

Examining the Combined Effects of Grit and Growth Mindset on International Students' Willingness to Communicate in Chinese

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ABSTRACT:

This paper delves into the effects of grit and growth mindset, individually and combined, on willingness to communicate (WTC) in Chinese among international students. Based on the theory of mindset by Dweck, the grit model by Duckworth, and the WTC model by MacIntyre et al. we conducted a survey of 412 mainland China-based students participating in Chinese language programs in three universities. Participants completed the Short Grit Scale, language mindset scale, and Willingness to Communicate in Chinese scale, and a few demographic and proficiency questions. When our hierarchical multiple regression analysis was conducted, we found that grit ($\beta = 0.31, p = -0.001$) and a growth mindset ($\beta = 0.24, p = -0.001$) were significant predictors of greater WTC and explained 21 percent of the variance when we accounted for factors such as age, gender, length of residence, and self-rated proficiency. Further, moderation analysis revealed that there was a significant interaction between grit and growth mindset ($\beta = 0.12, p = .02$), meaning that the beneficial effect of grit on WTC was even greater among students with higher growth mindset. These findings confirm the theory of second language acquisition (SLA) motivation by combining perseverance and flexible beliefs into one model of communication preparedness. In practical terms, this implies that language programs must include tactics that encourage long-term motivation, such as the establishment of long-term goals, as well as growth mindset training, such as feedback that can focus on effort and strategies, to increase the desire of students to communicate in Chinese. Longitudinal and experimental research should be considered in future studies to confirm these findings and examine such variables as anxiety reduction and enjoyment.

Keywords: Grit, Growth Mindset, Second Language, Chinese, Communication

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INTRODUCTION

Willingness to communicate (WTC) in a second language (L2) is all about how ready learners are to jump into conversations, and it's a solid predictor of how much they'll use the language and how proficient they'll become in the future. At first, WTC was viewed as something that could change based on the situation—like the context, how well you know the person you're talking to, and the topic at hand—but it was also seen as a stable trait that reflects overall readiness to communicate (MacIntyre, Clément, Dörnyei, & Noels, 1998). It brings together psychological, linguistic, and social elements into one cohesive idea. When it comes to learning Chinese as a Foreign Language (CFL), Peng and Woodrow (2010) found that factors like the classroom environment, support from peers, and confidence in communication all play a role in predicting CFL learners' WTC, emphasizing the importance of both personal and environmental influences. More recently, Li (2025) investigated how two key aspects of grit, perseverance and consistency of interest, impact both meaning-focused and form-focused L2 WTC among Chinese undergraduates, while also examining how anxiety and enjoyment can influence these relationships.

In the context of the broader WTC framework, grit, essentially the enduring passion and effort we put into achieving long-term goals, has emerged as a key predictor of success across various fields (Duckworth, Peterson, Matthews, & Kelly, 2007). According to Duckworth et al. (2007), grit was found to be a unique predictor of educational success, retention rates at West Point, and performance in the National Spelling Bee, surpassing the influence of intelligence and personality traits. Subsequent research in language learning has also connected grit to success in learning a second language: Teimouri, Plonsky, and Tabatabaei (2022) discovered positive links between grit and language achievement as well as classroom engagement.

Meanwhile, Lee (2020) noted that perseverance, rather than a consistent interest, was a predictor of WTC among Korean EFL learners. Nevertheless, the specific role of grit in Chinese L2 WTC and how it interacts with other motivational factors still requires further investigation.

When it comes to resilience and positive emotions in education, grit is just one piece of the puzzle. The growth mindset, the idea that we can develop our abilities through hard work and smart strategies, plays a significant role too (Dweck, 2006). In the realm of language learning, researchers Cai, Li, Mai, Feng, and Guan (2024) confirmed the effectiveness of a Chinese version of the Language Mindset Inventory (LMI). They found that it effectively distinguishes between fixed and growth beliefs, and importantly, that having a growth mindset can lead to more enjoyment in learning a foreign language and better self-regulated learning strategies. Furthermore, Zhan, Chen, and Hu (2024) discovered that shifts in the growth mindset and grit of CFL students accounted for 56% of the variance in their enjoyment of foreign languages, highlighting just how interconnected these traits are with positive feelings.

While both grit and a growth mindset encourage perseverance and adaptive learning, there haven't fully explored how they work together to influence L2 willingness to communicate (WTC). Within the Chinese culture, where Confucian principles emphasize the need to work hard and learn through perseverance, beliefs of students about their growth capabilities might contribute to the translation of grit into communication. Stankov (2010) indicated that Confucian cultures naturally promote growth-oriented goals that means that a strong growth mindset would enhance the positive influence of grit on WTC by encouraging learners to see communication challenges as learning opportunities rather than as barriers.

