Language anxiety symptoms, self-efficacy and willingness to communicate among Malaysian university students

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ABSTRACT

Oral communication anxiety is a persistent challenge for university students, especially in multilingual settings where English is not the primary language. This study examined the relationships between communication apprehension symptoms, self-efficacy, and language anxiety among Malaysian undergraduates, using Imagined Interaction Theory as a theoretical framework. A total of 358 students from a public university in Sarawak completed a questionnaire, and the data were analysed using SmartPLS structural equation modelling. Descriptive findings revealed elevated levels of language anxiety (M = 3.88, SD = 1.25) and cognitive distress (M = 3.71, SD = 1.28) among respondents. The results indicated that cognitive (β = 0.266, p = 0.001) and physical symptoms (β = –0.137, p = 0.054) significantly predicted higher language anxiety and lower self-efficacy (cognitive: β = 0.186, p = 0.006; physical: β = 0.31, p = 0.000). However, behavioural symptoms showed no significant impact on self-efficacy (β = 0.015, p = 0.786). Self-efficacy did not mediate the effect of anxiety symptoms on language anxiety (p > 0.1 for all paths), but willingness to communicate in English significantly moderated the relationship between self-efficacy and language anxiety (β = –0.084, p = 0.073). These findings suggest that internal cognitive-affective experiences are more influential than outward behaviours in shaping communicative confidence. The study highlights the need for targeted pedagogical strategies, including mental rehearsal and cognitive-behavioural techniques, to support students in managing communication anxiety. Implications are particularly relevant for multilingual educational contexts aiming to enhance students' English oral communication competence.

Keywords: Communication apprehension; imagined interaction theory; language anxiety; self-efficacy; willingness to communicate

INTRODUCTION

Oral presentation skills are crucial for the professional and educational growth of university students, especially in Malaysia, where English is the second language for many. In Malaysia, English is taught as a second language for 11 years, from Primary One to Six, and Form One to Form Five. Students typically take the *Sijil Pelajaran Malaysia* (SPM) or Malaysian Certificate of Education examination at the end of Form Five, which is equivalent to the O-Level. The medium of education is Malay, and English is a compulsory subject. Many students who enter university lack confidence in their spoken English skills because of the school's emphasis on rote learning and limited opportunities for authentic communicative practice (Pragash et al., 2020). However, English language proficiency gives graduates a competitive edge, according to the Malaysian Education Blueprint

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2012-2025. As a result, students face both institutional and societal pressure to demonstrate proficiency in English, which exacerbates the psychological and affective demands of academic speaking tasks. Malaysia was ranked third among Asian countries on the "English Proficiency Index" (Kameke, 2024). Low English proficiency intensifies speaking anxiety among university students as they experience apprehension about learning within an academic environment (An et al., 2022). Regardless of developmental level or age, behavioural and emotional changes are experienced by individuals with communication anxiety (Baroi et al., 2020).

Given the increasing pressure on students to perform in English academic settings, it is essential to examine the psychological and emotional factors that influence their communicative behaviours. Specifically, communication apprehension (CA), self-efficacy, and willingness to communicate (WTC) have emerged as key constructs in understanding language anxiety. The following sections elaborate on the symptoms of CA, its theoretical foundations, and its relationship to self-efficacy and WTC. Together, these constructs provide a comprehensive framework for understanding how internal psychological processes influence students' English language proficiency and their readiness to engage in oral communication tasks.

Communication Apprehension and Symptoms
Communication Apprehension (CA) is characterised by anxiety or fear associated with prospective or actual social communication. Bárkányi (2021) defined anxiety as the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system. CA has several dimensions, including cognitive symptoms such as negative thoughts, physical symptoms such as trembling, and behavioural symptoms such as avoidance. Anxiety in communication influences one's behaviour, reasoning, and thinking, which results in depression (Amir et al., 2022). Students who experience CA often engage in negative imagined interactions, such as anticipating linguistic errors or communication breakdowns, which heighten anxiety and fear of failure before speaking tasks. CA manifests through physical symptoms (e.g., sweating, trembling, rapid heartbeat), behavioural symptoms (e.g., avoiding speaking tasks, remaining silent in class), and cognitive symptoms (e.g., negative self-evaluation, worry about making mistakes) (Gardner & MacIntyre, 1993; Horwitz et al., 1986; Kyriacou, 2001). These symptoms intensify learners' apprehension and increase the likelihood of language anxiety. In educational contexts, CA can be alleviated with teacher support and interventions (Kho & Ting, 2023). CA is also a strong predictor of

language anxiety among EFL learners (Malik et al., 2021). Cong and Li (2022) further highlight that CA is strongly associated with negative emotional states such as anxiety, stress, and low self-confidence, which lower learners' self-efficacy and ultimately hinder their language proficiency. Students with high levels of CA often avoid participating in oral communication as a way to prevent criticism, embarrassment, or scrutiny from instructors and peers (Horwitz et al., 1986; MacIntyre & Gardner, 1991). Consequently, CA contributes to higher levels of language anxiety among EFL learners (Nasir et al., 2023). These findings provide the basis for examining whether the physical, behavioural, and cognitive symptoms of CA are significantly related to language anxiety, as proposed in our three hypotheses.

H1: Physical symptoms of CA are significantly related to language anxiety among university students.

H2: Behavioural symptoms of CA are significantly related to language anxiety among university students.

H3: Cognitive symptoms of CA are significantly related to language anxiety among university students.

Imagined Interaction Theory
The imagined interaction theory has been used to understand CA among people before and after COVID-19 (Sealy, 2021) and public speaking anxiety among participants (LeFebvre et al., 2021). Specifically, this theory highlights how negative imaginings can exacerbate fears related to language use, whereas positive imaginings can enhance language performance. Imagined interactions are the conversations individuals envisage having before or after actual communication. According to the theory, rehearsing the anticipated conversation can potentially impact an individual's anxiety level ((Honeycutt, 2008).

