5	3.23	0.88	Moderate level
	2. I am willing to give a short introductory presentation without notes in English to the class.	1	5	3.39	0.75	Moderate level
	3. I am willing to deliver an academic speech in English to the class about my hometown with notes.	1	5	3.47	0.67	Moderate level
Total (Public Speaking)		1	5	3.36	0.76	Moderate level
Teacher Interaction	4. I am willing to ask the teacher in English to repeat what he/she just said in English when I do not understand during lectures.	1	5	3.21	0.81	Moderate level
Total (Teacher Interaction)		1	5	3.21	0.81	Moderate level
Peer Interaction	5. I am willing to translate a spoken utterance from Chinese into English in my group during discussions.	1	5	3.58	0.84	High level
	6. I am willing to engage in an academic role play in English at my desk with my peers.	1	5	3.47	0.71	Moderate level
	7. I am willing to ask my peers sitting next to me in English for the definition of an academic term that I do not know.	1	5	3.61	0.80	High level
	8. I am willing to ask my group mates in English for unfamiliar academic terms.	1	5	3.65	0.72	High level
	9. I am willing to ask my group mates in English for the pronunciation of an unfamiliar academic term that I do not know.	1	5	3.65	0.68	High level
	10. I am willing to ask my peers sitting next to me in English on how to articulate an academic phrase to convey my thoughts.	1	5	3.61	0.81	High level
Total (Peer interaction)		1	5	3.59	0.76	High level
Total (WTC in English)		1	5	3.48	0.76	Moderate level

Table 3 displays the fact that the WTC in English of the Chinese graduate students was at a moderate level in the EMI academic context (mean = 3.48, S.D. = 0.76). The standard deviation of 0.76 reflects differences in the WTC in English among the Chinese graduate students, indicating that some of the students were willing to communicate in English in the EMI academic context, while others continued to experience discomfort or hesitation in classroom communication activities, such as individual public speaking, teacher interaction, and peer interaction.

The higher items for WTC in English had to do with the element of peer interaction (Questionnaire Items 5, 7-10), with means of 3.58, 3.61, 3.65, 3.65, and 3.61, respectively. The willingness to engage in peer interactions and seek support from peers was at a high level (mean = 3.59, S.D. = 0.76), suggesting that the students felt at ease in group activities and were very willing to engage in communication activities with their peers and groups.

Conversely, the lower items had to do with the element of public speaking (Questionnaire Item 1 and 2), with means of 3.23 and 3.39. This reflects some hesitation and anxiety associated with speaking in front of the class, which may be influenced by socio-cultural factors, such as fear of losing face, or fear of showing off. Furthermore, the lower item of the element of teacher interaction (Questionnaire Item 4, with a mean of 3.21) revealed that the Chinese graduate students may also have experienced anxiety about interacting with teachers in their EMI academic context. Thus, these two findings suggest that the challenges that most of the Chinese graduate students face in an EMI academic context stem particularly from socio-cultural factors and language anxiety. However, the high levels of WTC in peer interaction suggest that the same students are willing to use peer support to overcome these challenges.

In general, the findings reveal that the Chinese graduate students had a moderate level of grit and WTC in English in their EMI academic context. Understanding the relationship between grit and WTC in English is crucial to improving students' communication ability and willingness to communicate in an EMI environment. In other words, effective strategies can improve students' passion for persistently communicating in English in the EMI academic context.

Findings Related to RQ2

The relationships between grit and WTC in English were analyzed by bivariate correlation analysis to calculate the p-value and correlation coefficient. The results are shown in Table 4 below.

Table 4

Bivariate Correlation Results — Grit: WTC in English in an EMI Academic Context

		Grit	WTC in English
Grit	Pearson Correlation Coefficient	1	0.52**
	p-value		0.00
	N	66	66
WTC in English	Pearson Correlation Coefficient	0.52**	1
	p-value	0.00	
	N	66	66

***Correlation is significant at the 0.01 level (2-tailed).*

Table 4 shows that the p-value of 0.00 for the correlation between Chinese graduate students' grit and WTC in English in the EMI academic context was less than 0.05, which indicates a significant correlation. The correlation coefficient ($r = 0.52$) was more than 0.05, revealing a significant positive correlation between grit and WTC in English in the EMI academic context. Higher scores on the grit scale are associated with stronger WTC in English. Thus, these findings suggest that, in the EMI academic context, grit significantly enhances Chinese graduate students' WTC in English.