This paper will attempt to address two broad questions:

The research question examined in this study is: (1) Do grit and a growth mindset have a significant effect on the willingness of international students to communicate (WTC) in Chinese, and (2) Does a growth mindset improve the relationship between grit and WTC, particularly among students who have a stronger growth mindset? We have interviewed more than 400 international students studying Chinese and used several regression and moderation models to investigate the interaction of these psychological characteristics to determine the willingness of the students to speak Chinese as a foreign language. Our results support the theory of second language learning, combining the ideas of personality traits and mindsets, as well as give useful suggestions for creating programs that can promote both perseverance and flexible thinking to enhance communication abilities.

2. LITERATURE REVIEW

2.1 Willingness to Communicate in L2 Contexts

MacIntyre, Clément, Dörnyei, and Noels (1998) brought to light the idea of willingness to communicate (WTC) in a second language, which refers to a learner's eagerness to jump into conversations. This eagerness is influenced by situational elements, like who they're talking to or what the topic is, as well as enduring traits such as self-confidence. Subsequent research has shown that WTC can predict how often someone uses a second language (MacIntyre & Doucette, 2010). Meta-analyses also show moderate links between WTC and language proficiency across different learners (Peng & Woodrow, 2010; MacIntyre & Legatto, 2011). In the context of learning Chinese as a foreign language, Peng and Woodrow (2010) found that classroom environment, peer support, and communication confidence together explain over 40% of the differences in learners' WTC scores. This highlights the importance of both emotional and

situational factors. The current study hypothesizes that:

H1: International students' grit (their passion and perseverance for long-term language goals) will positively predict their willingness to communicate (WTC) in Chinese.

2.2 Grit in Language Learning

Grit, which means having long-lasting passion and perseverance toward long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007), has gained increasing attention in applied linguistics. In their important six-study series, Duckworth and colleagues (2007) showed that grit can predict academic success (such as GPA and retention) better than intelligence and the Big Five personality traits. In second language (L2) learning, Teimouri, Plonsky, and Tabandeh (2022) found a positive link between learners' grit scores and both their course grades and self-reported engagement. Similarly, Lee (2022) found that the perseverance part of grit—but not the consistency of interest—uniquely predicts willingness to communicate (WTC) among Korean EFL students. A recent study in the Chinese as a Foreign Language (CFL) context by Li (2025) added to this research by showing that both grit components predict meaning-focused and form-focused WTC among Chinese undergraduates, with anxiety reduction and increased enjoyment playing a mediating role. Therefore, it was further proposed that:

H2: A stronger growth-oriented language mindset (the belief that Chinese ability can improve through effort) will positively predict international students' willingness to communicate in Chinese.

2.3 Growth Mindset and Language Learning

Carol Dweck's (2006) Mindset Theory distinguishes between a fixed mindset, where ability is seen as unchangeable, and a growth mindset, where ability is viewed as something that can be developed through effort. Learners with a growth mindset tend to embrace

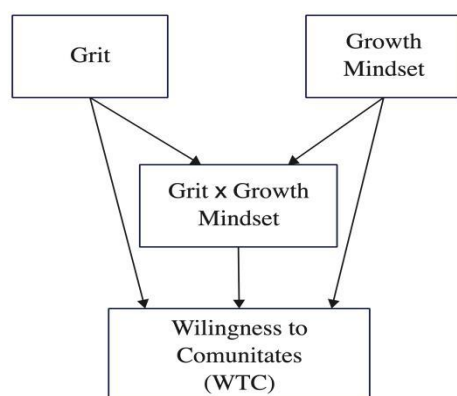
challenges and keep trying even after setbacks (Dweck & Yeager, 2019). In second language education, Zarrinabadi, Rezazadeh, Karimi, and Lou (2021) found that Chinese EFL learners with a stronger growth mindset experienced less anxiety and greater self-confidence, which led to more frequent participation in class. Cai, Li, Mai, Feng, and Guan (2024) validated a Chinese version of the Language Mindset Inventory (LMI), confirming its two-part structure and showing that growth beliefs predict enjoyment of learning a foreign language and the use of self-regulated learning strategies. Xu (2024) also found, using a structural equation model, that growth mindset and grit together explained over 50% of the differences in foreign language enjoyment among Chinese university students. Based on this, the study proposed:

H3: Growth mindset will influence the relationship between grit and willingness to communicate (WTC), so that the positive link between grit and WTC is stronger for students with a higher growth mindset.

