



Exploring English Learning Resilience among Thai EFL Learners: A Structural Equation Modeling (SEM) Approach

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Received 05/09/2024 Received in revised form 05/07/2025 Accepted 15/07/2025	ABSTRACT This study aims to examine the construct validity of the English Language Resilience Scale (ELRS), explore how English learning resilience can be predicted through the six factors of resilience (i.e. planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability), investigate how English learning resilience can predict English learning achievement, and examine the mediating effect of English learning resilience on the relationship between the aforementioned six factors and English learning achievement. The ELRS with seven sub-scales (i.e. planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, sociability, and English learning resilience) was validated by distribution to 150 second-year undergraduate students. The results of Pearson Correlation Coefficient revealed positive correlation among the seven variables in the ELRS, and the goodness of fit measures found in the Confirmatory Factor Analysis (CFA) indicated construct validity of the ELRS. Then, the ELRS was distributed to 300 second-year students in English for Specific Purposes courses

	<p>in the second semester of academic year 2023 at a university in Thailand. Structural Equation Modeling (SEM) revealed that the six factors positively predicted English learning resilience. Moreover, English learning resilience significantly predicted English learning achievement. Furthermore, the six factors had significant and positive indirect effects on English learning achievement through English learning resilience. The ELRS used in this study was rigorously developed and validated, so it could serve as a valuable instrument for future research on resilience in ESP and other academic contexts. Applying it to further studies can also enhance result comparability and support the advancement of resilience-focused educational practices.</p> <p>Keywords: resilience, English learning, Thai EFL learners, confirmatory factor analysis, structural equation modeling</p>
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Introduction

Life in the contemporary world is sometimes described as BANI (Brittle, Anxious, Non-linear, and Incomprehensible), and the Stoa (2022) has suggested that individuals should emphasize the characteristic of resilience. Resilience can be defined simply as the ability to prepare, resist, react, and recover from challenging situations or adversity in life (Carlson et al., 2012; Clubb, 2021; Danes, 2014). Resilient people can adapt themselves to encounter difficulties or stress such as financial and health problems (Danes, 2014) because they are not discouraged by problems, and they are confident to try new experiences (Clubb, 2021). Resilience thus appears to be a vital quality for living in today's world.

Moreover, the so-called BANI world is interconnected, and the English language has become an effective tool for cross-border communication (Nanhe, 2019), having become the world language and earning such appellations as 'English as an international language', 'English as a lingua franca', and 'world Englishes' (Boonsuk & Ambele, 2021). Therefore, success in using the English language in the modern world is critical to students' international achievement.

However, for non-native speakers, learning English is sometimes a prolonged process with challenging circumstances, stressors, and recurrent troubles. English language learners may experience pressure from different situational threats such as negative feedback when they attend English classes. To handle English learning-related difficulties and challenges requires resilience as a vital ability that can assist learners to persevere in learning

English (Zarrinabadi et al., 2022). This concept is confirmed by previous studies showing that resilience is a part of success in language learning (Hiver & Sánchez Solarte, 2021; Zarrinabadi et al., 2022). Factors of resilience including perceived happiness, empathy, sociability, persistence, and self-regulation have been shown to be significantly and positively correlated with the motivation and L2 proficiency of Korean secondary school EFL learners (Kim & Kim, 2016).

Although several studies have scrutinized resilience factors in foreign language learning, they typically have measured this concept in specific contexts for specific populations. While studies of university level EFL learners' resilience have been conducted in China (Guo & Li, 2022) and Iran (Zarrinabadi et al., 2022), and of secondary school EFL students in Korea (Kim & Kim, 2016), the applicability to Thai EFL learners remains underexplored, especially in English for Specific Purposes (ESP) courses. Measuring the cross-validation of resilience factors requires studying a new sample of EFL students (Sudina & Plonsky, 2021). Consequently, the present study developed a scale for measuring the English learning resilience of Thai EFL learners enrolled in ESP courses across multiple fields by synthesizing related literature to discover which factors are most vital for English learning resilience and adapting relevant items to factors found in previous studies to fit those items to suitable contexts. This study also explored how resilience-related factors that emerged from this synthesis can predict English learning resilience, investigated how English learning resilience can predict English learning achievement, and examined the mediating effect of English resilience on the relationship between the six factors of planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability, and English learning achievement.

Literature Review

Resilience

The basis of studies on resilience is the field of psychology starting in the 1970s, specifically focusing on children's mental illness and behavioral problems due to severe physical, emotional, and psychological deprivation (Hiver & Sanchez Solarte, 2021). Carlson et al. (2012) conceptualize that resilience is the ability to prepare, resist, absorb, react to, adjust to, and recover from disturbance. Likewise, Clubb (2021) has stated, "Resilience is the ability to adapt to challenging situations and cope with life's ups and downs. Resilient people do not allow adversity to define them or their lives, and they have the confidence to try new experiences" (p. 4).

Danes (2014) explained that resilient people should possess five important traits including being positive, focused, flexible, organized, and proactive. However, different individuals reserve different amounts of resilience to employ when necessary, based on personal background and life experiences, and everyone can increase resilience by developing a positive viewpoint of change. When people perceive change as the opportunity to grow and a source of satisfaction instead of loss or harm, they will become more resilient.

Resilience in Education

In education, resilience can be seen as academic buoyancy which is defined as being proactive to academic challenges such as stressors or pressures from competition (Martin & Marsh, 2008). According to a study with 402 high school students in Australia, five factors were identified as most predictive of academic resilience, namely self-efficacy, control, planning, low anxiety, and persistence. The path analysis in this study found that academic resilience could predict school enjoyment, class participation, and general self-esteem, which were identified as educational and psychological outcomes (Martin & Marsh, 2006). Common factors influencing resilience are social relationships and self-control. Relationships with other people are essential in dealing with challenges in life. Learners tend to be able to conquer difficulties better if they acknowledge and use social and human-relational resources such as emotional support from parents or teachers. Self-control is defined as the ability to manipulate and achieve future academic goals by overcoming academic difficulties. Self-control in learning, therefore, is considered a significant component of academic resilience (Cassidy, 2016; Collie et al., 2015; Kim & Kim, 2018).