The imagined interaction theory originated from symbolic interactionism (Mead, 1934), cognitive script theory (Kosut, 2012), and dialogue theory (Arnett, 2016). Imagined Interaction Theory posits that individuals mentally simulate conversations in anticipation of actual interactions, a process that influences their cognitive, affective, and behavioural responses (Waggoner, 2024). Over the years, studies have recognised six functions and eight attributes of imagined interactions (Sealy, 2021). These functions included "catharsis, compensation, conflict-linkage, rehearsal, relational maintenance, and self-understanding".

The most significant function of imagined interactions was a rehearsal, which provided an opportunity to reduce language anxiety and other uncertainties associated with CA. Through

rehearsals, individuals can proactively imagine and evaluate the possible outcomes of their communicative interactions (Honeycutt et al., 2015). Internal rehearsals can influence students' speech efficacy and apprehension. It ultimately impacts their actual communication performance and willingness to communicate in English.

Engaging in imagined interactions before and during presentations, where individuals anticipate reactions while rehearsing their performance, can impact their self-efficacy and potentially increase language anxiety. Since engagement in imagined interactions can help alleviate language anxiety among speakers (Honeycutt, 2020), rehearsals can help students enhance their confidence and self-efficacy.

In contrast, negative imagined interactions can result in anxiety, especially if the individuals anticipate unfavourable outcomes. The imagined interactions theory also supports the relationship between CA and self-efficacy by suggesting that mental rehearsals can reduce uncertainties among speakers, leading to enhanced competence and confidence in actual communication situations (Honeycutt, 2020).

Symptoms of Ca and Self-Efficacy

According to Bandura (1997), self-efficacy is the conviction that one can organise and execute specific actions that will result in particular accomplishments. In the academic setting, students who believe in their capabilities can control their actions and influence the impact of events on their lives. CA negatively impacts a speaker's self-efficacy (Schulenberg et al., 2024), suggesting that a learner's self-efficacy can be improved by interventions aimed at reducing CA. Students who experience CA may also have lower self-esteem (Campero-Oliart et al., 2020), which can lead to a diminished belief in their capabilities. Therefore, based on the existing findings, the following hypotheses are proposed:

H4: Physical symptoms of CA influence the self-efficacy of university students.
H5: Behavioural symptoms of CA influence the self-efficacy of university students.
H6: Cognitive symptoms of CA influence the self-efficacy of university students.

Communication Apprehension and Self-Efficacy

It is essential to examine how an individual's perceptions and unique psychological experiences in language learning influence self-efficacy, as research has established a connection between these variables (Bárkányi, 2021; Zhou et al., 2023). A meta-analysis conducted by Zhou et al. (2023) found that students with higher self-efficacy achieved positive results due to their ability to control their emotions and pride.

However, self-efficacy did not influence negative emotions such as shame and hopelessness. Zhou et al.'s (2023) meta-analysis also showed that students with higher self-efficacy developed better strategies to handle challenging tasks and were less anxious. Studies found that learners who have low self-efficacy levels cannot achieve their objectives and therefore experience depression and nervousness while communicating (Cong & Li, 2022), indicating that those with low self-efficacy levels perceive tasks to be more challenging, resulting in high anxiety levels in the context of a foreign language. Studies found that anxious learners often neglect their speaking skills (Tahsildar & KABİRİ, 2019). Based on the imagined interaction theory, individuals who are consistently involved in negative imagined interactions will have lower self-efficacy, significantly increasing their language anxiety. In contrast, positive rehearsals can improve efficacy, thereby mitigating their anxiety. Based on the related findings in the field, the study proposed the following hypotheses:

H7: Self-efficacy mediates the relationship between physical symptoms of CA and language anxiety.
H8: Self-efficacy mediates the relationship between behavioural symptoms of CA and language anxiety.
H9: Self-efficacy mediates the relationship between cognitive symptoms of CA and language anxiety.

Self-Efficacy and Willingness to Communicate in English

Willingness to communicate (WTC) refers to an individual's readiness to engage in communication when given the opportunity. Several studies have focused on the WTC of students, including those by Subramaniam et al. (2021), Tryana and Mahmud (2021), Maryansyah (2019), and Saka and Merç (2021). Previous studies showed that students' willingness to communicate in the English language can be increased with the help of teachers (Chen et al., 2021; Zarrinabadi et al., 2021). However, the students' self-efficacy influences their willingness to communicate and their L2 production (Cong & Li, 2022; Leeming et al. (2024). Wang et al. (2023) reported a statistically significant correlation between WTC and self-efficacy.

However, there is a scarcity of studies investigating the moderating role of WTC on the association between self-efficacy and language anxiety. Qu (2023) also revealed that WTC in English reflected learners' enhanced language proficiency. Furthermore, imagined interactions contribute to a better understanding of this mechanism by indicating that positive imagined interactions can enhance WTC, thus mitigating the

influence of language anxiety when there are high levels of self-efficacy. Therefore, WTC can be hypothesised as a significant construct for moderating the impact of self-efficacy on language anxiety.

The study proposed that:

H10: WTC in English moderates the relationship between self-efficacy and language anxiety.

To date, there appears to be limited research examining the relationship between CA and WTC among Malaysian university students (Md Zaini, 2019; Pragash et al., 2020). Additionally, symptoms related to communication self-efficacy and language anxiety remain underexplored in this context. This study examined language anxiety symptoms, self-

efficacy and WTC among Malaysian university students. The specific objectives of the study are: (1) the influence of physical, behavioural and cognitive symptoms of CA on self-efficacy of university students, (2) the role of self-efficacy as a mediator between the symptoms of CA and students' language anxiety, and (3) the role of WTC in English as a moderator on the relationship between language anxiety and self-efficacy.