Findings Related to RQ3

The qualitative findings of the strategies of gritty students to maintain persistence of interest in using English to communicate in the EMI academic context emerged by using the NVIVO: language mediation strategy, the language tool assistance strategy, and the language interaction strategy. These strategies related to the level of correlation between the elements of grit and WTC in English by providing mechanisms through which the Chinese graduate students with higher grit improved their WTC in English. The findings are presented by percentage, from the key coding words, categories, and themes, as shown in Table 5, below.

Table 5

The Themes: Strategies of Gritty Chinese Graduate Students re Persistence of Interest in Using English to Communicate in the EMI Academic Context

Key Coding Words	Categories & Percentages	Themes & Percentages
Translating materials to Chinese	Chinese translation (11.11%)	Language Mediation Strategy (23.80%)
Learning English for EMI classes	English comprehension (3.17%)	
Familiarizing with content	Familiarity and preparation of academic content (9.52%)	
Utilizing online resources	Digital tools (4.76%)	Language Tool Assistance Strategy (20.63%)
Using dictionaries	Dictionary tools (11.11%)	
Using learning applications	Learning application tools (3.17%)	
Employing recording software	Recording software tools (1.58%)	
Communicating with peers and teachers	Peer and teacher interaction (19.04%)	Language Interaction Strategy (55.55%)
Interacting with teachers	Teacher feedback (9.52%)	
Engaging in peer discussions	Peer support (26.98%)	
Total	100%	100%

Language Mediation Strategy

Gritty key interviewees employed the “Language Mediation Strategy” by using both Chinese and English to comprehend the academic content. This strategy was mentioned by 23.80% of key participants, which greatly reduced anxiety, strengthened their academic foundation, and finally enhanced communicative confidence in their EMI academic context. Based on the quantitative findings, the language mediation strategy helped students with moderate levels of grit (perseverance of effort) to persist in learning by using their first language to understand and express complex academic English. It also helped them to increase their willingness to engage in teacher interaction with a moderate level of WTC in English (teacher interaction), by reducing language anxiety through the support of a combination of Chinese and English. Excerpts from the semi-structured interviews highlighted the importance of familiarizing oneself with the academic content using both languages.

One key interviewee reported the advantage of using Chinese. *“Previewing the academic course content and using the dictionary to look up the technical terms of the literature and PowerPoints in Chinese helps me feel more at ease in EMI classes.”* (F3)

Another key interviewee emphasized the importance of extra reading. *“Extra reading related to the course increases my academic knowledge and boosts my confidence in speaking in EMI class.”* (F5)

A third key participant highlighted the benefits of preparation. *“Preparing definitions, pronunciations, and speech notes in advance helps my better speaking in public.”* (F2)

Language Tool Assistance Strategy

The “Language Tool Assistance Strategy”, mentioned by 20.63% of key participants, involved using digital and physical tools, such as online resources, dictionaries, learning apps, and recording software, to support literacy, comprehension, and communication in the EMI academic context. These multimedia tools supported self-paced learning, matched students’ interests, and kept them engaged, motivated, and willing to communicate. Based on the quantitative findings, the language tool assistance strategy supported the low level of grit (consistency of interest) by providing tools to make learning more manageable. It also enhanced the moderate level of WTC in English (teacher interaction) by building confidence, using dictionaries and language apps. Some excerpts from the semi-structured interviews are offered below.

One key respondent preferred searching for online resources. *“Looking up information on an academic website and watching videos after class can help me understand the content and better express my views in class.”* (F4)

Another key participant commented on the benefits of using dictionaries. *“Using dictionaries and translation tools during group discussions helped me better organize my speech and understand words.”* (F7)

A third key participant persisted in interacting with others to boost communication. *“Communicating with online English teachers for professional feedback in my spare time makes me more willing to communicate in class.”* (F6)

Language Interaction Strategy

The “Language Interaction Strategy”, mentioned by 55.55% of key participants, involved engaging with peers and lecturers to better adjust to the academic environment, build speaking confidence, and reduce anxiety when communicating in English. Good relationships with teachers and peers created communication opportunities, developed effective interpersonal relationships, enhanced a sense of belonging, reduced anxiety over

grammar mistakes, and built confidence in English communication. Based on the quantitative findings, the language interaction strategy encouraged the moderate level of grit (perseverance of effort) by promoting active engagement and seeking immediate feedback. It also improved the high level of WTC in English (peer interaction) by fostering a supportive and interactive communication environment. Excerpts from the semi-structured interviews show the importance of positive relationships and supportive classroom environments for enhancing WTC in English.