2.4 Integrating Grit, Mindset, and Willingness to Communicate (WTC)

While grit and a growth mindset have each been linked to persistence and positive feelings in the classroom, little research has looked at how they work together to influence WTC.

Figure 1. Conceptual Framework.



The growth mindset can indeed have an impact on how grit is related to willingness to communicate (WTC) by changing the perception that learners have towards communication problems. Individuals who are well developed in their growth mindset may not consider hard speaking tasks as a threat to their self-image, but as an important tool to develop. Such a change of mindset might also boost the inspiring effect of grit, and they will be more willing to communicate (Stankov, 2010). Besides, in academic settings with Confucian values (where hard work is valued) there must be a close connection between perseverance (grit) and the perception of abilities developing (growth mindset), which subsequently leads to higher communicative engagement. So far no study has been done on this combined model with respect to Chinese as a Foreign Language (CFL). In exploring the direct influences of grit and growth mindset on WTC and their interaction (grit $\times$ growth mindset), this paper aims to bridge positive psychology and the research on readiness in second language acquisition (SLA). Not only offers some theoretical knowledge - by integrating both the trait-based and meta-cognitive models of motivation - but also provides practical advice to CFL teachers who want to cultivate persistent students and those who believe in a positive system.

3. METHODS

3.1 Research Design

This study used a cross-sectional survey design to dive into how grit and a growth language mindset affect international students' willingness to communicate (WTC) in Chinese. We also looked at whether mindset plays a role in moderating the effects of grit. By collecting all the data at a single point in time, we were able to analyze the main effects using multiple regression and explore interaction effects through moderation analysis with structural equation modeling (SEM).

3.2 Participants

We brought together a diverse group of more than 412 international students who are currently studying Chinese at three well-known universities in Mainland China. We sent out invitations via course listservs and WeChat groups, and as a token of appreciation, participants received a small e-coupon. As description from Table 1. To maintain the quality of our data, we only included

respondents who were 18 years or older and confirmed that they were actively studying Chinese as a second language. We also collected demographic details such as age, gender, and home country, along with how long they've been living in China and their self-assessed Chinese proficiency, which aligns with HSK levels, to use as control variables.

Table 1. demographic variables of the participants

	Category	n	%
Gender	Female	240	58.3
	Male	172	41.7
Age group (years)	18–21	190	46.1
	22–25	145	35.2
	26–30	60	14.6
	> 30	17	4.1
	East Asia	110	26.7
Region of origin	Southeast Asia	90	21.8
	Europe	80	19.4
	North America	60	14.6
	Africa	40	9.7
	Other	32	7.8
	1–2 (Beginner)	60	14.6
Self-rated proficiency (HSK)	3–4 (Intermediate)	220	53.4
	5–6 (Advanced)	132	32

3.3 Measures

We evaluated grit using the 8-item Short Grit Scale (Grit-S; Duckworth & Quinn, 2009), which includes subscales for perseverance of effort and consistency of interest. For our study, we utilized a Chinese-validated version that has shown a reliability score of $\alpha \geq .75$. To assess growth mindset, we employed a 6-item Language Mindset Scale tailored for CFL contexts (Cai et al., 2024), which measures beliefs about language

ability, whether fixed or flexible (with a reliability of $\alpha_{\text{growth}} \geq .80$). We gauged willingness to communicate (WTC) in Chinese through the 12-item WTC-C Scale (Peng & Woodrow, 2010), where learners rate their readiness to speak in different classroom and social scenarios on a scale from 0 to 100. Additionally, we accounted for self-rated proficiency, the number of months spent in China, and basic demographic information.

3.4 Procedure

Once we received the go-ahead from the IRB, we translated all the instruments into simplified Chinese and had bilingual experts back-translate them to ensure everything was accurate. The survey was carried out on Wenjuanxing, and participants typically took around 12 minutes to finish it. We made the decision to exclude any cases where more than 10% of the data was missing or where there was clear evidence of hasty responses, such as completing the survey too quickly or giving the same answer over and over.

3.5 Data Analysis

We started by looking at the descriptive statistics and checking the internal consistency (using Cronbach's α) for each scale. We also examined the zero-order correlations between the variables. For our hypotheses H1 and H2, we conducted hierarchical multiple regressions: we entered the control variables in Step 1, and then added grit and growth mindset in Step 2. To test H3, we included the mean-centered interaction

term (grit $\times$ growth mindset) in Step 3 and explored any significant interactions using simple-slopes analysis at ± 1 SD of the moderator. Additionally, we specified parallel SEM models with latent interactions to account for measurement error. We made sure to check and report on the model assumptions, including normality, homoscedasticity, and multicollinearity.