METHOD

A quantitative research design was utilised to examine the correlations between CA, self-efficacy, language anxiety, and WTC among university students during oral presentations. Figure 1 shows the conceptual framework of the study.

Figure 1
Conceptual Framework of Study
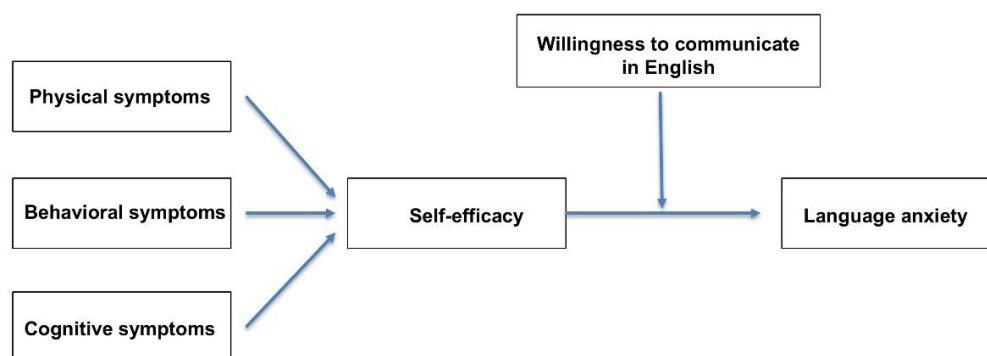
The conceptual model illustrates the psychological and communicative dynamics influencing language anxiety among university students during oral presentations. It is grounded in the premise that CA is a multidimensional construct, composed of three interrelated symptom categories: physical, behavioural, and cognitive. These dimensions serve as antecedents to students' self-efficacy, which in turn affects their experience of language anxiety. The model further integrates the construct of WTC in English as a moderating variable between self-efficacy and language anxiety.

Participants

The participants were undergraduate students enrolled in various degree programmes at a university in Malaysia. They were recruited through purposive sampling, specifically selected because their courses required them to deliver oral academic presentations in English, a key condition that aligns with the study's focus on CA and language anxiety in real academic settings. All participants had experienced English language instruction for at least 11 years in the Malaysian education system and were considered to have intermediate to advanced

English proficiency based on university entry requirements and course demands.

A total of 460 questionnaires were distributed immediately after students completed their course-based oral presentations. Participation was voluntary. Before distribution, students were informed of the purpose of the study, and verbal consent was obtained. No personally identifiable information was collected, ensuring participant anonymity.

Of the 460 distributed questionnaires, 380 were returned. After data screening, 358 valid responses were retained. Inclusion criteria included (1) full completion of the questionnaire and (2) confirmation that the respondent had delivered at least one academic oral presentation in English. Exclusion criteria involved uncertainty regarding the fulfilment of course-related oral presentation requirements. The final sample comprised 200 male students (55.87%) and 158 female students (44.13%).

Instrument

A 46-item questionnaire comprised multidimensional symptoms of CA, including physical, behavioural, and cognitive symptoms (11

self-constructed items), language anxiety scale (21 items adopted from Marwan (2016), WTC scale (5 items adapted from Khatib and Nourzadeh (2015), and the self-efficacy scale (9 items adopted from Paradewari (2017). Next, justifications for the scales are provided. The 11 self-constructed items on the multidimensional symptoms of communication apprehension were designed to capture specific manifestations of CA relevant to oral presentations. The 21-item language anxiety scale, adopted from Marwan (2016), was chosen because it was specifically designed to assess foreign language anxiety among university students, particularly within the Southeast Asian context. The WTC scale emphasises students' proactive engagement in English-speaking tasks. The instrument has been validated in EFL (English as a Foreign Language) contexts, ensuring its reliability and applicability to the Malaysian higher education environment. The Self-Efficacy scale is oriented explicitly toward public speaking scenarios in academic settings, aligning well with the study's focus on oral presentations.

Data Collection

The student participants were recruited by the second and third researchers, who were lecturers at the university where the study was conducted. The researchers informed the students about the purpose of the research and the expectations for their participation. They were notified that their responses would be kept anonymous, as no personal details, such as email addresses, were recorded. The researchers distributed printed questionnaires in person to the students immediately after their oral presentations. Students were given time during class to complete the questionnaire, but were under no obligation to participate. Those who agreed to participate in the questionnaire provided verbal consent at the beginning of the session. To ensure methodological transparency and academic rigour, data were collected immediately following these classroom-based oral presentation sessions.

Data Analysis

The completed questionnaires were collected and coded for analysis using SmartPLS. Exploratory factor analysis (EFA), including the use of a rotated component matrix, was conducted to evaluate data quality and ensure alignment with the constructs under investigation. Factor loadings were assessed against the accepted benchmark of 0.70. All items exceeded this threshold, confirming adequate construct validity and no significant cross-loading issues (see Table 1). Descriptive statistics indicated that all constructs were measured on comparable scales, with moderate central tendencies and some variability. Consistent sample sizes across variables suggest complete data coverage for all participants (Table 1).