One key interviewee took every possible opportunity to communicate with classmates or professors. *“Fluent and frequent English communication with classmates and professors can help me be more comfortable and confident in speaking English in public.”* (F4)

Another key participant stated the importance of professors’ feedback. *“Increased participation in class discussion and presentation is due to specific feedback from professors.”* (F7)

A third key respondent preferred to work in a group to enhance communication. *“Group discussions and peer work provide relaxed and equal opportunities to express ideas.”* (M1)

Integrated Findings

Table 6 below shows the integration of quantitative and qualitative findings and provides a comprehensive understanding of how grit influences WTC in English in an EMI academic context.

Table 6

Integration of Quantitative and Qualitative Findings

	Element	Interpretation	Strategies Employed by Gritty Chinese Graduate Students	Impact
Grit	Perseverance of Effort	Moderate Level	Language Mediation Strategy	Sustains effort by using language to understand complex concepts
	Consistency of Interest	Low Level	Language Tool Assistance Strategy	Maintains interest through learning tools
WTC in English	Public Speaking	Moderate Level	Language Mediation Strategy	Reduces anxiety through the support of first language

Element	Interpretation	Strategies Employed by Gritty Chinese Graduate Students	Impact
Teacher Interaction	Moderate Level	Language tool Assistance Strategy	Enhances ability using dictionaries and language apps
Peer Interaction	High Level	Language Interaction Strategy	Facilitates comfortable interactions by fostering a supportive learning context

The findings of this study show that Chinese graduate students have moderate levels of grit and WTC in English, while their consistency of interest of grit in language learning is low. Despite these challenges, the positive correlation between grit and WTC in English and the qualitative data show that gritty Chinese graduate students employ effective strategies, such as language mediation, language tool assistance, and language interaction. These strategies help students with low levels of consistency of interest of grit to better survive in the EMI academic context, including helping them bridge the gap between existing knowledge and complex academic content, maintaining interest, and building confidence in communication. Moderate levels of grit (perseverance of effort) and WTC in English (public speaking and teacher interaction) influenced the effectiveness of these strategies, highlighting the importance of targeted support to increase student engagement and success in the EMI academic environment. High levels of peer interaction of WTC in English further emphasize the importance of a positive and interactive communication environment. These insights suggest that fostering a supportive learning environment and providing practical tools can significantly improve Chinese graduate students' grit and WTC in English to help them to overcome the challenges they face in an EMI academic context.

Discussion

Overall, the quantitative findings showed moderate levels of grit and WTC in English, and a positive correlation between the two in the EMI context, specifically. The qualitative findings revealed various strategies the students used to maintain persistence of interest in communicating.

First, the quantitative findings showed that the Chinese graduate students had a moderate level of grit, with a mean of 2.75 and a standard deviation of 0.76. However, the findings showed a low level of grit of consistency of interest in the EMI academic context.

Specifically, for items related to consistency of interest (Grit Questionnaire Items 6-9), the means were 2.53, 2.05, 2.24, and 2.15, respectively. These findings align with previous studies, indicating that many Chinese graduate students struggle to maintain a consistent interest in English learning (Wei et al., 2019; Tiandem-Adamou & Hargis, 2022; Yuan, 2022). Despite being diligent and persistent learners with a strong desire to learn well in English (Cortazzi & Jin, 1996; Degen et al., 1998), Chinese students' interest in English is waning, even though English classes are mandatory in China. The decline in interest may stem from the traditional Chinese Confucian culture of learning, which emphasizes passing high-stakes exams. This exam-oriented educational model results in a test-driven environment, where the focus is on reading skills over speaking abilities, which diminishes learners' motivation and interest in English (Peng, 2012). As grit is a crucial factor in facilitating communication in English (Lee, 2020), the language mediation strategies employed by the gritty students in the qualitative findings can help students maintain interest by reducing frustration through first-language support.