Resilience in EFL Learning

The previous studies on language learning resilience proposed various interrelated factors, including perceived happiness, empathy, sociability, persistence, and self-regulation. These showed a significant and positive correlation to motivated behavior in English learning in Korean secondary school EFL learners (Kim & Kim, 2016). Additionally, metacognitive resilience, social resilience, and ego resilience significantly influenced foreign language learning in Chinese undergraduate students. Metacognitive resilience had the highest path coefficient, while social resilience was the second highest, and ego resilience was the lowest. Metacognitive resilience means seeking positive strategies to cope with academic stressors such as goal

setting, planning, asking for help, and activating cognitive mechanisms such as growth mindset, flexibility, and emotional control.

Social resilience involves connecting with parents, educational institutes, and communities to navigate resources necessary for coping. Ego resilience is defined as the way that individuals react to adversities and how they regard their capability to recover from difficulties (Guo & Li, 2022). Furthermore, resilience with seven related factors, specifically, English learning mindsets, ideal and ought-to selves, academic resilience, class engagement, intention to continue learning English, psychological well-being, and perceived language competence, assisted Iranian EFL learners to control and balance their negative emotions during difficult stages of language learning. Among the most significant predictors of resilience in EFL learners is a growth mindset wherein language learners who believe they have the ability to improve tend to have resilience in facing difficulties and setbacks since they view those adversities as opportunities for learning (Zarrinabadi et al., 2022).

Conceptual Framework of English Learning Resilience

According to the literature review, the term “resilience in English learning” as used in this study refers to the ability to handle and recover from adversities or setbacks in learning English (Cassidy, 2016; Guo & Li, 2022; Martin & Marsh, 2006).

Furthermore, the synthesis of factors contributing to resilience from the above-referenced concepts and previous studies (Danes, 2014; Guo & Li, 2022; Kim & Kim, 2016; Martin & Marsh, 2006; Zarrinabadi et al., 2022) shows that the six resilience-related factors have been discussed in multiple papers, indicating the importance of those factors, and meriting their inclusion in the present study as the sub-scales of the English Learning Resilience Scale (ELRS) developed for this study.

Based on the previous studies' synthesis, English learning resilience in this study is conceptualized as a multidimensional construct, encompassing six factors—planning, self-control, persistence and continuity in English learning, growth mindset for English learning, flexibility, and sociability. This conceptualization is grounded in educational and psychological resilience theories proposed by Carlson et al. (2012), Danes (2014), and Clubb (2021) and adapted to reflect challenges commonly faced in English learning contexts, particularly in ESP courses.

Planning

The factor “planning” refers to goal setting and planning (Guo & Li, 2022) in language learning. English learning goals and plans can be created by considering strong and weak points of English skills as well as past successes and failures, and using feedback from teachers and peers to improve English learning.

Self-control

The factor “self-control” refers to the ability to regulate one’s emotions when encountering difficulties in English learning (Guo & Li, 2022; Kim & Kim, 2016; Martin & Marsh, 2006).

Persistence and continuity in English learning

The term “persistence and continuity” refers to the learner’s intention to continue learning English despite encountering stress and difficulties (Kim & Kim, 2016; Martin & Marsh, 2006; Zarrinabadi et al., 2022).

Growth mindset for English learning

The factor “growth mindset for English learning” is defined as positive thinking when encountering challenges, disappointment, and/or changes in English learning (Danes, 2014; Guo & Li, 2022; Zarrinabadi et al., 2022). This factor enables learners to grow their abilities through enduring difficulties in learning.

Flexibility

The factor of “flexibility” describes a learner’s ability to be flexible and adaptive when facing changes in English learning plans or methods, and be patient with understanding changes in the learning situations (Danes, 2014; Guo & Li, 2022).

Sociability

The term “sociability” refers to collaborating with others, and seeking help from others such as teachers, friends, and classmates (Guo & Li, 2022).

Research Questions and Hypotheses

Based on the purposes of the study, the following research questions were formulated:

Research question 1: To what extent does the English Learning Resilience Scale (ELRS) developed for this study demonstrate construct validity?

Research question 2: To what extent do the factors of planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability predict English learning resilience?

Research question 3: How can English learning resilience predict English learning achievement?

Research question 4: Can English learning resilience mediate the relationship between the six factors (e.g. planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability) and English learning achievement?

The hypotheses of this study include:

H1 The English Learning Resilience Scale (ELRS) developed for this study has construct validity.

H2 Planning, self-control, persistence and continuity in English learning, a growth mindset for English learning, flexibility, and sociability significantly predict English learning resilience.

H3 English learning resilience significantly predicts English learning achievement observed in grades in ESP courses.

H4 English learning resilience mediates the relationship between the six aforementioned factors and English learning achievement.

Methodology

Population and Sample

The population for this study consisted of 1,088 second-year undergraduate students enrolled in English for Specific Purposes (ESP) courses in the second semester of academic year 2023 at a university in Thailand. The ESP courses were: English for Art and Design (School of Architecture and Fine Arts), English for Engineering (School of Engineering), English for Accounting (School of Business and Communication Arts and School of Law), English for Business Management (School of Business and Communication Arts), English for Political Science (School of Political and Social Sciences), and English for Exercise and Sports Science (School of Science).

The sample size for Confirmatory Factor Analysis (CFA) was determined based on Marsh et al.'s suggestion (1998, cited in Chomeya et al., 2024), which recommended that the sample size for CFA with 3-4 indicator variables per factor should be at least $n = 100$ cases. The English Learning

Resilience Scale (ELSR) developed for this study consists of seven factors, with indicators ranging from 3-5 variables per factor. As a result, the CFA sample would include as many as 150 cases.