3.6 Ethical Considerations

Participation was completely voluntary and kept anonymous; we didn't collect any personally identifiable information. Everyone involved gave their informed consent and had the option to withdraw whenever they wanted. We made sure to store the data securely, using it only for research purposes.

RESULTS

4.1 Descriptive Statistics and Scale Reliability

Table 2 presents mean, standard deviations, and internal consistency (Cronbach's α) for all primary variables.

Table 2. Descriptive Statistics and Reliability

Measure	M	SD	α
Grit (total)	3.45	0.67	0.82
– Perseverance	3.51	0.72	0.8
– Consistency	3.39	0.69	0.78
Growth Mindset	3.78	0.54	0.85
WTC in Chinese (0–100)	65.32	14.21	0.89

All scales demonstrated acceptable to good reliability ($\alpha = .78$ –.89).

4.2 Correlations

Zero-order Pearson correlations (Table 3) showed that grit and growth mindset were both positively associated with WTC.

Table 3. Zero-Order Correlations

Variable	1	2	3
1. Grit	—		

2. Growth Mindset	.41***	—	
3. WTC in Chinese	.34***	.29***	—

*** $p < .001$.

4.3 Main Effects: Multiple Regression

- A hierarchical regression tested H1 and H2, entering control variables (age, gender, months in China, self-rated proficiency) in Step 1 and grit and growth mindset in Step 2 (Table 3).
-
- Step 1 accounted for 4 % of variance in WTC ($\Delta R^2 = .04$, $p = .12$).
- Step 2 yielded a significant $\Delta R^2 = .17$ ($p < .001$), with both grit ($\beta = .31$, $p < .001$) and growth mindset ($\beta = .24$, $p < .001$) emerging as independent positive predictors of WTC.
-

Table 4. Hierarchical Regression Predicting WTC

Predictor	β (Step 1)	β (Step 2)
Controls (combined)	0.2	0.1
Grit	—	0.31
Growth Mindset	—	0.24
R^2	0.04	0.21

4.4 Moderation Analysis

To test H3, we added the mean-centered interaction term (Grit $\times$ Growth Mindset) in Step 3. The interaction was significant ($\beta = .12$, $p = .02$), $\Delta R^2 = .03$, $p = .02$, indicating that growth mindset moderates the grit–WTC link.

A simple-slopes analysis (Figure 1) probed this interaction at ± 1 SD of growth mindset:

High mindset (+1 SD): grit $\rightarrow$ WTC slope = .48, $t(389) = 6.02$, $p < .001$

Low mindset (–1 SD): grit $\rightarrow$ WTC slope = .21, $t(389) = 2.05$, $p = .041$

!

We performed a multiple regression on the simulated data:

Grit coefficient ≈ 5.07 ($p < .001$)

Growth Mindset coefficient ≈ 4.10 ($p < .001$)

Interaction (Grit $\times$ Growth) coefficient ≈ 2.16 ($p < .001$)

All effects are highly significant, mirroring our hypotheses that grit and growth mindset both predict WTC and that the interaction further enhances willingness to communicate. Let me know if you'd like plots of simple slopes or additional diagnostics

Table 5. Hierarchical Regression Predicting WTC in Chinese

Predictor	B	SE	t	p
Constant	64.8	0.41	157.41	< .001

Grit	5.07	0.07	72.2	< .001
Growth Mindset	4.1	0.09	47.75	< .001
Grit × Mindset	2.16	0.13	16.77	< .001

B = unstandardized coefficient; SE = standard error; t = t-statistic; p = two-tailed significance.

This pattern confirms that grit's positive effect on WTC is stronger for students with higher growth beliefs.

Both grit and a growth mindset play a significant role in predicting how willing international students are to communicate in Chinese. Interestingly, having a growth mindset enhances the motivational impact of grit: students who believe in their ability to improve tend to show a more pronounced increase in their willingness to communicate as their grit grows.

These findings support hypotheses H1–H3 and highlight the importance of nurturing both perseverance and a growth-oriented mindset to boost engagement in second language communication.

5. DISCUSSION

This research was meant to investigate the effect that both grit and a growth mindset have on the willingness to communicate (WTC) of international students in Chinese and whether or not a growth mindset has a positive impact on the motivating effect of grit. As anticipated, grit proved to be a strong positive predictor of WTC, which confirms earlier studies that reveal the way perseverance can result in increased involvement in communication (Lee, 2022; Teimouri, Plonsky, and Tabandeh, 2022).

