

Growth Language Mindset Across Disciplines: Evidence From Thai Higher Education

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Abstract—This study investigated the growth language mindset of undergraduate students in Thailand, focusing on their beliefs about intelligence, aptitude, and age sensitivity in English language learning. A total of 1,174 students from diverse academic disciplines participated in the survey, which employed the adapted Language Mindset Inventory (LMI). Descriptive statistics, multivariate analyses of variance (MANOVA), and confirmatory factor analysis (CFA) were conducted to address four research questions: (1) the overall level of growth mindset in English learning, (2) variations of mindset across disciplines, (3) differences based on the urban–rural divide, and (4) the construct validity of the proposed three-factor model. Results revealed that students generally hold strong growth-oriented beliefs, with the highest mean score for age sensitivity. MANOVA results indicated significant disciplinary differences in intelligence beliefs and age sensitivity beliefs, with students in telecommunication engineering, polymer engineering, manufacturing automation and robotics engineering, and mechanical engineering reporting the strongest growth mindsets. In contrast, bioscience and environmental engineering students showed weaker orientations. A separate MANOVA showed significant urban–rural differences across all three constructs, with urban students consistently reporting higher growth beliefs, particularly in age sensitivity. The CFA provided strong support for the three-factor model, and fit indices confirmed an excellent model fit. These findings highlight that while growth-oriented beliefs about language learning are widespread among Thai undergraduates, disciplinary and geographical disparities remain. The validated three-factor model confirms that intelligence, aptitude, and age sensitivity beliefs are distinct but interrelated dimensions of language mindset. The study highlights the need for tailored interventions to foster growth-oriented language learning environments.

Index Terms—growth mindset, English language learning, Thai undergraduates, discipline differences, confirmatory factor analysis

I. INTRODUCTION

The examination of English language mindsets among undergraduate students in Thailand is a pivotal area of research that highlights the influence of mindset on learning processes. Mindset theory, particularly the distinction between growth and fixed mindsets, plays a crucial role in shaping students' perceptions of their ability to acquire English, thereby affecting their motivation, engagement, and overall proficiency. Students with a growth mindset perceive language learning as a malleable process, which fosters resilience, persistence, and a proactive approach to communication. In contrast, those adhering to a fixed mindset often experience increased anxiety, reduced efforts, and disengagement from the learning process, which ultimately impairs their language acquisition outcomes (Noels & Lou, 2015; Wang et al., 2025).

Growth mindset theory, articulated famously by Carol Dweck, posits that individuals who view intelligence and abilities as malleable are more motivated, resilient, and adaptive learners (Dweck, 2006). In language education, such a mindset is linked to reduced anxiety, increased persistence, and improved communicative competence (Noels & Lou, 2015; Lou & Noels, 2020; Wang & Chinokul, 2023). Empirical studies show that students with a growth mindset are generally more engaged, persistent, and proficient in foreign language learning contexts (Barber, 2023; Hu et al., 2022).

Yet, the specific contours of growth language mindset, particularly across diverse disciplines and geographic contexts, are underexplored. For instance, research indicates that environmental and socioeconomic factors, such as poverty and rural residency, can stifle the development of a growth mindset in educational settings (Equitable Education Fund, 2024; Muoz, 2024). Thailand, with its pronounced urban–rural educational disparities, offers a compelling context for investigating these dynamics (Koumpai & Rakangthong, 2022).

Moreover, the emergent conceptualization of a three-factor language mindset model encompassing intelligence beliefs, aptitude beliefs, and age sensitivity beliefs demands psychometric validation across new cultural contexts (Ho et al., 2025; Hu et al., 2022). Confirmatory studies thus far have primarily focused on broad growth mindset constructs rather than distinct sub-dimensions in EFL settings (Sadoughi, 2024).

Evidence underscores that mindset orientation varies significantly across different academic disciplines. For example, students in technical fields, such as engineering, often display a stronger tendency toward fixed mindsets about their English language abilities, prioritizing technical proficiency over communicative competence (Lou et al., 2021; Ng & Cheung, 2024). Conversely, students in fields such as business and the humanities, where communication is central to the curriculum, are more likely to endorse growth-oriented beliefs about their language capabilities (Du, 2019; He & Wang, 2024). These disciplinary differences point to the need for contextualized language instruction that integrates English instruction into technical subjects to foster a more balanced approach to language development among students who may otherwise undervalue language learning.

Furthermore, the impact of a growth mindset extends beyond mere academic performance; it is associated with lower levels of foreign language anxiety and greater willingness to communicate in English (Lou & Noels, 2020; Shams & Khosha, 2024; Wang et al., 2025). This is particularly salient in applied fields such as nursing and tourism, where English proficiency is critical for effective professional engagement. Nursing students, for instance, face challenges with medical terminologies in English, while tourism students often express frustration over the perceived slow pace of language acquisition, which can reinforce fixed mindsets about their English skills (Wang & Chinokul, 2023; Avhustiuk, 2021). This underscores the imperative for tailored education strategies that harness growth mindset principles, such as goal-setting, constructive feedback, and cooperative learning experiences that cultivate authentic communication practice (Lileikienė & Danilevičienė, 2019; Yorulmaz & Arabacioglu, 2023).