The sample size for the Structural Equation Model (SEM) was established according to Boateng et al. (2018), stating that to ensure the validity of structural equation model (SEM) analysis which uses the scales developed by various researchers, each item requires at least 10 respondents. To meet the criteria, the sample size for SEM analysis of this study should be 300 respondents or more, since the ELRS consisted of 30 items.

Samples for the CFA and SEM were selected by using the quota sampling method, which was utilized instead of probability sampling due to both the difficulty in accessing so many students from different schools, and time limitations. This method is effective for ensuring proportional representation from each school while maintaining research feasibility (Nikolopoulou, 2023). For the CFA, 150 students were selected from a population of 1,088, and for the SEM analysis, in order to eliminate sample overlap and ensure sample independence, the 150 CFA participants were excluded, and 300 samples were recruited from the remaining 938 students.

The population was divided into strata based on their schools, and the sample size from each school was calculated by using the direct rule of three in mathematics. The sample size for CFA from the School of Architecture and Fine Art should be 22. The sample size of each school is shown in Table 1.

Table 1

Population and Sample Size for CFA

No.	Schools	Population	Sample size
1.	School of Architecture and Fine Arts	162	22
2.	School of Engineering	160	22
3.	School of Business and Communication Arts	385	53
4.	School of Political and Social Sciences	263	36
5.	School of Science	85	12
6.	School of Law	33	5
Total		1,088	150

The population and the sample size for the SEM from each school are presented in Table 2.

Table 2*Population and Sample Size for SEM*

No.	Schools	Population	Sample size
1.	School of Architecture and Fine Arts	135	43
2.	School of Engineering	134	43
3.	School of Business and Communication Arts	336	108
4.	School of Political and Social Sciences	234	75
5.	School of Science	79	25
6.	School of Law	20	6
Total		938	300

English Learning Achievement

English learning achievement in the present study refers to students' grades in ESP courses. Based on the policies of both the English Department where the study was conducted, and an agreement among the lecturers teaching these courses, all ESP courses utilized the same assessment, grading criteria, and grading scales. Students' learning achievements were measured by class participation (10%), assignments (e.g. oral presentation or writing tasks) (20 %), quizzes (20 %), midterm exams (25 %), and final exams (25 %). The grade points were calculated using criterion-referenced grading, and the grading scales were as follows: 80-100 = A, 75-79 = B⁺, 70-74 = B, 65-69 = C⁺, 60-64 = C, 51-55 = D⁺, 50-54 = D, and 0-49 = F. The researcher obtained the students' grade points from the lecturer of each course at the end of the semester after receiving permission to do so from the students and the lecturer.

Measurement Instrument of English Learning Resilience

The instrument for measuring the factors predicting resilience in English learning used in the present study was the English Learning Resilience Scale (ELRS). It was developed based on the synthesis of factors identified in previous studies related to resilience in education and language learning (Danes, 2014; Guo & Li, 2022; Kim & Kim, 2016; Martin & Marsh, 2006; Zarrinabadi et al., 2022). The ELRS was an online questionnaire consisting of seven sub-scales including the six previously identified resilience-related variables of planning, self-control, persistence and continuity in English learning, growth mindset for English learning, flexibility, and sociability, as well as resilience in English learning. The items on the ELRS were adapted from studies by Cassidy (2016), Danes (2014), Guo & Li (2022), Kim and Kim (2016), Martin and Marsh (2006), and

Zarrinabadi et al. (2022) to make them suitable for specifically investigating resilience in English learning of Thai EFL contexts. For example, the item *"I don't let a bad mark affect my confidence"* from Martin and Marsh (2006)'s work was adapted to *"When I get bad scores from English tasks or tests, I do not allow them to affect my confidence in using English to communicate with others. (X6)"*. In order to ensure that all respondents could understand the items and complete the scale in their preferred language, the items were presented bilingually (in English and Thai). The correspondence between the Thai and English meanings of each item was checked by two experts in the English language teaching field.

Both the planning and the self-control sub-scales each contained five items, while persistence and continuity in English learning contained three items, and growth mindset for English learning, flexibility, and sociability each contained four items, while English learning resilience contained five items. In this way, an initial pool of 30 items was generated. All items had a seven-point rating scale in which 1 denoted strongly disagree and 7 denoted strongly agree.

Validity and Reliability of the Instrument

All items in the ELRS were presented in both English and Thai languages. Their content validity was reviewed and confirmed by six experts using the Content Validity Index (CVI). Two experts are in the field of educational psychology. One has taught Educational Psychology for five years, and the other is a psychologist serving as the head of the University's Counselling and Health Promotion Center. Two other experts are from the English language teaching field and have taught English for more than ten years. Finally, the last two experts are in the field of statistics in educational assessment, both having taught statistics for educational research for more than five years. The educational psychology experts focused on psychological constructs, whereas the statisticians considered statistical appropriateness, and the English lecturers helped ensure the appropriateness of each item for measuring the EFL learning experience and the alignment between the meanings of each item in Thai and English.

The criteria of CVI are as follows: 1 indicates irrelevant, 2 denotes somewhat relevant, 3 indicates quite relevant, and 4 denotes highly relevant. An item with excellent content validity should consist of I-CVIs of 0.78 or higher (Shi et al., 2012). The I-CVIs of all items in the ELRS used in this study were 1.0, and the S-CVI was 1.0, indicating very high content validity and agreement among the experts regarding the relevance of each item. This high level of agreement may be attributed to the fact that the items of the

ELRS were adapted from validated instruments of previous studies, which had already undergone rigorous item development and testing. Following the review of content validity, a trial run was conducted with 33 second-year students from the School of Energy and Environment in an English for Specific Purposes course to verify reliability by using Cronbach's Alpha Coefficient, with a resulting value of 0.86 reflecting high reliability.