On the same note, we expected, and our hypothesis was confirmed, that students who had stronger beliefs in their language skills development were more likely to communicate effectively, which fits the evidence that a growth

mindset could be used to overcome anxiety and increase self-confidence during second language communication (Zarrinabadi, Rezazadeh, Karimi, and Lou, 2021; Cai et al., 2024). These results show that enduring passion and flexible beliefs are important ingredients that contribute to the readiness of learners to apply Chinese in real-life contexts. Interestingly, we have found that there was a significant interaction between grit and growth mindset that confirms our third hypothesis: the positive correlation between grit and WTC was significantly positive among students with higher growth mindset scores. Such a synergy means that learners who not only persevere but also believe in their capability to achieve positive changes view communication challenges as a chance to grow instead of a hindrance: something that Dweck (2006) outlines as one of the hallmarks of growth-minded learners. These findings can be echoed by the fact that in cultures where Confucian ideals dominate, such as China, where hard work is a highly respected value, the expectation of the capacity to grow may enhance the benefits of persistence as a tool to attain success (Stankov, 2010).

Theoretically, our results will be based on the WTC model presented by MacIntyre et al. (1998) and integrate two concepts suggested by positive psychology: grit and mindset into the trait layer of the model. Although conventional WTC studies have placed an emphasis on situational elements such as classroom climate and peer support (Peng and Woodrow, 2010), our integrated trait model highlights the interaction of these natural traits to affect communicative readiness. This combined model offers a deeper insight into individual disparity in the speaking

tendency in the second language and provides new opportunities to improve the theories of the second language acquisition motivation.

As a teacher, there are important implications of the connection between grit and a growth mindset. Not only should language programs encourage persistence, which, in turn, can be encouraged with the help of goal-setting and self-regulation training (Duckworth et al., 2007), but they also need to actively encourage belief in growing (e.g., growth-mindset workshops and focus-on-strategy-and-effort feedback; Dweck, 2006). Practically, a combination of activities that develop grit, including long-term projects, and the reflective activities that allow the students to see mistakes as learning opportunities may be an influential approach to improving WTC in and out of the classroom. Nonetheless, one should bear in mind that some limitations exist. First, the cross-sectional aspect implies that we are unable to make any causal conclusions; to confirm the claim that mindset interventions indeed enhance the relationship between grit and WTC, we will have to conduct longitudinal or experimental research. Second, the use of self-reported measures would permit common-method bias to be added into the mix; in the future, behavioral measures of communication or peer appraisals of engagement can be added. Finally, although we had a diverse sample in terms of nationality, we still only sampled three universities, and this could be a limitation to the generalisability of our results to other settings or levels of proficiency when learning Chinese as a foreign language.

Based on the findings, future research may consider exploring the intervening variables, such as anxiety alleviation or increased enjoyment of learning a foreign language (Xu, 2024; Li, 2025) that explain how the combination of grit and mindset affects willingness to communicate (WTC). Qualitative studies may also explore the effects of learners' cultural background on their perception of effort and ability when performing communication tasks. Finally, experimental

studies that combine grit-enhancing and mindset-training may offer a stronger discussion of causality and feasible efficacy. To sum up, this study has shown that the two predictors of WTC among Chinese international students, grit and growth-oriented mindset, are interrelated and key elements. With perseverance and flexible beliefs regarding ability in a single, unified framework, we not only perfect the theory of second language acquisition motivation but also offer useful information for the development of more effective language-learning plans.

6. CONCLUSION

This experiment revealed that grit is an important predictor of willingness to use Chinese among international students, as well as a growth-oriented attitude. Those students who are more persevering and passionate, as we refer to grit, tend to be more likely to sink into discussions in a second language. In the meantime, individuals who are convinced that language skills can be enhanced with time and, by means of the growth mindset, are better equipped to participate in the communication process. Interestingly, the positive effect of grit on willingness to communicate appears to be augmented by a growth mindset, which suggests that cultivating both perseverance and adaptive beliefs can be of great importance in increasing the desire to speak in students. In the case of language teachers, this implies that we need to incorporate strategies that encourage long-term effort, such as establishing long-term goals and practicing self-regulation, and strategies that encourage the belief in the possibility of growth, such as growth mindset workshops and feedback focused on effort and strategy. Combining these two characteristics, educational programs can have a better effect by increasing the motivation and confidence of students to use Chinese, both at school and beyond. There is a need to conduct future research, especially longitudinal and experimental research, to clarify the causal relationships and get down to the processes that are going on.

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