Table 1
Descriptive Statistics

	N	Mean	Std. Deviation
Self_Efficacy	312	3.4748	1.07216
Willingness_to_Communicate	312	3.4994	1.09439
Physical_Symptoms	312	3.4974	.93781
Behavioural_Symptoms	312	3.4701	1.11815
Cognitive_Symptoms	312	3.7094	1.28265
Language_Anxiety	312	3.8831	1.25182

As shown in Table 1, language anxiety recorded the highest mean score (M = 3.88, SD = 1.25), indicating that respondents experienced elevated levels of anxiety during English oral communication. Cognitive symptoms followed with a relatively high mean (M = 3.71, SD = 1.28), suggesting significant mental distress associated with speaking tasks. Physical symptoms (M = 3.50, SD = 0.94) and behavioural symptoms (M = 3.47, SD = 1.12) were also present, reflecting somatic responses and avoidance tendencies. In contrast, both self-efficacy (M = 3.47, SD = 1.07) and willingness to communicate (M = 3.50, SD = 1.09) were rated at moderate levels, suggesting a balanced but not highly confident perception of communicative competence. All constructs were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These descriptive results provide essential contextual grounding for interpreting the structural model and the hypothesised relationships among communication apprehension symptoms, self-efficacy, and language anxiety.

Subsequently, a rotated component matrix and Exploratory Factor Analysis (EFA) were conducted to assess the construct validity of the measurement items. Factor loadings were evaluated against the threshold of 0.70. All items exceeded this benchmark, confirming strong item loadings and the absence of significant cross-loading issues. This step was essential to ensure that each item reliably measured its intended latent construct and to validate the internal structure of the measurement model before structural equation modelling. The analysis confirmed that the underlying dimensions of communication apprehension, self-efficacy, and language anxiety were statistically distinct and theoretically coherent. The factor loadings are presented in Table 2.

Table 2
The Factor Loadings of the Items

	BS	CF	LA	PS	SE	WAE
BS1	0.918					
BS2	0.73					
BS3	0.926					
CF1		0.988				
CF2		0.989				
CF3		0.991				
LA1			0.345			
LA10			0.628			
LA11			0.721			
LA12			0.742			
LA13			0.672			
LA14			0.709			
LA15			0.672			
LA2			0.368			
LA3			0.396			
LA4			0.406			
LA5			0.575			
LA6			0.715			
LA7			0.711			
LA8			0.706			
LA9			0.708			
PS1				0.893		
PS2				0.889		
PS3				0.896		
PS4				0.882		
PS5				0.864		
SE1					0.962	
SE2					0.98	
SE3					0.985	
SE4					0.988	
SE5					0.994	
SE6					0.984	
SE7					0.993	
SE8					0.996	
WAE1						0.954
WAE2						0.934
WAE3						0.945
WAE4						0.945
WAE5						0.921

BS: Behavioural Symptoms, CF: Cognitive Symptoms, LA: Language Anxiety, PS: Physical Symptoms, SE: Self-Efficacy, WAE: Willingness to Communicate in English

Table 2 displays the factor loadings for each measurement item across its respective constructs. All loadings exceeded the recommended threshold of 0.70, confirming strong item-to-construct relationships and supporting the internal consistency of the measurement model. The absence of significant cross-loadings further validates the clean factor structure and distinctiveness of each latent variable.

To assess the reliability and convergent validity of each construct, three credibility measures were calculated: Cronbach's Alpha, Composite Reliability (CR/rho_c), and Average Variance Extracted (AVE). As shown in Table 3, Cronbach's

Alpha values were close to 1 for all constructs, indicating a very high level of internal consistency. For example, the value for self-efficacy (SE) was 0.996. Similarly, the values of composite reliability and rho_a were also consistently high across constructs, confirming strong reliability.

All constructs, except for language anxiety, demonstrated sufficiently high AVE values, exceeding the 0.50 threshold and establishing convergent validity. Although the AVE for language anxiety was 0.386, which falls below the recommended cut-off, the construct was retained based on two considerations. First, its composite reliability and Cronbach's Alpha exceeded 0.70, indicating acceptable internal consistency. Second, all individual item loadings for language anxiety were statistically significant and surpassed 0.50, supporting their contribution to the underlying construct (Hair et al., 2022). Therefore, language anxiety was considered theoretically and empirically justified for inclusion in the model.

Table 3
Reliability and Validity Measures

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
BS	0.83	0.901	0.744
CF	0.989	0.99	0.979
LA	0.877	0.887	0.386
PS	0.931	0.934	0.783
SE	0.996	0.996	0.971
WAE	0.967	0.977	0.883

BS: Behavioural Symptoms, CF: Cognitive Symptoms, LA: Language Anxiety, PS: Physical Symptoms, SE: Self-Efficacy, WAE: Willingness to Communicate in English

Table 3 presents the reliability and validity measures for each construct. All constructs demonstrated high reliability, with Cronbach's Alpha and Composite Reliability values well above the 0.70 benchmark. Average Variance Extracted (AVE) values also exceeded the recommended threshold of 0.50 for all constructs except language anxiety. Despite this exception, language anxiety was retained due to its strong internal consistency and acceptable item loadings. Together, these results affirm the reliability and convergent validity of the measurement model.

To further evaluate the structural model, Variance Inflation Factor (VIF) values were calculated to assess multicollinearity among the predictor variables. VIF values quantify the extent to which the variance of an estimated regression coefficient is inflated due to correlation with other predictors (Hair et al., 2022). The results are shown in Table 4.

Table 4
VIF for the Combined Effect of Moderator and Mediator on the CV

	VIF	Effect
BS -> LA	1.287	Low
CF -> LA	1.962	Low
PS -> LA	1.733	Low
WAE x SE -> LA	1.085	Low

As shown in Table 4, all VIF scores ranged from 1.085 to 1.962, which is well below the critical value of 5.0, indicating that multicollinearity was not a concern in the model and supporting the robustness of the regression estimates in the SEM analysis.