Data collection

The data were collected in the second semester of academic year 2023 after ethical approval was obtained from the university where this study took place. The initial data for the CFA was gathered from 150 second-year students in English for Specific Purposes (ESP) courses. These students were majors in the School of Engineering, School of Business and Communication Arts, School of Political and Social Sciences, School of Architecture and Fine Art, School of Science, and School of Law. Once the CFA results showed the goodness of fit measure of the ELRS, the scale was distributed to a different group of 300 second-year students taking the ESP courses from six faculties, as described above in "*Population and Sample*" section. Before completing the ELRS, the respondents were informed that their participation was voluntary, and they were given an information sheet briefly describing the research title, objectives, procedures, and the risks associated with participating in the study, and their consent to participate was obtained. The respondents who agreed to take part in the research took approximately 20 minutes to complete the scale.

Data Analysis

The Pearson Correlation Coefficient (r) was used to verify the correlation between variables. The estimation of correlation strength suggested by Plonsky and Oswald (2014) was used as a reference, with 0.25–0.39, 0.40–0.59, and >0.60 indicating weak, moderate, and strong, respectively. Confirmatory Factor Analysis (CFA) was performed to ascertain the validity of items for each variable of the English Learning Resilience Scale (ELRS). The cut-off values were: CFI > 0.90 , TLI > 0.90 , RMSEA < 0.08 , and SRMR < 0.06 (Kline, 2015 as cited in Zarrinabadi et al., 2022). The items with low factor loading (< 0.40) were deleted. Next, structural equation modeling (SEM) was conducted to analyze the path from the predictors of English learning resilience (i.e., planning, self-control, growth mindset for English learning, flexibility, and sociability), and the path from English

learning resilience to English learning achievement (i.e., grade points) of ESP courses. The data analysis was administered using the Mplus program.

Results and Discussion

Reliability Analysis of Measurement Model

In response to research question one, “*To what extent does the English Learning Resilience Scale (ELRS) developed for this study demonstrate construct validity?*”, Pearson Correlation Coefficient and Confirmatory Factor Analysis (CFA) were utilized to determine the construct validity of ELRS.

Table 3

The Results of Pearson Correlation Analysis

Variables	PN	SC	PC	GM	FB	SL	ELR
PN	1.000						
SC	0.349**	1.000					
PC	0.639**	0.469**	1.000				
GM	0.411**	0.360**	0.383**	1.000			
FB	0.316**	0.298**	0.177**	0.510**	1.000		
SL	0.470**	0.437**	0.400**	0.516**	0.768**	1.000	
ELR	0.400**	0.614**	0.479**	0.680**	0.573**	0.404**	1.000

N = 150

As shown in Table 3, the factors of overall planning (PN), self-control (SC), persistence and continuity in English learning (PC), growth mindset (GM), flexibility (FB), sociability (SL), English language resilience (ELR), and English learning achievement were positively correlated to one another. The factors with the strongest correlation were: SL and FB ($r = 0.768$), ELR and GM ($r = 0.680$), ELR and SC ($r = 0.614$), and PN and PC ($r = 0.639$). After determining the construct validity of ELRS, the first-order confirmatory factor analysis was employed; the results of the analysis are presented in Table 4.

Table 4*First-Order Confirmatory Factor Analysis*

Variable	Estimate (Factor loading)	S.E.	t	R ²
PN (Cronbach's alpha = 0.90)				
When I study the English language, I will set clear learning goals to achieve. (X1)	0.787	0.036	22.071**	0.620
I will make an English learning plan to achieve my learning goals that I have set. (X2)	0.799	0.034	23.519**	0.638
I will think about and accept my strengths and weaknesses in English so that I will be able to improve my English skills and achieve my learning goals. (X3)	0.787	0.035	22.190**	0.619
I will use feedback from teachers and classmates to improve my English learning. (X4)	0.841	0.029	28.914**	0.708
I will use my past successes or failures in English learning to motivate myself to learn and improve my English skills. (X5)	0.804	0.034	23.800**	0.646
SC (Cronbach's alpha = 0.62)				
When I get bad scores from English tasks or tests, I do not allow them to affect my confidence in using English to communicate with others. (X6)	0.642	0.051	12.683**	0.412
I believe that I can control my emotions when I have difficulties in learning English. (X7)	0.821	0.030	27.546**	0.673
I can regulate my feelings when I get negative feedback about my English performance from teachers or classmates. (X8)	0.779	0.036	021.795* *	0.607
I believe I am mentally strong when I have English tests or examinations. (X9)	0.777	0.035	22.242**	0.604
I do not allow stress from English classes, assignments, and tests to negatively impact my English learning. (X10)	0.834	0.028	29.348**	0.696
PC (Cronbach's alpha = 0.61)				

Variable	Estimate (Factor loading)	S.E.	t	R ²
I am able to persevere and keep learning English although I am under stress and face difficulties in learning English. (X11)	0.869	0.026	34.044**	0.755
When I have a problem or difficulty in learning English, I carefully consider its cause and try my best to solve it. (X12)	0.817	0.032	25.773**	0.667
I intend to keep learning English in the future even if it is not required by my job duties or my further study. (X13)	0.801	0.033	24.419**	0.641
GM (Cronbach's alpha = 0.85)				
I think that overcoming challenges and barriers in English learning can be an opportunity to improve my English skills. (X14)	0.872	0.049	17.897**	0.760
I believe I cannot change how much talent I have for English learning. (X15)	0.805	0.036	22.445**	0.647
I feel that the necessity to change the learning plan to achieve my English learning goals is a challenge. (X16)	0.485	0.068	7.153**	0.235
I would be very disappointed if I got low scores in English classes. (X17)	0.802	0.036	22.587**	0.643
FB (Cronbach's alpha = 0.64)				
I will not change my learning plans to achieve the English learning goals I have set. (X18)	0.603	0.057	10.536**	0.363
I will try various methods to improve my English skills and achieve my English learning goals. (X19)	0.895	0.019	47.884**	0.801
If it is necessary, I will find a new way to complete English assignments and achieve my English learning goals. (X20)	0.930	0.015	63.955**	0.865
I am patient and able to understand the situations when I must change my English learning plan to achieve my English learning goals. (X21)	0.934	0.014	67.014**	0.872
SL (Cronbach's alpha = 0.90)				
When I face difficulties in English learning, I will seek help from my teachers.	0.747	0.045	16.470**	0.558