In Asian settings, cultural, educational, and psychological factors heavily shape the English language learning experience. While students acknowledge the importance of English for future employment, they frequently encounter significant speaking anxiety and are often deprived of authentic language-use contexts within their educational settings (Laurell et al., 2025; Liu, 2018; Xiaoli, 2021). The prevailing focus on reading and writing skills exacerbates this issue, resulting in a lack of readiness for real-world communicative demands. On the other hand, learners who embrace a growth mindset exhibit lower anxiety levels and greater participation in speaking opportunities, thus reinforcing the need for educational environments that normalize mistakes and encourage language experimentation (Shams & Khosha, 2024; Song, 2022; Feng, 2024).

Drawing on the above considerations, this study addresses the following questions:

1. What is the level of growth mindset in English language learning among undergraduate students in Thailand?
2. What is the level of growth mindset in English language learning across disciplines in Thailand?
3. What is the level of growth mindset in English language learning based on the urban and rural divide?
4. Does the proposed three-factor model of language mindset, comprising intelligence beliefs, aptitude beliefs, and age sensitivity beliefs, demonstrate adequate construct validity among Thai undergraduate students?

By addressing these questions, the study not only establishes the overall orientation of Thai undergraduates toward English language learning but also highlights disciplinary and geographical variations. Furthermore, it tests the validity of the three-factor framework, thereby contributing both theoretical clarity and practical insights for designing growth mindset interventions in Thai higher education.

II. METHODOLOGY

A. Research Design

This study employed a quantitative research design to investigate the growth language mindset of undergraduate students in Thailand. Specifically, it examined the level of growth-oriented beliefs in English language learning, differences across academic disciplines, variations between urban and rural student groups, and the construct validity of the three-factor language mindset model.

B. Participants

A total of 1,174 undergraduate students from diverse disciplines participated in the study. The sample was drawn from multiple Thai universities, including King Mongkut's University of Technology Thonburi, Suranaree University of Technology, Asia-Pacific International University, Nakhon Ratchasima Rajabhat University, Sisaket University, Navaminda Rajabhat University, Mahasarakham University, Khon Kaen University, Kasetsart University, and Bangkok University. Participants represented a wide range of academic fields, including engineering, science, business, education, and health-related programs, ensuring balanced representation across both applied and theoretical disciplines. Students were further categorized by urban or rural background to examine differences in language mindset beliefs across geographical contexts.

C. Research Instrument

Data were collected using an adapted version of the Language Mindset Inventory (LMI), originally developed by Lou and Noels (2020), and modified to suit the Thai English as a Foreign Language (EFL) context. The survey consisted of

three subscales: intelligence beliefs (beliefs about the malleability of language intelligence), aptitude beliefs (beliefs about the ability to develop language learning skills), and age sensitivity beliefs (beliefs about age as a limiting or non-limiting factor in language learning). Each construct was measured by three items on a six-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (6).

The final set of items was as follows:

- Intelligence beliefs
 1. You can always improve your language intelligence substantially.
 2. No matter who you are, you can significantly improve your language intelligence level.
 3. No matter how much language intelligence you have, you can always improve it quite a bit.
- Aptitude beliefs
 1. You can always improve how good you are at learning new languages.
 2. No matter who you are, you can always improve your basic ability to learn new languages.
 3. No matter how much ability you have in learning new languages, you can improve it considerably.
- Age sensitivity beliefs
 1. No matter how old you are, you can always improve your ability to learn new languages.
 2. Regardless of age, you can significantly improve how good you are at learning new languages.
 3. Even after a certain young age, you can substantially improve your ability to learn new languages.

Internal consistency reliability was examined using Cronbach's alpha. All three subscales demonstrated high reliability: intelligence beliefs ($\alpha = .84$), aptitude beliefs ($\alpha = .82$), and age sensitivity beliefs ($\alpha = .85$). These coefficients exceed the commonly accepted threshold of 0.70, indicating that the instrument was internally consistent.

Content validity was established through expert review. Three specialists in applied linguistics and language education evaluated the clarity, cultural appropriateness, and representativeness of the items for the Thai EFL context. Furthermore, construct validity was examined using confirmatory factor analysis (CFA). Results supported the hypothesized three-factor structure, with all items loading strongly and significantly on their respective constructs (range = 0.80–1.04, $p < .001$). Model fit indices further confirmed adequacy of the measurement model: $\chi^2(24) = 119$, $p < .001$; CFI = 0.987; TLI = 0.981; RMSEA = 0.058 (90% CI = 0.048–0.069). These results demonstrate that intelligence beliefs, aptitude beliefs, and age sensitivity beliefs are empirically distinct yet interrelated dimensions of the growth language mindset.

