

The Influence of Cognitive Factors in Public Speaking Anxiety

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DOI: <https://doi.org/10.47772/IJRISS.2025.922ILEIID0030>

Received: 22 September 2025; Accepted: 30 September 2025; Published: 22 October 2025

ABSTRACT

Public speaking anxiety (PSA) is a prevalent challenge that can hinder learners' academic and personal development. This study draws on Bandura's Social Cognitive Theory (1986) and the three-component of PSA model by Bartholomay and Houlihan (2016). Quantitative data were obtained through a four-part survey adapted from Public Speaking Anxiety Scale (PSAS) and completed by 159 undergraduates. Descriptive statistics and Pearson correlation coefficients were used for analysis. Participants experienced the highest cognitive anxiety from fear of forgetting their words, followed by concerns about audience judgment and embarrassment. Behavioural signs, such as handshaking and fidgeting, were moderate. Physiologically, the most prominent self-reported response during speeches was elevated heart rate, accompanied by reduced relaxation. Significant positive relationships were indicated between cognitive factors and both behavioral factors and physiological factors. These findings highlight the dynamic interplay between internal experiences and external expressions of PSA. They also support a framework where cognitive appraisals (SCT personal factors) influence behaviours and physiological arousal (Bartholomay & Houlihan, 2016). The results suggest the need for cognitively focused, theory-informed interventions in public speaking education.

Keywords: public speaking anxiety (PSA), cognitive anxiety, behavioural signs, physiological responses, Social Cognitive Theory, PSA three-component model

INTRODUCTION

Public speaking is a form of oral communication delivered before a large audience, combining both the skill and the art of speaking. To be effective, it requires two key components: the ability to speak and the technique of delivering the speech. For many non-native English students, three major challenges arise—mastering the language, delivering the speech effectively, and building self-confidence. Consequently, speaking in front of others in a formal setting can be quite difficult for them. Developing the confidence to address an audience takes considerable effort. According to Mufanti (2017), factors such as anxiety, fear, shyness, lack of confidence, and discomfort can hinder students' ability to communicate. However, there is no shortcut to success; continuous practice is essential for improving speaking skills and refining verbal communication. Similarly, public speaking refers to the act of delivering a speech to a live audience, involving processes such as preparation, structured organization, and the effective conveyance of a clear and engaging message. It may take various forms, ranging from formal presentations at professional conferences to informal addresses in social settings.

Moreover, public speaking entails the delivery of informative, persuasive, or entertaining messages to large audiences through structured speeches or lectures (Sugiyati & Indriani, 2021). Its fundamental objectives are to convey information, influence perspectives, or provide entertainment. An effective speech should generate a lasting impression by offering meaningful and valuable insights (Dansieh et al., 2021). As a communicative practice, public speaking enables individuals to engage with their communities, disseminate ideas, and address pressing societal concerns. By voicing their perspectives, speakers can initiate change and foster positive outcomes, irrespective of the scale of impact. Furthermore, it serves as a medium for self-expression and empowers individuals to exert personal influence on issues of significance (Lucas & Stob, 2020).

On the other hand, anxiety is a common emotional experience in both humans and other animals. According to Spielberg (1972), anxiety arises from the perception of a threat, shaped by symbolic interpretations, anticipation, and elements of uncertainty. A specific branch of anxiety research focuses on language anxiety, which refers to the stress, fear, worry, and nervousness associated with language use (Horwitz et al., 1986). Zheng (2008) further identifies language anxiety as a challenge linked to psychological factors, including self-belief, self-reflection, and habitual behaviors when speaking outside the classroom environment. Public speaking anxiety (PSA), a form of situational anxiety (Bodie, 2010), occurs when individuals experience fear or apprehension while preparing for or delivering a speech (Taly & Paramasivam, 2020). This anxiety is particularly pronounced when speaking in a second or foreign language.

In Malaysia, research has consistently indicated that undergraduates experience moderate to high levels of public speaking anxiety (PSA), particularly during English oral presentations. Dellah et al. (2020) identified peer pressure, perceived inadequacy in language proficiency, and fear of negative evaluation as key factors contributing to heightened speaking anxiety in classroom presentation settings. More recently, Zabidin et al. (2023) reported that test-oriented speaking situations elicited higher levels of anxiety compared to interpersonal communication, underscoring the severity of this issue within academic environments.