Variable	Estimate (Factor loading)	S.E.	t	R ²
(X22) When I face difficulties in English learning, I will seek help from my friends or classmates.	0.713	0.049	14.548**	0.509
(X23) I think asking for help from others, such as teachers, classmates, or friends, is an effective way to learn English.	0.768	0.043	17.741**	0.590
(X24) I do not want to collaborate with my classmates to complete English assignments.	0.809	0.035	23.274**	0.654
ELR (Cronbach's alpha = 0.91)				
(X25) I am determined to learn English although I face difficulties.	0.847	0.025	33.542**	0.718
(X26) I can deal well with pressure in English assignments.	0.887	0.020	43.632**	0.787
(X27) I am good at bouncing back from setbacks in English learning, such as poor scores, and low or failing grades.	0.631	0.051	12.299**	0.399
(X28) I can handle setbacks in English learning, such as poor scores, and low or failing grades.	0.660	0.048	13.640**	0.436
(X29) I believe that I can get through hard times in learning English.	0.833	0.027	30.376**	0.693
(X30)				
Chi-square = 9.107 df = 5 p-value = 0.105				
RMSEA = 0.074 CFI = 0.989 TLI = 0.979 SRMR = 0.021				
N = 150			** $p < 0.01$	

Note. PN, Planning; SC, Self-control; PC, Persistence and Continuity in English Learning; GM, Growth Mindset; FB, Flexibility; SL, Sociability; ELR, English Learning Resilience, ** $p < 0.01$; df, Degrees of Freedom; RMSEA, Root Mean Square Error of Approximation; CFI, Comparative Fit Index; TLI, Tucker Lewis Index; SRMR, Standardized Root Mean Square Residual

Table 4 shows the estimated parameters and statistics of factors that influence resilience. The CFA was evaluated with seven indices including Chi-square, df, p-value, RMSEA, CFI, TLI, and SRMR. The measurement model of the CFA analysis indicated that the 30-item ELRS was consistent with the empirical data based on the goodness-of-fit indices. Goodness-of-fit is defined as the degree to which the suggested model accurately captures the real data gathered from participants. In other words, it shows whether the

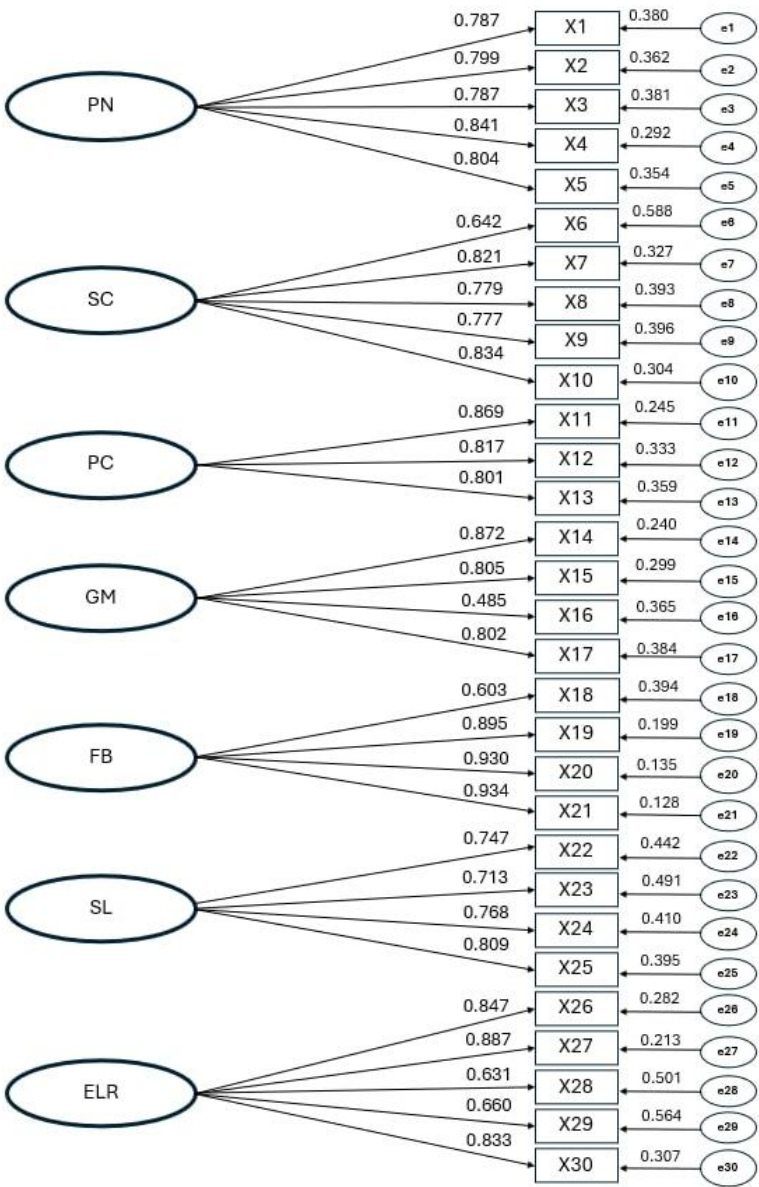
items in the ELRS appropriately capture students' responses. A good fit implies that the components and items in the scale are arranged to accurately reflect the underlying structure of the construct being measured.