Second, the quantitative findings showed that most of the Chinese graduate students had a moderate level of WTC in English in the EMI academic context, with a mean of 3.48 and a standard deviation of 0.76. This finding indicates that many of them were uncertain about their readiness to communicate in English in the EMI academic context, primarily due to social-cultural factors. Chinese graduate students often perform well in written exams but struggle with speaking, frequently being considered "reticent learners". This reticence largely originates from social-cultural influences, including a "fear of losing face", "showing off", and the high value that is placed on collectivism within Chinese Confucian culture (Liu & Jackson, 2011; Yeh & Huang, 1996; Wen & Clément, 2003; Peng, 2012). They are self-conscious, and fear making mistakes that would cause them to lose face. They fear being judged and labeled by their peers. Despite their ability and desire to participate in classroom communication, they often hold back, to avoid being seen as show-offs or lacking collective consciousness. The findings also showed that WTC in English among the Chinese graduate students was influenced by dynamic situational factors. The students were more willing to communicate in familiar settings with less pressure and positive relationships with interlocutors. This is evident in the higher mean for the items related to comfortable peer interaction (WTC in English Questionnaire items 4, 7-10), with means of 3.58, 3.61, 3.65, 3.65, and 3.61, respectively. These findings support the previous studies that have highlighted the effect of situational factors, including the setting, the presence of others, the familiarity with one's interlocutors, and the interaction between interlocutors, on Chinese graduate students' WTC in English in a

classroom context (Cao & Philp, 2006; Peng & Woodrow, 2010). The qualitative findings further revealed that the language interaction strategies employed by the gritty students created a pleasant and comfortable communication environment, which helped improve their willingness to use English to communicate.

Third, the quantitative findings indicated a significant positive correlation between the Chinese graduate students' grit and WTC in English in the EMI academic context, which is consistent with the studies by Lee & Hsieh (2019), Lee & Dražati (2019), and Sharifi & Hamzavi (2021). In their research, the higher the students' grit level was, the higher and stronger WTC in English was assumed to be. This supports the previous idea that grit, as a motivational psychological factor, can positively influence WTC in English and suggests that cultivating grit can encourage Chinese graduate students' English communication skills in an EMI academic context. This finding was supported by the qualitative findings of this study, that gritty Chinese graduate students employed different strategies to help them survive better in the EMI academic context and to improve their WTC in English.

Furthermore, the qualitative findings enhanced the quantitative findings by showing that gritty Chinese graduate students employed different strategies to maintain persistence of interest in communicating in the EMI academic context. Specifically, the students used the strategies of language mediation, language tool assistance, and language interaction. These strategies correspond to Yu et al. (2020), who identified similar strategies for overcoming challenges and supporting the positive role of L1 in the Chinese EMI context. Moreover, 11.11% of students reported using Chinese-English dictionaries to translate English, supporting the findings of Zhang & Wei (2021), and Pun & Jin (2021), on the importance of L1 as a complementary strategy in academic EMI learning. The predominant use of the language interaction strategy (55.55%) highlights the significance of peer and lecturer interactions. This finding is consistent with the studies of Sung (2020), Shen & Guo (2022), Miller et al. (2017), and Gyamfi & Lai (2020), which emphasize the positive impact of a supportive classroom community on students' grit and WTC in English. Therefore, a positive and pleasurable classroom community in an EMI academic context can effectively help Chinese graduate students be more willing to participate in communication activities.

Thus, grit effectively addresses the challenges faced in EMI academic contexts. These findings align with previous research, which demonstrates the benefit of grit in language learning and communication, such as motivating effort and interest, overcoming barriers to effective communication, and improving WTC in English in EMI academic contexts. This study

suggests that fostering grit through targeted interventions and educational strategies can enhance WTC in English and academic success in EMI academic contexts, particularly where Chinese graduate students must navigate the nuances and complexities of academic English.

Implications

Chinese graduate students can enhance their WTC in English within the EMI academic context by accessing more English academic materials, participating in academic forums, and setting manageable goals for continuous development. Pedagogically, teachers should consider cultural and situational influences on Chinese graduate students' grit and WTC in English. Creating a supportive classroom environment can reduce apprehension and cultivate Chinese graduate students' interest and commitment to using English for communication. Effective strategies may include boosting positive academic confidence through interactive activities between students and teachers, integrating more speaking opportunities into lesson plans or classroom activities, and providing a low-risk environment for practice. By focusing on teaching strategies that promote grit, educators can effectively motivate students to persist in English communication.

Limitations

This study focused exclusively on investigating the role of grit and WTC in English. Future studies should consider integrating grit and WTC in English with other factors, such as boredom, love, and happiness, to explore the complex inter-relationships and advance the development of positive psychology. Moreover, this study treated grit as a holistic factor, alongside WTC in English. Zhao & Wang (2023) argue for a more nuanced approach by separately examining grit's subcomponents - perseverance of effort and consistency of interest - through factor analysis and model testing. Such investigations could clarify the distinct contributions of grit's various components and their interactions with other variables. Additionally, while employing the mixed-methods approach of questionnaires and semi-structured interviews, this study lacks in-depth observations of any improvement in students' speaking performance within the EMI context. Future studies should incorporate English proficiency tests or classroom observations to validate whether different strategies improve students' speaking performance. Lastly, the sample of this study was limited to Chinese graduate students in a Thai EMI university. Future research should include a larger and more diverse sample to confirm the findings.