Table 5
HTMT Analysis

	BS	CF	LA	PS	SE	WAE
BS						
CF	0.508					
LA	0.236	0.293				
PS	0.301	0.637	0.118			
SE	0.199	0.385	0.187	0.442		
WAE	0.161	0.281	0.135	0.356	0.789	

BS: Behavioural Symptoms, CF: Cognitive Symptoms, LA: Language Anxiety, PS: Physical Symptoms, SE: Self-Efficacy, WAE: Willingness to Communicate in English

As shown in Table 5, all HTMT values were below the recommended threshold of 0.85, confirming adequate discriminant validity among constructs. For example, the HTMT ratio between Behavioural Symptoms (BS) and Cognitive Symptoms (CF) was 0.508, and between CF and Physical Symptoms (PS) was 0.637, both of which were well below 0.85. Similarly, PS and Self-Efficacy (SE) showed a ratio of 0.442, and Willingness to Communicate (WAE) and PS had a ratio of 0.356, indicating strong discriminant validity. The ratio between WAE and SE was just below the 0.85 threshold, remaining within acceptable limits. These results confirm that the constructs are empirically distinct, which is essential for accurate testing of structural relationships.

Finally, Structural Equation Modelling (SEM) was employed to test both direct and indirect relationships within the conceptual framework. SEM is particularly well-suited for models involving mediators and moderators, as it allows for comprehensive testing of complex relationships. The sample size of 358 students met the statistical requirements for PLS-SEM, ensuring robustness, generalisability, and validity of the findings within similar educational contexts.

RESULTS

The hypothesis testing was conducted using PLS-SEM. The variances for both the dependent variable and the mediator were examined. For language anxiety, the R^2 value was 0.116, indicating that approximately 11.6% of the variance in the dependent variable was explained by behavioural symptoms (BS). For self-efficacy (SE), the R^2 value was 0.206, indicating that BS explained 20.6% of the variance in SE. The results of hypothesis testing for both direct and indirect relationships are presented in Table 6.

Table 6
Hypothesis Testing

	Coefficient	STDEV	T-stat	P values	Result
BS -> LA	0.111	0.059	1.876	0.061	Accepted
BS -> SE	0.015	0.056	0.271	0.786	Rejected
CF -> LA	0.266	0.077	3.459	0.001	Accepted
CF -> SE	0.186	0.068	2.725	0.006	Accepted
PS -> LA	-0.137	0.071	1.929	0.054	Accepted
PS -> SE	0.31	0.064	4.854	0	Accepted
WAE x SE -> LA	-0.084	0.047	1.795	0.073	Accepted
PS -> SE -> LA	0.038	0.035	1.093	0.274	Rejected
CF -> SE -> LA	0.023	0.022	1.059	0.289	Rejected
BS -> SE -> LA	0.002	0.009	0.206	0.837	Rejected

***$p < 0.1$

As shown in Table 6, cognitive symptoms (β = 0.266, p = 0.001) and physical symptoms (β = –0.137, p = 0.054) significantly predicted language anxiety, whereas behavioural symptoms did not. Cognitive symptoms (β = 0.186, p = 0.006) and physical symptoms (β = 0.310, p < 0.001) also significantly predicted self-efficacy. The moderating effect of willingness to communicate (WAE × SE → LA, β = –0.084, p = 0.073) was significant, suggesting that higher WTC reduced the negative influence of low self-efficacy on language anxiety.

However, mediation paths through self-efficacy (H5, H7–H9) were not significant, indicating that self-efficacy did not mediate the relationship between communication apprehension symptoms and language anxiety. Considering the significance threshold of p < 0.1, hypotheses H1, H2, H3, H4, and H6 were supported, while H5, H7, H8, and H9 were rejected. The moderating hypothesis H10 was supported.

As illustrated in Figure 2, the strongest direct path was from physical symptoms to self-efficacy, while cognitive symptoms strongly predicted both self-efficacy and language anxiety. Behavioural symptoms did not show significant effects. The moderating role of WTC between self-efficacy and language anxiety is also visualised, supporting H10.

The structural model also illustrates the direct and indirect relationships among physical symptoms (PS), behavioural symptoms (BS), cognitive symptoms (CF), self-efficacy (SE), willingness to communicate in English (WAE), and language anxiety (LA). Each latent construct was measured by multiple observed indicators, all of which showed strong factor loadings, confirming a robust measurement model.

Model fit indices further confirmed the model's adequacy. The SRMR value was 0.083, which is below the 0.08 threshold, indicating sufficient model fit. The NFI value was 0.859, exceeding the acceptable value of 0.80. Additional indices, including d_ULS (5.399), d_G (1.427), and Chi-square (2760.667), also indicated acceptable levels of model fitness. These results are summarised in Table 7.
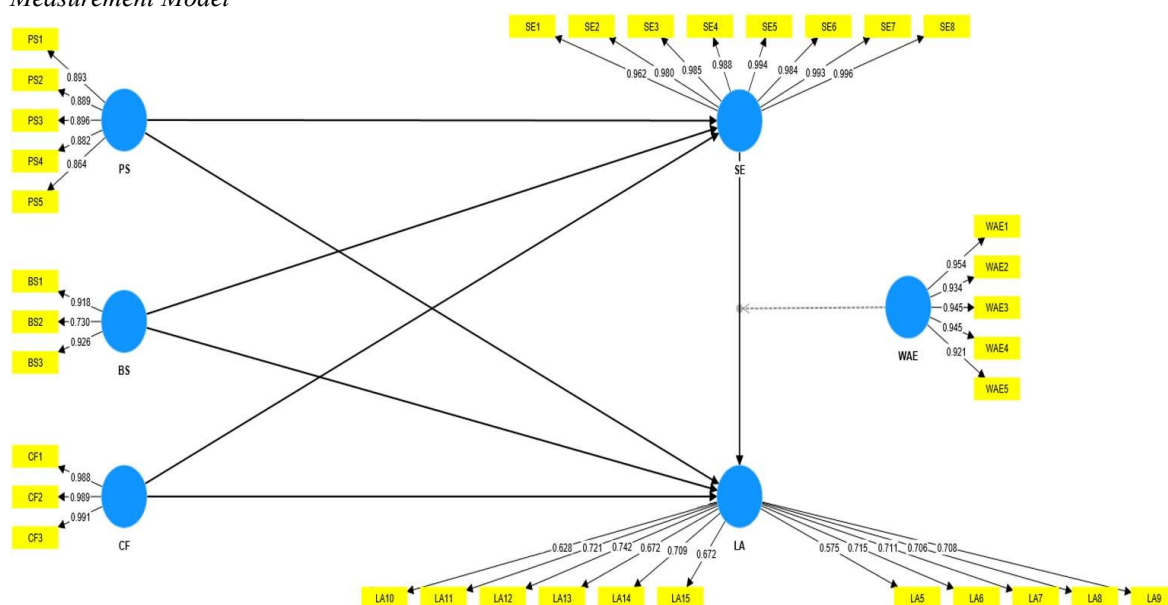
Figure 2
Measurement Model