In this study, the analyses of Chi-square (9.107), df (5), and p-value (0.105) showed no statistical significance, suggesting the model fits well with the data. Moreover, the values of RMSEA (0.07) and SRMR (0.021), which indicate the amount of error in the model, were close to zero, further reflecting a good model fit. Also, the CFI (0.989) and TLI (0.979) values, which show how well the model fits the data compared to a model where the items are not connected, were above 0.95, indicating the model's high degree of fit. All values of these indices showed that either the goodness-of-fit measures or the measurement model fit the empirical data well (Kaplan, 2000), thereby indicating that the ELRS accurately assesses the target elements of English learning resilience.

Moreover, Cronbach's Alpha Coefficient values (Hair et al., 2010) showed that the reliability of the seven sub-scales was at both high and very high levels (Planning = 0.90, Self-control = 0.62, Persistence and Continuity in English Learning = 0.61, Growth Mindset = 0.85, Flexibility = 0.64, Sociability = 0.90, English Learning Resilience = 0.91). Furthermore, factor loading of all items of the ELRS (X1 – X30) was positive and statistically significant at 0.01, and there was no item with low factor loading (< 0.40). Factor loading demonstrates the degree to which each observed variable and its corresponding latent factors are related. High factor loading indicates the effectiveness of the items in measuring the intended construct (Hair et al., 2019). Therefore, the items on the ELRS appeared to have construct validity and were efficient for measuring all factors of resilience included in the scale. As a result, hypothesis one was accepted. The measurement model of the ELRS is demonstrated in Figure 1.

Figure 1

The Measurement Model of the ELRS



This study builds on a synthesis of emerging literature in the field of resilience and language learning resilience as the framework for ELRS development. The scale developed for this study comprises significant factors

of resilience that have been frequently mentioned in previous studies, and all items in the scale were adapted from previous research. Based on the related literature (Cassidy, 2016; Danes, 2014; Guo & Li, 2022; Kim & Kim, 2016; Martin & Marsh, 2006; Zarrinabadi et al., 2022), six factors included in ELRS are essential characteristics for resilient people, namely, planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability. These vital components were borne in mind in developing and proofing the ELRS and its construct validity, making it a useful tool for measuring learners' resilience in English learning.

Structural Equation Modelling Results

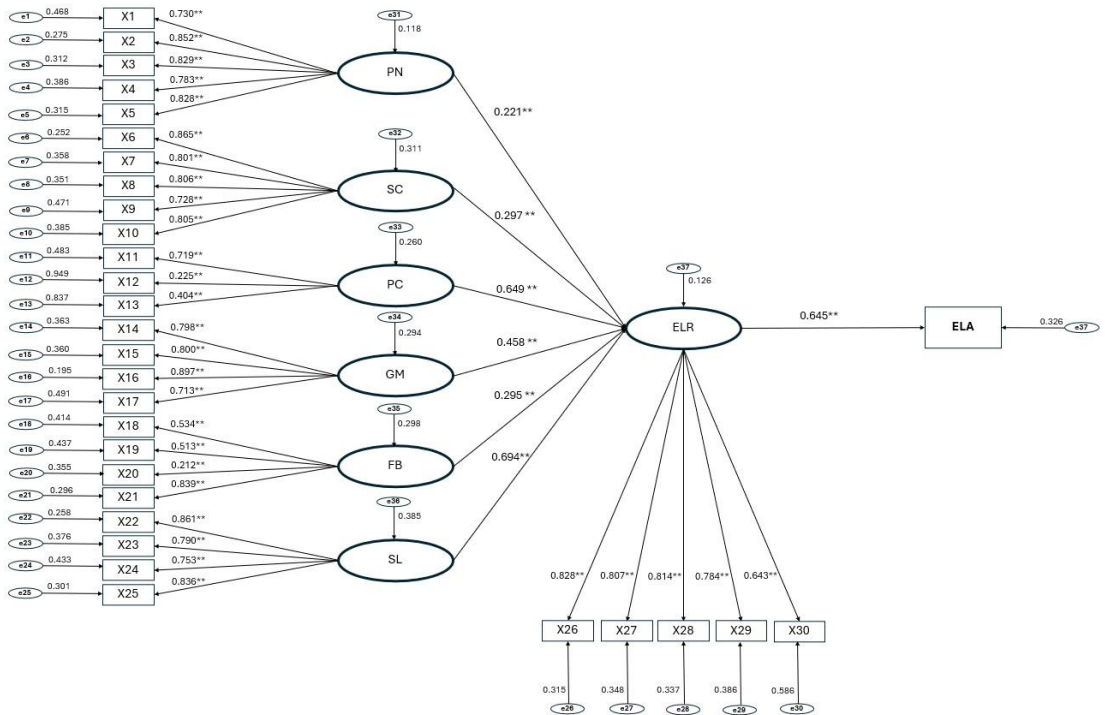
In response to research question two, "*To what extent do the factors of planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability factors predict English learning resilience?*", the Structural Equation Model (SEM) was analyzed to determine how the six factors can predict English learning resilience. The results of the SEM analysis are exhibited in Table 5 and Figure 2.

Table 5

Structural Equation Modeling

Model Fit Indices	χ^2 / df	p-value	RMSEA	CFI	TLI	SRMR
Result	2.079	0.101	0.064	0.986	0.943	0.029
Suggested	<3	>0.050	<0.100	>0.090	>0.090	<0.100
Evaluated	Good	Insignificant	Good	Good	Good	Good

Based on the results presented in Table 5, it was found that Structural Equation Modeling was consistent with the empirical data of model fit. The value of χ^2 /df (2.079) and the p-value (0.101) were not statistically significant, although the values of RMSEA (0.064), CFI (0.986), TLI (0.943), and SRMR (0.029) met the criteria for goodness of fit measures. According to Kaplan (2000), for data to yield a good fit, RESEA and SRMR values should be as close to zero as possible, and the values of CFI and TLI should be higher than 0.90. Additionally, factor loading indicated that the six factors can positively predict students' English learning resilience, as shown in the results of the SEM which revealed the link between the six factors and English learning resilience. This result meant that research hypothesis two was accepted. The structural equation modeling (SEM) is depicted in the following Figure 2.