A six-point Likert scale was selected instead of the more common five- or seven-point scales. This decision was made to avoid a neutral midpoint option, which can encourage satisficing, in which respondents select the middle category without carefully considering their beliefs. By requiring students to lean either positively or negatively, the six-point format reduces ambiguity and yields more discriminative responses, which is especially valuable in cross-disciplinary and cross-context comparisons of mindset beliefs.

Only growth mindset items were included in the final version of the instrument. Fixed mindset items were removed following pilot testing and expert review, where it was noted that such items often led to ambiguous interpretations among Thai EFL learners. For example, negatively worded or fixed-mindset statements were sometimes misinterpreted as reflective of cultural humility rather than fixed beliefs, potentially leading to response bias. By focusing solely on growth-oriented beliefs, the instrument ensured greater clarity, reliability, and cultural appropriateness.

D. Data Collection Procedures

Participants completed the survey voluntarily through an online platform distributed by course instructors and program coordinators. Informed consent was obtained, and participants were assured of confidentiality and anonymity. Data collection occurred over one academic semester.

E. Data Analysis

Data were analyzed using descriptive and inferential statistics: (1) Descriptive Statistics: Means and standard deviations were computed to determine the overall level of growth language mindset among Thai undergraduates; (2) MANOVA (Multivariate Analysis of Variance): Conducted to examine differences in growth mindset dimensions across academic disciplines and the urban–rural divide. Univariate tests were used to identify specific constructs with significant differences; (3) Confirmatory Factor Analysis (CFA): Performed to validate the three-factor measurement model. Factor loadings, significance levels, and model fit indices (χ^2 , CFI, TLI, RMSEA with 90% CI) were used to assess the adequacy of the proposed model.

F. Ethical Considerations

The study followed ethical research guidelines for human participants. Institutional approval was obtained, and participation was voluntary. Students could withdraw at any stage without consequence. Data were used solely for academic purposes and reported in aggregate form to protect individual identities.

III. RESULTS

A. What Is the Level of Growth Mindset in English Language Learning Among Undergraduate Students in Thailand?

TABLE 1
GROWTH LANGUAGE MINDSET OF THAI UNDERGRADUATE STUDENTS (N=1,171)

Factors of growth language mindset	Mean	Standard Deviation
Intelligence beliefs	4.91	1.02
Aptitude beliefs	4.97	1.15
Age sensitivity beliefs	5.01	1.05

The results reveal that Thai undergraduate students generally hold strong growth-oriented beliefs regarding language learning. Specifically, high mean scores were reported for age sensitivity ($M=5.01$), aptitude beliefs ($M=4.97$), and intelligence beliefs ($M=4.91$), indicating that students widely believe language skills can be developed regardless of age or innate talent.

B. What Is the Level of Growth Mindset in English Language Learning Across Disciplines in Thailand?

TABLE 2
MINDSET AND ENGAGEMENT BELIEFS OF STUDENTS BASED ON THE PROGRAM OF STUDY

	Intelligence beliefs		Aptitude beliefs		Age sensitivity beliefs	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Accounting ($n=18$)	5.41	0.78	5.43	0.73	5.11	0.79
Agriculture and food engineering ($n=37$)	4.92	1.21	4.93	1.20	4.92	1.27
Automotive engineering ($n=3$)	5.44	0.19	5.55	0.77	5.33	0.91
Bioscience ($n=30$)	4.47	1.35	4.63	1.16	4.36	1.07
Business English ($n=60$)	5.06	1.17	5.03	1.13	5.11	1.14
Business management ($n=67$)	4.76	0.61	4.67	0.99	4.38	0.64
Ceramics engineering ($n=15$)	4.78	1.24	4.71	1.40	5.31	1.02
Chemistry ($n=7$)	5.48	0.59	5.14	1.15	5.24	0.91
Civil Engineering ($n=13$)	5.13	0.94	5.23	1.25	5.02	1.40
Computer engineering ($n=20$)	4.78	1.08	4.73	1.20	4.53	1.23
Digital technology ($n=199$)	4.91	1.19	4.93	1.20	5.04	1.14
Electrical engineering ($n=19$)	4.75	1.47	4.95	1.28	5.16	0.90
Engineering (general) ($n=29$)	4.85	1.22	4.94	1.13	5.02	1.15
English ($n=127$)	4.94	1.06	5.01	1.05	4.92	1.11
Environmental engineering ($n=14$)	4.31	1.15	4.43	1.39	4.62	1.46
Geological engineering ($n=6$)	4.50	1.10	4.72	1.19	4.44	1.15
Hospitality and technology innovation ($n=36$)	5.41	0.82	5.46	0.68	5.29	1.00
Industrial engineering ($n=6$)	4.56	1.07	5.00	1.14	4.94	1.05
Information technology ($n=21$)	4.88	0.87	4.95	1.08	4.90	1.04
Management technology ($n=13$)	4.74	1.24	4.90	1.25	5.18	1.11
Manufacturing automation and robotics engineering ($n=4$)	5.08	1.08	4.83	1.43	5.58	0.55
Mechanical engineering ($n=19$)	5.28	1.06	5.32	0.97	5.14	1.27
Mechatronics engineering ($n=12$)	4.94	1.46	5.14	1.41	5.11	1.25
Medical science ($n=25$)	4.79	1.21	4.85	1.17	5.08	1.20
Metallurgical engineering ($n=6$)	4.61	1.47	4.67	1.54	4.89	1.31
Microbiology ($n=6$)	4.44	1.17	4.83	1.01	5.11	1.08
Nursing ($n=93$)	5.01	1.05	5.12	1.00	5.00	1.16
Nutrition and dietetics ($n=26$)	4.50	1.50	4.41	1.50	5.01	1.16
Occupational health and safety ($n=32$)	4.54	1.10	4.77	1.16	4.83	1.14
Petroleum engineering ($n=46$)	5.17	0.90	4.93	1.11	5.17	1.10
Polymer engineering ($n=14$)	5.10	1.10	5.29	0.91	5.50	0.90
Religious studies ($n=19$)	4.87	0.96	4.84	0.90	4.71	1.06
Sports science ($n=7$)	5.47	0.87	5.19	1.12	4.91	1.05
Teacher education ($n=104$)	4.71	1.10	4.82	1.12	4.57	1.15
Telecommunication engineering ($n=4$)	5.42	0.63	5.75	0.50	5.92	0.17
Transportation and logistics engineering ($n=14$)	4.88	1.02	4.76	0.95	4.86	0.89