Table 7
Model Fitness

SRMR	0.083
d_ULS	5.399
d_G	1.427
Chi-square	2760.667
NFI	0.859

As shown in Table 7, the SRMR value of 0.083 was within the accepted cut-off of 0.08, indicating an adequate model fit. The NFI value of 0.859 exceeded the minimum threshold of 0.80, further supporting model adequacy. Additional indices (d_ULS = 5.399; d_G = 1.427; Chi-square = 2760.667) also confirmed that the model provided a satisfactory representation of the observed data. Overall, these results suggest that the proposed structural model achieved an acceptable level of fitness and can be reliably interpreted.

The hypothesis testing results provided several insights. Based on H4, physical symptoms of CA, such as sweating or shaking, were found to reduce students' self-efficacy. According to Imagined Interaction Theory, the anticipation of discomfort leads individuals to envision unfavourable interactions, which in turn undermines their confidence (Constantin et al., 2022). This result suggests that students' self-esteem decreases when they anticipate physical discomfort, causing them to doubt their ability to perform effectively. Similarly, H6 posited that cognitive symptoms of CA, including intrusive concerns and negative thoughts, would undermine self-efficacy. The findings supported this hypothesis, indicating that maladaptive imagined interactions, in which students visualise failure or negative outcomes, reduce their confidence in oral communication (Darmawangsa et al., 2020).

The relationships between language anxiety and the behavioural and physical manifestations of CA were also supported (H1 and H2). Behavioural manifestations included avoidance tendencies, such as reduced eye contact, while physical manifestations included somatic signs such as sweating or an accelerated heart rate. From the imagined interactions perspective, these behaviours align with early negative associations with language use, leading to heightened anxiety and avoidance behaviours (Lou & Noels, 2020). Additionally, H3 revealed a significant link between language anxiety and cognitive manifestations of CA, reinforcing the idea that mental rehearsal of undesirable outcomes exacerbates students' nervousness and undermines their communicative performance.

Importantly, H10 identified WTC in English as a moderating variable in the relationship between self-efficacy and language anxiety. This finding suggests that students who frequently engage in positive imagined conversations about speaking English are more motivated to communicate (Dewaele & Pavelescu, 2021). Such mental preparation for successful communication situations reduces language anxiety while enhancing self-confidence.

In contrast, the mediation hypotheses related to self-efficacy (H5, H7, H8, H9) were not supported. These findings indicate that self-efficacy did not mediate the relationship between CA symptoms (physical, behavioural, or cognitive) and language anxiety. Several factors may explain these non-significant results. First, cultural and educational contexts in Malaysia may influence the relationships differently compared to other settings. Second, the reliance on self-reported data could have introduced biases, including social desirability or inaccurate self-assessment. Third, characteristics of the sample, such as their academic discipline or prior exposure to English, may have shaped their responses. Future research could address these issues by employing mixed-method designs to provide a more nuanced understanding of the interplay among CA, self-efficacy, and language anxiety.

The rejection of H5, H7, H8, and H9 aligns with some existing findings. For example, Girondini et al. (2023) reported that somatic symptoms such as sweating and elevated heart rate were associated with reduced self-efficacy in public speaking. Zhao et al. (2019) highlighted the role of self-doubt and negative thoughts in diminishing communicative confidence, while Hashemi et al. (2020) established a link between CA and physical symptoms of language anxiety. Taken together, these results underscore the complex and multifaceted nature of CA and its impact on both language anxiety and self-efficacy. This study contributes further evidence on how cognitive and physical symptoms play a more central role than behavioural symptoms in shaping university students' communicative experiences.

DISCUSSION
This study offers valuable insights into the relationships between CA, self-efficacy, and language anxiety among Malaysian undergraduates who give oral presentations. By incorporating Imagined Interaction Theory, the findings highlight the cognitive, physical, and behavioural mechanisms that shape students' communicative confidence and anxiety. Overall, the results show that cognitive and physical symptoms of CA are significant predictors of language anxiety and self-efficacy, while behavioural symptoms exerted no considerable influence on self-efficacy. Moreover, WTC emerged as an important moderator, but self-efficacy did not mediate the effects of CA symptoms on language anxiety.