Figure 2*Structural Equation Model*

The results of the Structural Equation Modeling (SEM) analysis were consistent with several previous studies of resilience. Martin and Marsh (2006) found that planning could predict academic resilience. This finding was confirmed by Magno (2010) who stated that the ability to plan and manage time in learning is a personal function that enables learners to reach academic goals. Guo and Li (2022) emphasized that planning is a positive strategy included in metacognitive resilience, which is one factor facilitating foreign language learning.

Self-control is considered a crucial element of academic resilience since it enables learners to set and achieve academic goals by dealing with learning difficulties (Collie et al., 2015). Learners with high degrees of self-control can regulate their thoughts, feelings, and emotions when encountering problems in learning (Kim & Kim, 2016). Studies on self-control have reaffirmed that self-control has a significant effect on students' academic achievement. The higher the self-control, the higher the academic outcomes students gain (Galizty & Sutarnia, 2021). This has been echoed by Atai et al. (2021) who claimed that self-regulation directly, positively, and

significantly affected learners' resilience. Learners with self-regulation would plan and monitor their learning, and they would consider their achievement and enhancement to be based on trying and utilizing strategies under their control. As a result, they felt that they could control their learning situation.

Persistence and continuity in English learning is one factor shown to predict academic resilience (Martin & Marsh, 2006), and the variance analysis by Cassidy (2016) has shown that persistence in learning is the most important factor in academic resilience insofar as persistence is related to motivation in English learning. This factor has been shown to have a high correlation with English proficiency, as learners with this element of resilience tend to continue trying to overcome adversities or challenges caused by English learning (Kim & Kim, 2016). Moreover, it is evident that determination to continue learning an L2 is related to growth mindset in second language learning (Zarrinabadi et al., 2022).

Growth mindset in English learning entails positive thinking when faced with disappointment, obstacles, and changes (Danes, 2014; Guo & Li, 2022; Zarrinabadi et al., 2022). Zarrinabadi et al. (2022) found that growth mindset in language learning significantly predicted resilience. Resilient learners possessing a growth mindset who believe in their ability to improve their language skills tend to consider challenges and obstacles in positive ways and as lessons in life, and perceive that changes bring opportunities to their lives (Danes, 2014; Zarrinabadi et al., 2022). Guo and Li (2022) have confirmed growth mindset as a cognitive mechanism under metacognitive resilience with a high impact on foreign language learning.

Flexibility is related to one's ability to adapt to new demands when facing changes of plans or methods for English learning, and to understand and tolerate changing situations patiently. Path coefficient analysis in Guo and Li's (2022) study revealed that flexibility had a high impact on resilience in foreign language learning. Danes (2014) has described how flexible learners view changing plans as a controllable process and feel empowered and encouraged during changing periods by realizing their strengths and weaknesses as well as internal and external limits. Hence, they handle changes well by adapting to them.

Sociability is another common factor with a high impact on language learning resilience (Kim & Kim, 2018; Guo & Li, 2022). Kim and Kim (2016) explained that resilience in language learning connects to social relations with others such as friends and classmates. Kim and Kim (2018) highlighted how relationships with others are important for handling difficulties and challenges in life. When learners realize human-relational and social resources that can assist them, such as emotional support from parents and teachers, they are more able to overcome learning obstacles.

To answer research question three, “*How can English learning resilience predict English learning achievement?*”, the link between English learning resilience and English learning achievement was analyzed, and the results of the SEM are shown in Table 6.

Table 6

Direct Effect for Structural Equation Modeling

Parameter	Estimate	SE	p-value
Direct effects of English learning resilience on English learning achievement			
ELR → ELA	0.645**	0.051	0.000**

As seen in Table 6, SEM analysis reflected the link between English learning resilience and English learning achievement. English learning resilience significantly predicted English learning achievement at $p < 0.01$ with the direct effect size 0.645; therefore, research hypothesis three was accepted.

Resilience consists of several positive psychological traits, as can be seen from this and previous studies. Six characteristics (i.e., planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability) are frequently included as elements of resilience. When language learners possess these characteristics, they tend to have greater endurance to cope with adversities, as well as heightened ability to handle unexpected changes and setbacks in their language learning (e.g., low scores and negative feedback from peers or teachers). Additionally, they tend to have greater problem-solving ability such as asking for help or seeking emotional support from parents, friends, or teachers. These traits enable resilient learners to gain more positive learning achievements.

The results of this study are in agreement with several previous studies by Bittmann (2021), Dwiastuti et al. (2021), Xu and Feng (2024), and Zarrinabadi et al. (2022). A longitudinal study of university students by Bittmann (2021) has shown clearly that students with high resilience obtained significantly greater positive learning outcomes and tended to have lower dropout rates than those with low resilience. Other studies found that resilient learners were better able to deal with stress, control negative feelings, and balance their emotions even during hard times in language learning. As a result, they could more easily achieve learning goals and gain greater learning outcomes (Xu & Feng, 2024; Zarrinabadi et al., 2022). The results of linear and logistic regression analyses in the study by Dwiastuti et al. (2021) also reflected that academic resilience had an impact on academic performance by

showing a strong correlation between–high academic resilience and high academic performance.

On the other hand, the present study has presented results that are somewhat different from the previous study by Garcia-Martinez et al. (2022), who reported finding no direct effect of resilience on academic achievement. However, these researchers found that the indirect relationship between resilience and academic achievement was discovered through the self-concept mediator. Students at the tertiary level with high resilience tended to do better in handling difficulties in learning, as they better understood the value of the effort needed to put into study time. The discrepancy between the findings of the present study and those of García-Martínez et al. may be attributed to different study contexts. While the previous study investigated students' resilience and learning achievement in general education subjects, the present study specifically focuses on resilience in English learning within ESP courses. This contextual difference highlights the importance of examining resilience within specific academic domains. In the case of ESP, Dou et al. (2023) suggest that materials and content be goal-oriented, aligning with the specific needs of specific fields. Therefore, learners might encounter unique challenges such as terminology in a specific domain or task-oriented communication.