Based on the mean scores across the three dimensions, beliefs about language intelligence, language aptitude, and age sensitivity, several clear patterns emerged. Overall, students across academic majors reported moderately strong growth-oriented beliefs, with most mean scores exceeding 4.30 on the six-point scale. Telecommunications engineering had the highest overall scores ($M=5.70$). Students in this field reported very strong growth-oriented beliefs across all three dimensions, especially in age sensitivity ($M = 5.92$), indicating they overwhelmingly reject the idea that age is a limiting factor in language learning. Similarly, polymer engineering, manufacturing automation and robotics engineering, and mechanical engineering students reported high means, reflecting a strong belief in the potential for improvement regardless of innate ability or age. Chemistry and sports science students also showed consistently high levels of belief, particularly in intelligence.

In contrast, lower mean scores were found in bioscience ($M=4.49$), and environmental engineering ($M=4.45$). These majors recorded the weakest endorsement of intelligence and aptitude beliefs, with bioscience students showing the lowest mean for age sensitivity ($M=4.36$). Nutrition and dietetics, metallurgical engineering, and geological engineering also fell at the lower end, particularly in aptitude and age sensitivity beliefs. This suggests that students in science and health-related fields may hold more fixed mindset beliefs, viewing intelligence or age as more substantial barriers to language learning.

Business- and social science-related fields, such as accounting, business English, teacher education, and religious studies, generally fell within the middle range, showing moderate endorsement of growth-oriented beliefs. Nursing and English students reported balanced scores across the three dimensions, neither strongly growth-oriented nor strongly fixed. Interestingly, variability within some majors, such as nutrition and dietetics or metallurgical engineering, was higher than in others, suggesting more diverse beliefs among students in these programs.

It can be noted that growth-oriented beliefs about language learning were generally present among Thai students across disciplines; there were notable disciplinary differences. Engineering majors, particularly in telecommunication, robotics, and polymer engineering, displayed the strongest growth mindsets. On the other hand, bioscience, environmental engineering, and related science fields revealed weaker or more mixed beliefs. These findings highlight areas where interventions may be needed to strengthen growth mindsets, especially in fields where fixed beliefs about intelligence, aptitude, or age may be limiting students' engagement in language learning.

TABLE 3
MANOVA RESULTS ACROSS DISCIPLINES

Dependent Variable	Sum of Squares	df	Mean Square	F	p
Intelligence beliefs	58.8	35	1.681	1.81	0.003
Aptitude beliefs	48.2	35	1.378	1.43	0.052
Age sensitivity beliefs	51.1	35	1.459	1.53	0.025

To examine whether students' beliefs about intelligence, aptitude, and age sensitivity varied across disciplines (see Table 3), MANOVA was calculated. The results of the univariate tests showed significant disciplinary effects on intelligence beliefs, $F(35, 1134) = 1.81, p = .003$, and age sensitivity beliefs, $F(35, 1134) = 1.53, p = .025$. These findings indicate that students' perceptions of language intelligence and the role of age in language learning differ significantly among academic majors. In contrast, the effect of discipline on aptitude beliefs was marginal, $F(35, 1134) = 1.43, p = .052$, suggesting more consistency across fields in the belief that language learning ability can improve through effort.