Physical Symptoms of Communication Apprehension and Self-Efficacy
According to Hypothesis H4, students' self-efficacy decreased when they experienced physical symptoms of CA, such as sweating or trembling. This notion is supported by the Imagined Interaction Theory, which illustrates how the anticipation of discomfort can lead to the imagination of unfavourable interactions, thereby diminishing one's confidence. In a study with Spanish adolescents aged 15–17, Constantin et al. (2022) found that self-esteem declined when participants imagined themselves to be physically uncomfortable, leading them to doubt their ability to perform optimally. This finding is in line with the theory that imagined interactions serve as a rehearsal and that negative mental simulations lower self-efficacy by increasing anxiety and fear (Honeycutt, 2010). Furthermore, Honeycutt et al. (2015), studying U.S. university students and adults, found that rehearsal and catharsis are commonly reported features of everyday imagined interactions, indicating that these mental simulations are frequently used for stress management and preparation for communication. Therefore, the negative physical symptoms that the students experienced are likely due to these imagined interactions, perpetuating a cycle of anxiety and diminished self-efficacy. LeFebvre et al. (2021), in a study involving U.S. undergraduates using virtual reality for public speaking tasks, also found that positive imagined interactions reduced physical discomfort and improved communicative performance. Therefore, physical manifestations like dry mouth can be reduced while also enhancing their communication skills and perceived efficiency.

Cognitive Symptoms of CA and Self-Efficacy
Hypothesis H6 stated that cognitive symptoms of CA, such as preoccupation and negative thoughts, are associated with low self-efficacy. According to Imagined Interaction Theory, maladaptive imagined interactions, in which students envision failures or negative outcomes, can lead to cognitive dysfunction. Darmawangsa et al. (2020) examined first-year Indonesian university students learning French as a foreign language and found that CA was linked to negative thought patterns and fear of negative evaluation. These factors weakened their self-confidence and self-efficacy.

Edwards et al. (1988), studying U.S. college students, similarly reported that imagined interactions often involved self-determined dialogues in which individuals mentally prepared for negative scenarios. This rehearsal of negative outcomes exacerbated anxiety and impaired cognitive function, thereby lowering self-efficacy.

Armstrong (2020) conducted a pilot study with U.S. second-language university students, finding that negative imagined rehearsals reduced motivation and self-confidence, whereas positive rehearsals improved communicative outcomes. Hypotheses H1 and H2 established a relationship between linguistic anxiety and the behavioural and somatic manifestations of CA, such as palpitations and avoidance of eye contact. Lou and Noels (2020), who investigated lower-proficiency ESL

students in Canada, found that language anxiety reinforced avoidance behaviours, consistent with the Imagined Interaction Theory. These findings support the assertion that maladaptive imagined interactions reinforce anxiety and withdrawal from communication.

Behavioural Symptoms of CA

Although behavioural symptoms of CA, i.e., avoidance of eye contact, speech hesitation, or reluctance to participate, were observed among students (M = 3.47), they did not significantly predict self-efficacy. It suggests that while such avoidance behaviours signal discomfort, they are not primary drivers of communicative confidence.

Research supports this interpretation. McCroskey and Richmond (1991) describe avoidance as a coping strategy employed in response to anxiety, rather than a root cause of low self-confidence. Similarly, Pittig et al. (2020) document a bidirectional relationship between avoidance behaviour and conditioned fear, indicating that avoidance is often an outcome, not an antecedent, of anxiety. These findings align with broader theoretical models, which view behavioural symptoms as outward manifestations of inner psychological processes, rather than the source of diminished self-efficacy.

Together, these results suggest that interventions focused only on modifying observable behaviours, such as prompting students to speak more frequently or maintain eye contact, may be insufficient in boosting self-efficacy. Instead, strategies that target internal cognitive and emotional processes like guided imagery, mental rehearsal, or anxiety restructuring may be more effective in addressing the underlying causes of avoidance and enhancing communicative confidence.

Linguistic Anxiety and Cognitive Manifestations of Communication Apprehension

The descriptive results show that language anxiety recorded the highest mean (M = 3.88), followed by cognitive symptoms (M = 3.71), indicating that internalised worry was both prevalent and impactful. In contrast, although behavioural symptoms were present (M = 3.47), their influence on self-efficacy was statistically non-significant, suggesting that while students may avoid communicative tasks, it is their internal thoughts rather than observable behaviours that more strongly shape their sense of competence.

Hypothesis H3 postulated a clear link between linguistic anxiety and the cognitive manifestations of CA. Mentally rehearsing undesirable outcomes increased students' nervousness and hindered their efforts to overcome these feelings. Dewaele and Pavelescu (2021), in a multiple-case study involving EFL learners in Romania and Belgium at both secondary and tertiary levels, found that students who engaged in positive imagined interactions felt more confident and motivated to communicate in English. Honeycutt et al. (2013), studying U.S. undergraduates, found that both the frequency and quality of imagined interactions were significantly associated with communication competence and reduced anxiety.

These findings affirm that the internalisation of fear and cognitive overprocessing, rather than observable avoidance behaviours, serve as the most salient triggers for language anxiety and not only confirm the central role of cognitive symptoms in CA as reported in prior studies, but also highlight an urgent need for interventions that address the psychological and metacognitive roots of CA. Based on the results, it becomes evident that addressing the internal mental dialogue through structured imagined interaction techniques or cognitive restructuring may yield more significant gains in communicative competence and anxiety reduction than focusing solely on behavioural interventions. Thus, the findings extend the existing literature by providing empirical evidence that cognitive manifestations should be prioritised in anxiety-reduction strategies, especially in multilingual educational contexts such as Malaysia.

Self-Efficacy as a Mediator

The rejection of hypotheses H5, H7, H8, and H9 suggested that self-efficacy does not mediate the relationship between the physical, behavioural, and cognitive symptoms of CA and language anxiety as hypothesised. However, previous research provided several insights into these relationships. For example, Girondini et al. (2023) conducted an experimental study with European adult participants who spoke to cartoon avatars in virtual environments. The study found that self-efficacy declined when participants experienced physical symptoms, such as sweating and increased heart rate, during public speaking.