In response to research question four, “*Can English learning resilience mediate the relationship between planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability factors, and English learning achievement?*”, indirect effects of the six factors of English learning achievement through English learning resilience were examined. The results are shown in Table 7.

Table 7

Indirect Effects on Structural Equation Modeling

Parameter					Estimate	SE	p-value
Indirect effects of six factors on English learning achievement through English learning resilience							
PN	→	ELR	→	ELA	0.143**	0.080	0.000**
SC	→	ELR	→	ELA	0.190**	0.042	0.000**
PC	→	ELR	→	ELA	0.419**	0.041	0.000**
GM	→	ELR	→	ELA	0.295**	0.073	0.000**
FB	→	ELR	→	ELA	0.191**	0.042	0.000**
SL	→	ELR	→	ELA	0.448**	0.041	0.000**

The results presented in Table 7 suggest that English learning resilience acts as a mediator between the six factors and English learning

achievement (i.e., students' grade points in the English for Specific Purposes courses). These factors significantly and positively showed indirect effects through English learning resilience to English learning achievement at $p < 0.01$. The indirect effect size of each factor, in descending order, was sociability (0.448), persistence and continuity in English learning (0.419), growth mindset (0.295), flexibility (0.191), self-control (0.190), and planning (0.143). Therefore, research hypothesis four was accepted.

The results of this section revealed that the sociability factor had the strongest indirect effect on English learning achievement compared to other factors. Possibly, in ESP courses, students had to encounter challenges of terminologies and specific needs of communication in specific fields. Therefore, asking for help or support from teacher or classmates when facing difficulties or stress could enhance their learning. These results aligned with studies by Fang et al. (2020) and Xu and Feng (2024). Fang et al. (2020) found that academic resilience fully mediated teacher support and moderately mediated peer support on students' academic achievement. Support from teachers, peers, parents, and others is categorized under the sociability factor. Xu and Feng (2024) reported that a growth mindset could notably improve English learning achievement. Students with a growth mindset, including increased motivation and excitement for learning, perceived that they could gain English proficiency on their own, regardless of their age or circumstances.

Conclusion

The present study has developed the English Learning Resilience Scale (ELRS) with 30 items consisting of seven variables including the characteristics of planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, sociability, and English language resilience. These variables were drawn and developed from several previous studies, and content validity was verified by six experts using CVI. Next, internal consistency and reliability were tested and examined by using Cronbach's Alpha Coefficient. The scale was then administered to 150 students enrolled in various English for Specific Purposes (ESP) courses, and the responses were analyzed to determine the relationship between the variables in the scale by use of the Pearson Correlation Coefficient. The results indicated that all variables in the scale were positively correlated. In addition, Confirmatory Factor Analysis (CFA) results showed that the goodness of fit indices indicated construct validity. Once construct validity had been established, the scale was administered to 300 students enrolled in ESP courses to gather further data for the Structural Equation Model (SEM). The SEM analysis revealed that planning, self-control, persistence and

continuity in English learning, growth mindset, flexibility, and sociability factors could positively and significantly predict English learning resilience. Furthermore, English learning resilience significantly predicted English learning achievement as represented by students' grade points in the ESP courses. Additionally, indirect effect tests discovered that English language resilience mediated the relationship between planning, self-control, persistence and continuity in English learning, growth mindset, flexibility, and sociability factors and English learning achievement.

Recommendations

Recommendations for Instruction

The six factors included as sub-scales in the ELRS could comprise essential elements of English learning resilience to cultivate English learning achievement, particularly in ESP contexts. To achieve this goal, English teaching and learning activities in ESP courses should foster both characteristics of resilience and domain-specific English language skills concurrently. For example, in an ESP writing class, a teacher might focus on the writing process rather than the final product. One such method would be to start with setting reasonable timelines for completing writing tasks and guiding students to develop plans for writing assignments such as searching and brainstorming the topic and relevant ideas with classmates, and developing an outline of the writing task. The teacher could inform students that changing the topic and revising the paper outline is possible as long as students can finish the task in time, and they can ask for help from the teacher and peers whenever they want. Also, the teacher could give positive reinforcement together with constructive feedback for errors and weak points in students' work, and provide them with opportunities to revise and edit their work without a reduction in score. Such practices can help students understand that mistakes and revisions are part of the learning process, thereby reinforcing resilience traits such as planning, emotional regulation, adaptability, peer interaction, and a growth mindset—traits that are especially valuable in professional and academic English contexts.

Limitations and Recommendations for Further Study

The present study utilized quota sampling to ensure that the population from different ESP courses was represented in the right proportions. Despite such benefits, quota sampling is a non-probability approach, so the generalizability of the results may be limited. The absence of random selection may have resulted in selection bias, and the findings may

not be entirely representative of all students in similar circumstances outside of the ESP courses in this study. However, since the resilience scale employed in this study underwent a strict process of creation and validation, future research would benefit by using this tool when studying resilience in ESP or other academic settings. This will create consistency among research and enhance comparability of results, as well as increase understanding and improvement of educational initiatives that focus on resilience.

Additionally, further research could employ qualitative methods such as in-depth interviews to collect data from students in ESP courses who exhibit resilience. Such interviews might ask students about their behaviors and strategies for coping with difficulties in ESP learning contexts. Authentic data from the interviews could be used as catalysts for developing teaching and learning activities for a specific English context that stimulate learners to apply their strategies to foster academic resilience, and further study could examine the effectiveness of those activities in promoting students' resilience in ESP learning.

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