C. *What Is the Level of Growth Mindset in English Language Learning Based on the Urban and Rural Divide?*

TABLE 4
MINDSET AND ENGAGEMENT BELIEFS OF STUDENTS BASED ON THE URBAN AND RURAL DIVIDE

	Intelligence beliefs		Aptitude beliefs		Age sensitivity beliefs	
	M	SD	M	SD	M	SD
Urban	4.94	1.14	4.99	1.14	5.08	1.13
Rural	4.77	1.12	4.84	1.10	4.60	1.14

The results in Table 4 reveal notable differences in mindset and engagement beliefs between students from urban and rural backgrounds. Urban students reported slightly higher mean scores across all three belief dimensions compared to their rural counterparts. In particular, urban students showed stronger aptitude beliefs ($M = 4.99$) and age sensitivity beliefs ($M = 5.08$), suggesting they are more confident in their ability to improve language learning skills and less constrained by age-related limitations.

Rural students, by contrast, scored lower on all dimensions, with the most significant gap appearing in age sensitivity beliefs ($M = 4.60$). This indicates that rural students may be more inclined to perceive age as a barrier to language learning.

The findings highlight a consistent urban advantage in growth-oriented beliefs, suggesting that students in urban areas may approach language learning with greater confidence and openness to improvement than those in rural areas.

TABLE 5
MANOVA RESULTS BASED ON URBAN AND RURAL DIVIDE

Dependent Variable	Sum of Squares	df	Mean Square	F	p
Intelligence beliefs	6.93	1	6.934	7.31	0.007
Aptitude beliefs	8.89	1	8.888	9.16	0.003
Age sensitivity beliefs	35.98	1	35.978	38.42	<.001

A separate MANOVA was conducted to test differences between urban and rural students (see Table 5). The univariate results revealed significant effects across all three belief dimensions. Urban and rural students differed in intelligence beliefs, $F(1, 1168) = 7.31, p = .007$, and aptitude beliefs, $F(1, 1168) = 9.16, p = .003$, with urban students reporting higher means in both. The largest effect was observed in age sensitivity beliefs, $F(1, 1168) = 38.42, p < .001$,

indicating that urban students were substantially more likely to reject the notion that age is a barrier to language learning compared to rural students.

D. Does the Proposed Three-Factor Model of Language Mindset—Comprising Intelligence Beliefs, Aptitude Beliefs, and Age Sensitivity Beliefs—Demonstrate Adequate Construct Validity Among Undergraduate Students as Measured Through Confirmatory Factor Analysis?

TABLE 6
CONFIRMATORY FACTOR ANALYSIS LOADINGS

Factor	Indicator	Estimate	SE	Z	p
(1) Intelligence beliefs	Item 1	0.800	0.0321	25.0	<.001
	Item 2	0.962	0.0284	33.9	<.001
	Item 3	0.899	0.0287	31.3	<.001
(2) Aptitude beliefs	Item 4	0.983	0.0288	34.2	<.001
	Item 5	1.004	0.0256	39.2	<.001
	Item 6	0.966	0.0264	36.6	<.001
(3) Age sensitivity beliefs	Item 7	0.953	0.0275	34.6	<.001
	Item 8	1.038	0.0262	39.7	<.001
	Item 9	0.978	0.0276	35.4	<.001

The confirmatory factor analysis (CFA) in Table 6 examined the three hypothesized latent constructs, intelligence beliefs, aptitude beliefs, and age sensitivity beliefs, each measured by three items. All items loaded strongly and significantly onto their respective factors, with standardized estimates ranging from 0.80 to 1.04.

For intelligence beliefs, factor loadings were high: Item 1 (0.800), Item 2 (0.962), and Item 3 (0.899), all with $p < .001$. These results suggest that the three items consistently capture the underlying construct of intelligence beliefs.

For aptitude beliefs, factor loadings were the highest overall, with Item 4 (0.983), Item 5 (1.004), and Item 6 (0.966), each highly significant ($p < .001$). This indicates that the aptitude construct is measured with particularly strong reliability, as the items demonstrate near-perfect loadings on the latent factor.

For age sensitivity beliefs, loadings were also very strong, with Item 7 (0.953), Item 8 (1.038), and Item 9 (0.978), again all significant ($p < .001$). These results confirm that the items validly represent the age sensitivity dimension of language mindset.

Overall, the CFA provides strong empirical support for the three-factor measurement model. Each set of items demonstrated high convergent validity with their respective constructs, and the statistical significance of all loadings further validates the measurement structure. The findings suggest that intelligence, aptitude, and age sensitivity beliefs are distinct but reliably measured dimensions of students' language mindsets.

The model was evaluated using multiple fit indices. The chi-square test for exact fit was statistically significant, $\chi^2(24) = 119, p < .001$. Although a significant chi-square typically suggests some degree of misfit, this test is highly sensitive to large sample sizes, and therefore, additional fit indices are more reliable indicators.