Conclusion

While it may seem challenging for Chinese graduate students to communicate fluently and effectively in English in an EMI academic context, grit can significantly foster the WTC in English of Chinese graduate students and support their efforts to communicate in English, overcome immediate challenges, and develop a long-term commitment to improving their English communication proficiency. Gritty Chinese graduate students employ different strategies to enhance their WTC in English, which demonstrates that grit is key to academic success in EMI academic contexts. Educational practices that cultivate grit support Chinese graduate students as they navigate the complexities of communicating in academic English, thereby promoting both their academic and communicative goals.

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Appendices

Appendix 1

This is the questionnaire for Chinese graduate students in an EMI academic context. This questionnaire was comprised of three parts, the first part is basic information (NO. 1 - NO. 4), the second part is questions of grit in an EMI academic context (NO. 1 – NO. 9), the third part is questions of WTC in English in an EMI academic context (NO. 1- NO. 10).

NO.	Basic information (Please fill in the correct information.)					
1	What is your gender?					
2	What is your age?					
3	What is your academic year?					
4	How long have you studied English?					
NO.	Questions of Grit in an EMI Academic Context (1=Not like me at all; 2=Not much like me; 3=Somewhat like me; 4=Mostly like me; 5=Very much like me)	1	2	3	4	5
1	I am a diligent learner when it comes to academic English.					
2	I am a hard-working learner trying to master the academic English required for my lectures.					
3	Once I have decided to learn English, nothing can prevent me from reaching academic goal.					
4	I will not allow anything to stop me from my progress in learning academic English.					
5	I put much time and effort into improving my academic English language weakness.					
6	My interest in learning academic English for lectures changes from year to year.					
7	I think I have lost my interest in learning academic English.					
8	I am not as interested in learning academic English as I used to be.					
9	I was obsessed with learning academic English in the past but have lost interest recently.					
NO.	Questions of WTC in an English in EMI Academic Context (1=Definitely not willing; 2=Probably not willing; 3=Perhaps willing; 4=Probably willing; 5=Definitely willing)	1	2	3	4	5
1	I am willing to do an academic role-play standing in front of the class in English.					
2	I am willing to give a short introductory presentation without notes in English to the class.					
3	I am willing to deliver an academic speech in English to the class about my hometown with notes.					
4	I am willing to ask the teacher in English to repeat what he/she just said in English when I do not understand during lectures.					
5	I am willing to translate a spoken utterance from Chinese into English in my group during discussions.					

6	I am willing to engage in an academic role play in English at my desk, with my peers.					
7	I am willing to ask my peers sitting next to me in English for the definition of an academic term that I do not know.					
8	I am willing to ask my group mates in English for the unfamiliar academic terms.					
9	I am willing to ask my group mates in English for the pronunciation of an unfamiliar academic term that I do not know.					
10	I am willing to ask my peers sitting next to me in English on how to articulate an academic phrase to convey my thoughts.					

Appendix 2

Semi-Structured Interview Questions for Gritty Students in EMI academic context

1. The EMI program refers to the Bilingual Education Program. Could you briefly account your living and educational experiences before joining the current program?
2. Why did you choose to apply for the current EMI program in Thailand?
3. How motivated do you think you are to communicate in English during the EMI course?
4. How do you feel when your English teacher asks you a question in EMI class?
5. How do you feel about your interaction with other students in EMI course?
6. How do you feel and experience when you use spoken English to complete communication work (e.g., doing academic presentations, class discussions, classroom answers, and group discussions)? Would you mind giving an example?
7. In what situation do you feel most comfortable (most willing) to communicate in EMI course: in pairs, in small groups, with the teacher in a whole class? Why?
8. Can you talk specifically about the barriers and challenges of adapting to the EMI class (e.g., translating class material in the mother language, being afraid to interrupt the attention of other students when sudden comments in class, uncooperative interlocutors, discomfort with the teaching style and accent of teachers, and difficulty in understanding the academic course)? What helps you to carry on when you encounter these barriers and challenges?