Similarly, Zhao et al. (2019), who conducted an experimental study with U.S. undergraduate students, reported that negative beliefs about ability significantly reduced students' communication self-efficacy. Hashemi et al. (2020), studying Iranian medical students in English-medium courses, also observed a strong link between CA and language anxiety, supporting the idea that imagined interactions reinforce low self-efficacy and anxiety. Armstrong (2020) further suggested that individuals gain confidence by rehearsing responses to anticipated communication challenges, highlighting that proactive imagined practice can reduce anxiety associated with speech behaviours.

While the present study acknowledges these prior findings, the non-significant mediating role of self-efficacy in this context suggests that its influence may not operate uniformly across all

learner populations or educational environments. One possible explanation is that Malaysian undergraduates may rely more heavily on external validation, social expectations, or academic pressure than on intrinsic confidence when engaging in English-speaking tasks. Alternatively, it may indicate that self-efficacy is more of an outcome than a mechanism in the relationship between CA symptoms and anxiety, particularly in high-stakes, performance-oriented contexts like oral presentations. Therefore, the findings challenge the assumption of a universal mediating pathway and invite future research to explore context-specific or culturally moderated models of self-efficacy in language anxiety. This nuanced perspective contributes to a more realistic understanding of how psychological variables interact within multilingual learning environments.

WTC and Its Moderating Effects
According to Hypothesis H10, WTC in English significantly moderated the relationship between self-efficacy and language anxiety. Specifically, the data indicated that students with higher WTC were better able to buffer the effects of low self-efficacy, resulting in reduced language anxiety. This underscores WTC as a critical psychological resource that can offset internal doubts during high-stakes speaking tasks.

Dewaele and Pavelescu (2021) found that Romanian and Belgian EFL learners at secondary and tertiary levels who engaged in positive imagined interactions reported higher WTC and lower anxiety. Similarly, Honeycutt et al. (2009), studying U.S. college students, found that mentally rehearsing successful conversations increased willingness to participate and reduced anxiety. These findings support the notion that positive imagined interactions can strengthen self-efficacy and promote WTC, thereby mitigating language anxiety.

The present study extends previous research by examining these relationships among Malaysian undergraduates giving oral presentations in English. Unlike earlier studies by Lee and Hsieh (2019) and Rahmania (2020), which examined self-efficacy, communication apprehension (CA), and WTC in isolation, this study highlights how WTC operates within a broader psychological framework that encompasses self-perceptions and anxiety responses.

Taken together, the findings suggest that WTC not only reflects students' communication readiness but also serves as a psychological amplifier, enhancing the positive effects of self-efficacy and mitigating the impact of internal anxieties. This supports the idea that cognitive interventions such as guided mental rehearsal and confidence-building exercises should be paired with opportunities to build WTC through real or simulated communicative experiences. In doing so, learners

may develop both the mindset and motivation to engage more confidently in academic oral tasks.

CONCLUSION
This study examined the relationships between CA, self-efficacy, and language anxiety among Malaysian university students, with a particular focus on oral presentation tasks. The findings revealed that while language anxiety was significantly associated with cognitive and somatic symptoms of CA, behavioural symptoms showed no significant influence on self-efficacy. Additionally, self-efficacy did not mediate the relationship between CA symptoms and language anxiety, indicating that its buffering effect may not extend uniformly across all symptom domains. These results underscore the importance of tailoring interventions to specific types of anxiety symptoms. For instance, cognitive symptoms such as intrusive thoughts may be best addressed through cognitive-behavioural strategies, while somatic responses like physical tension may benefit from relaxation techniques or mindfulness. The lack of impact from behavioural symptoms on self-efficacy also suggests that internal psychological experiences are more influential in shaping communicative confidence than observable behaviours alone.

The application of Imagined Interaction Theory further enriched the interpretation of these relationships. Negative imagined interactions were found to intensify CA and lower self-efficacy, whereas positive mental rehearsals enhanced students' communicative competence and willingness to speak. These findings support the use of guided imagery and structured imagined interaction exercises as pedagogical tools to help students rehearse successful communication scenarios, reduce anxiety, and build confidence in public speaking tasks. The Malaysian university context adds valuable cultural depth to the theoretical frameworks used. However, this cultural specificity also limits the generalisability of the findings. As such, future studies should examine these relationships across diverse linguistic and educational settings to identify culturally responsive interventions. From a pedagogical standpoint, a multi-pronged instructional approach is recommended. Training programmes should target both psychological (e.g., mental rehearsal, self-efficacy building) and physiological (e.g., relaxation training) aspects of CA. Educators can create supportive classroom environments where students feel safe making mistakes, actively participate, and receive constructive feedback. Low-stakes speaking opportunities and peer mentorship can further reinforce students' communicative competence and confidence.

This study is not without limitations; the focus on oral presentations excluded other anxiety-

provoking contexts such as group discussions or interpersonal conversations. The exclusive reliance on self-reported data, collected immediately after performance, may have introduced bias due to social desirability or heightened emotional states. Additionally, the study's limited geographic scope, which involves only two Malaysian institutions, restricts its broader applicability. Future research should incorporate diverse participant samples and employ mixed methods (e.g., instructor ratings, physiological measures such as heart rate monitoring) to triangulate findings and enhance validity. Longitudinal studies would also be valuable to track how CA and self-efficacy evolve. Evaluating specific intervention strategies, such as peer mentoring or imagined interaction training, can offer further guidance for educators and counsellors. Moreover, future research should explore how individual differences (e.g., personality, communication styles) shape students' apprehension experiences.

In conclusion, this study contributes to a deeper understanding of how internal psychological mechanisms, particularly imagined interactions, influence language anxiety and self-efficacy. By integrating theory, empirical analysis, and pedagogical relevance, it offers a foundation for developing culturally sensitive and psychologically informed approaches to supporting English language learners in high-stakes speaking situations.

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