The Comparative Fit Index (CFI = 0.987) and Tucker–Lewis Index (TLI = 0.981) both exceeded the commonly accepted threshold of 0.95, indicating excellent model fit. The Root Mean Square Error of Approximation (RMSEA = 0.058) also fell below the 0.06 cutoff, with a 90% confidence interval ranging from 0.048 to 0.069. This suggests close approximate fit of the model, as the upper bound remains below the 0.08 threshold for acceptable fit.

Taken together, the fit indices strongly support the adequacy of the three-factor model of language mindset (intelligence, aptitude, and age sensitivity beliefs). The results provide evidence that the hypothesized factor structure is a valid representation of the data, with both incremental fit indices (CFI, TLI) and absolute fit indices (RMSEA) demonstrating that the model fits well.

IV. DISCUSSION

The findings of this study provide important insights into the growth language mindset of Thai undergraduate students. Across the sample, students generally endorsed strong growth-oriented beliefs about English language learning, particularly regarding age sensitivity, followed by beliefs about aptitude and intelligence. These results align with previous studies that highlight the adaptive role of growth mindsets in reducing foreign language anxiety and enhancing persistence in language learning (Lou & Noels, 2020; Wang et al., 2025). Thai undergraduates appear to widely recognize that language skills can be developed through effort and strategies, and many reject the notion that age is a limiting factor, reflecting the global trend that associates growth mindsets with greater willingness to communicate in a second language (Shams & Khosha, 2024).

Despite these generally positive orientations, significant disciplinary differences were observed. Students in telecommunication engineering, polymer engineering, robotics, and mechanical engineering reported the highest levels of growth-oriented beliefs across all three constructs, particularly in rejecting age as a barrier. These findings challenge some earlier studies suggesting that engineering and technical students often prioritize technical skills at the expense of communicative competence (Lou et al., 2021; Ng & Cheung, 2024). In this sample, technical students demonstrated strong growth beliefs, possibly reflecting the increasing recognition of English as essential for participation in globalized industries. By contrast, students in bioscience, environmental engineering, and microbiology reported lower

scores, with bioscience students showing the weakest endorsement of age sensitivity beliefs. These results resonate with research noting that science and health-related students may struggle with language-related anxiety, particularly in applied contexts such as medical or technical communication (Wang & Chinokul, 2023; Avhustiuk, 2021).

The results also highlight a disciplinary middle ground. Students in business, teacher education, and religious studies generally demonstrated moderate growth-oriented beliefs. This pattern is consistent with prior findings that students in communication-rich fields, such as business and humanities, tend to hold more positive beliefs about language development (Du, 2019; He & Wang, 2024). Nursing students, in particular, showed balanced beliefs across all three dimensions, reflecting both their recognition of the importance of English for patient care and their struggles with medical-specific English terminology (Wang & Chinokul, 2023).

A notable pattern emerged in the urban–rural divide. Urban students consistently reported higher growth mindset beliefs than their rural peers, with the largest gap evident in age sensitivity beliefs (urban $M = 5.08$; rural $M = 4.60$). This finding suggests that rural students may be more inclined to perceive age as a barrier to language learning. Such disparities can be linked to the educational and cultural contexts that shape language learning opportunities in Thailand. Urban students generally have greater exposure to authentic language use, whereas rural students often have limited opportunities for communicative practice, which can reinforce anxiety and fixed orientations (Laurell et al., 2025; Xiaoli, 2021). The results support prior research that emphasizes the role of contextual factors—such as access to resources and supportive environments—in cultivating growth-oriented beliefs (Song, 2022; Feng, 2024).

Finally, the confirmatory factor analysis (CFA) provided strong empirical support for the proposed three-factor model comprising intelligence, aptitude, and age sensitivity beliefs. All items loaded strongly and significantly onto their respective factors. Model fit indices indicated excellent fit, suggesting that the three constructs are distinct and reliable dimensions of language mindset. These findings address calls in the literature for more rigorous validation of language mindset frameworks.

These results underscore the central role of mindset in shaping Thai undergraduates' engagement with English. While growth-oriented beliefs are generally strong, disciplinary and geographical differences highlight the need for contextualized interventions. In technical fields, integrating English into professional and technical tasks can further reinforce positive beliefs, whereas in science and health-related programs, targeted strategies to reduce anxiety and promote confidence are necessary. Likewise, rural students may benefit from supportive environments and increased opportunities to use authentic language to overcome fixed perceptions.

V. CONCLUSION

This study investigated the growth mindset for language learning among undergraduate students in Thai higher education, focusing on beliefs about intelligence, aptitude, and age sensitivity. Overall, Thai students demonstrated strong growth-oriented beliefs, with the highest endorsement for age sensitivity, indicating that most students reject the notion that age is a barrier to language learning. However, disciplinary differences were evident: students in telecommunication, polymer, robotics, and mechanical engineering reported the strongest growth mindsets, while those in bioscience, environmental engineering, and microbiology displayed weaker or more mixed orientations. Additionally, a consistent urban–rural divide emerged, with urban students reporting higher growth beliefs across all three dimensions. The confirmatory factor analysis further validated the three-factor model, establishing intelligence, aptitude, and age sensitivity beliefs as distinct but reliable dimensions of growth language mindset.

The findings offer several important implications for theory, practice, and policy. They reinforce the theoretical value of mindset theory in second language acquisition by confirming the distinct roles of intelligence, aptitude, and age sensitivity beliefs in shaping student engagement and confidence (Lou & Noels, 2020). The validated three-factor model provides a reliable framework for future research on language mindsets across cultural and disciplinary contexts. At the practical level, disciplinary differences highlight the importance of contextualized pedagogical interventions. Engineering and technical programs could build on students' strong growth beliefs by embedding English for Specific Purposes (ESP) tasks into coursework, while science and health-related fields may require targeted strategies to reduce anxiety and counter fixed beliefs.

The urban–rural divide underscores the need for equitable access to authentic language learning opportunities. Policy initiatives should prioritize rural institutions by providing greater exposure to communicative practice, including technology-enhanced platforms for virtual exchanges and online collaboration. More broadly, universities should integrate growth mindset principles into English language curricula through goal setting, constructive feedback, cooperative projects, and strategies that reduce anxiety. These approaches can help foster resilience and engagement among students, particularly those in disciplines or contexts where fixed beliefs are more prevalent.

In sum, this study affirms that a growth mindset in language is a critical psychological resource for Thai undergraduates. By addressing disciplinary disparities and geographical inequalities, Thai higher education can create more inclusive environments that empower students to approach English language learning with confidence, persistence, and optimism.

This study has several important implications for English language education in Thai higher education. First, the generally high levels of growth-oriented beliefs among students suggest that universities can build upon these positive orientations by embedding mindset-supportive practices into English instruction. Strategies such as goal setting,

constructive feedback, and cooperative learning can help students translate their beliefs into sustained motivation and communicative confidence (Yorulmaz & Arabacioglu, 2023).

Second, the disciplinary differences highlight the need for contextualized language interventions. For students in engineering and technical fields who demonstrated strong growth beliefs, programs could capitalize on this by integrating English for Specific Purposes (ESP) tasks directly into technical coursework. In science and health-related fields, where students showed weaker orientations, interventions should target anxiety reduction and confidence-building, such as through medical simulations in nursing or problem-based discussions in bioscience (Wang & Chinokul, 2023).

Third, the clear gap between urban and rural students points to the importance of addressing educational inequality in access to authentic language practice. Rural students may benefit from technology-enhanced learning, such as online conversation exchanges, digital platforms, and virtual simulations, which can provide exposure to English in contexts they might not encounter locally (Laurell et al., 2025; Feng, 2024). Creating supportive classroom environments where mistakes are normalized as part of learning can further reduce anxiety and encourage participation (Shams & Khosha, 2024).

Finally, the validation of the three-factor growth mindset model confirms its usefulness as a diagnostic tool for both researchers and practitioners. Universities could use this model to regularly assess students' beliefs and identify the groups most in need of support. Tailored programs, differentiated by discipline and geographical background, would allow institutions to better align language instruction with students' academic and professional trajectories.

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REFERENCES

- [1] Avhustiuk, M. (2021). Psychological assistance in reducing English language anxiety in university students. *Scientific Notes of Ostroh Academy National University Psychology Series*, 1, 26-34. <https://doi.org/10.25264/2415-7384-2021-12-26-34>.
- [2] Barber, J. D. (2023). The relationship between language mindsets and foreign language anxiety for university second language learners. *International Journal on Social and Education Sciences*, 5(3), 653–675. <https://doi.org/10.46328/ijonses.591>.
- [3] Du, X. (2019). The analysis of the undergraduates' English classroom anxiety based on FLCAS. In *Advances in Social Science, Education and Humanities Research* (Vol. 341). Atlantis Press. <https://doi.org/10.2991/icadce-19.2019.204>.
- [4] Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.
- [5] Equitable Education Fund. (2024, June 30). When children's growth mindsets are impacted by poverty. *Equitable Education Fund Research*. Retrieved December 20, 2025, from <https://research.eef.or.th/when-childrens-growth-mindsets-are-impacted-by-poverty/>
- [6] Feng, Y. (2024). A study on the causes and influences of foreign language speaking anxiety in college students. *Lecture Notes in Education Psychology and Public Media*, 73(1), 70-75. <https://doi.org/10.54254/2753-7048/73/20241062>.
- [7] He, S., & Wang, S. (2024). Exploring foreign language anxiety in the listening and speaking of learning English as a second language. *Lecture Notes in Education Psychology and Public Media*, 45(1), 209-215. <https://doi.org/10.54254/2753-7048/45/20230539>.
- [8] Ho, Y. H., Lu, A., Liu, S., Chen, W., Huang, J., & Zheng, M. (2025). The roles of growth language mindset, metacognitive strategies, and language learning self-efficacy in predicting L2 willingness to communicate: A network analysis and a chain mediation model. *Behavioral Sciences*, 15(4), 521. <https://doi.org/10.3390/bs15040521>
- [9] Hu, X., Zhang, L., & McGeown, S. (2022). Relationship between growth mindset and English language performance: The mediating effects of grit and foreign language enjoyment. *Frontiers in Psychology*, 13, 935506. <https://doi.org/10.3389/fpsyg.2022.935506>.
- [10] Koompai, S., & Rakangthong, N. K. (2022). A comparison of educational inequality between urban and rural high schools in Nakhon Si Thammarat, Thailand. *Journal of Management Information and Decision Sciences*, 25(S2), 1–16. <https://www.abacademies.org/articles/a-comparison-of-educational-inequality-between-the-urban-high-school-and-rural-high-school-in-nakhon-si-thammarat-thaila.pdf>
- [11] Laurell, J., Puusepp, I., Hakkarainen, K., & Tirri, K. (2025). Students' cross-domain mindset profiles and academic achievement in Finnish lower-secondary education. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1514879>.
- [12] Lileikienė, A., & Danilevičienė, L. (2019). Foreign language anxiety in university learning: self-perceptions of students engaged in sports. *Baltic Journal of Sport and Health Sciences*, 1(112), 26-33. <https://doi.org/10.33607/bjshs.v112i1.776>.
- [13] Liu, P. (2018). The influence of reading anxiety on English reading achievement. *Advances in Social Science, Education and Humanities Research*, 221. <https://doi.org/10.2991/ceed-18.2018.33>.
- [14] Lou, N., & Noels, K. (2020). Mindsets matter for linguistic minority students: growth mindsets foster greater perceived proficiency, especially for newcomers. *Modern Language Journal*, 104(4), 739-756. <https://doi.org/10.1111/modl.12669>.
- [15] Lou, N., Chaffee, K., & Noels, K. (2021). Growth, fixed, and mixed mindsets. *Studies in Second Language Acquisition*, 44(3), 607-632. <https://doi.org/10.1017/s0272263121000401>.
- [16] Muoz, J. (2024). *How location influences learning in Thailand: Urban vs. rural vs. coastal education explained*. Muoz.org. <https://muoz.org/kids/how-location-influences-learning-in-thailand-urban-vs-rural-vs-coastal-education-explained/>.
- [17] Ng, C., & Cheung, Y. (2024). The application of mindset theories in English language education: a synthesis of recent research. *European Journal of English Language Studies*, 4(2), 103-118. <https://doi.org/10.12973/ejels.4.2.103>.

- [18] Noels, K. A., & Lou, N. M. (2015). Mindsets, goal orientations and language learning: What we know and where we need to go. *Contact*, 41(2), 41–52.
- [19] Sadoughi, M. (2024). Growth language mindset and willingness to communicate: The mediating role of enjoyment and anxiety. *Acta Psychologica*, 241, 104036. <https://doi.org/10.1016/j.actpsy.2024.104036>.
- [20] Shams, M., & Khosha, A. (2024). A study on foreign language learning anxiety among English major students in online environments. *Spring Journal of Arts, Humanities, and Social Sciences*, 3(5), 98-102. <https://doi.org/10.55559/sjahss.v3i5.331>.
- [21] Song, X. (2022). A study of English learning anxiety of non-English major on secondary vocational school students. *Advances in Social Science, Education and Humanities Research*, 673, 514-517. <https://doi.org/10.2991/assehr.k.220706.097>.
- [22] Wang, J., Zhou, T., & Fan, C. (2025). Impact of communication anxiety on L2 WTC of middle school students: mediating effects of growth language mindset and language learning motivation. *Plos One*, 20(1), 0304750. <https://doi.org/10.1371/journal.pone.0304750>.
- [23] Wang, M., & Chinokul, S. (2023). Foreign language anxiety of rural EFL junior middle school Chinese students: a case study of a school in East China. *Parichart Journal*, 36(4), 213-233. <https://doi.org/10.55164/pactj.v36i4.267238>.
- [24] Xiaoli, G. (2021). On the causes and countermeasures of Chinese learners' English reading anxiety. *Journal of Language Teaching and Research*, 12(6), 1034-1038. <https://doi.org/10.17507/jltr.1206.19>.
- [25] Xiong, Y., Lee, R., & Sui, Y. (2025). Supporting English as an additional language counseling trainee with foreign language anxiety: a phenomenological study. *Journal of Multicultural Counseling and Development*, 53(2), 44-54. <https://doi.org/10.1002/jmcd.12317>.
- [26] Yorulmaz, B., & Arabacioglu, B. (2023). Foreign language learning anxiety in Turkey: the case of Aydin province. *Shanlax International Journal of Education*, 11(1), 47-54. <https://doi.org/10.34293/education.v11i1-oct.6612>.



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