Nevertheless, many individuals continue to experience anxiety related to public speaking. For some, this fear stems from the desire to perform well, while for others, it arises from a lack of confidence in using the language before an audience. Ibrahim et al. (2021) identified both internal and external factors as contributors to public speaking anxiety and emphasized the need for further research on this phenomenon. The present study seeks to investigate the underlying causes of students' public speaking anxiety, with particular attention to addressing cognitive factors, behavioural factors and physiological factors.

Statement of Problem

Public speaking anxiety (PSA) remains a significant challenge for ESL learners in higher education, involving cognitive, behavioural, and physiological components (Syed Abd Rahman et al., 2025). In Malaysia's multilingual context, students report fear of judgment, cognitive interference, and physical discomfort during English oral presentations (Mokhtar, 2025; Ch'ng et al., 2025). Anxiety and confidence levels vary across academic disciplines, suggesting that factors beyond language proficiency, such as task familiarity and academic norms, contribute to the development of PSA (Badrasawi et al., 2021).

Although Syed Abd Rahman et al. (2025) applied the tripartite model of PSA in Malaysian ESL contexts and examined relationships among cognitive, behavioural, and physiological factors, their analysis did not investigate how these relationships are influenced by audience and situational contexts. Such influences, as highlighted by Ye et al. (2024), remain insufficiently explored.

This study builds on the same framework, focusing specifically on learners' perceptions of cognitive, behavioural, and physiological factors of PSA, with particular emphasis on the relationship between cognitive factors and other anxiety components, alongside the influence of self-efficacy and audience context in

Malaysian ESL classrooms. By doing so, it aims to deepen understanding of PSA's multidimensional nature and its effects on students' academic experiences.

Objective of the Study and Research Questions

This study is done to explore factors for public speaking anxiety. Specifically, this study is done to answer the following questions;

- How do learners perceive cognitive factors in public speaking anxiety?
- How do learners perceive behavioural factors in public speaking anxiety?
- How do learners perceive physiological factors in public speaking anxiety?
- What is the relationship between cognitive factors and all other factors in public speaking anxiety?

II. Literature Review

Theoretical Framework of the Study: Social Cognitive Theory and Public Speaking Anxiety

Social Cognitive Theory (SCT), developed by Bandura (1986), provides a comprehensive framework for understanding human behaviour through the interaction of cognitive, behavioural, and environmental factors. According to Ibrahim et al. (2021), SCT explains how both environmental and cognitive influences shape individual behaviour. Central to SCT is the concept of self-efficacy, defined as an individual's belief in their ability to perform a task effectively. This belief significantly influences motivation and learning processes (Zanardi & La Rosa, 2023), which in turn affect performance outcomes (Tafriha & Hasan, 2024).

In the context of public speaking, SCT highlights how confidence in one's speaking ability shapes experiences and social interactions, influencing public speaking anxiety (PSA). Low self-efficacy can increase anxiety before and during speech delivery, whereas high self-efficacy may reduce it. Bandura's triadic model which are personal factors (thoughts and beliefs), behavioural factors (actions and responses), and environmental factors (social context and surroundings) interacts continuously to explain the development and maintenance of PSA. Tafriha and Hasan (2024) note that individuals with low public speaking self-efficacy are more prone to anxiety. Megawati and Apriani (2023) found that students with higher anxiety often demonstrate lower speaking performance, supporting SCT's premise that confidence in ability directly affects outcomes.

Building on SCT, this study also adopts Bartholomay and Houlihan's (2016) three-component PSA model, which conceptualises anxiety as cognitive, behavioural, and physiological. The model informed the design of the Public Speaking Anxiety Scale (PSAS), operationalizing cognitive appraisals (e.g., fear of forgetting words), observable behaviours (e.g., fidgeting, reduced eye contact), and autonomic responses (e.g., increased heart rate, sweating). The alignment between SCT and the PSAS triadic framework ensures conceptual coherence: personal factors correspond to cognitive appraisals, behavioural factors to observable actions, and environmental factors to audience context and situational triggers.

Factors for Public Speaking Anxiety

Public speaking anxiety arises from the interaction of cognitive, behavioural, and physiological factors, each influencing communication effectiveness and overall performance.

Cognitive contributors to PSA include fear of negative evaluation and perceived self-efficacy (Syed Abd Rahman et al., 2025). Fear of negative evaluation refers to anxiety about being judged or criticized by the

audience, which can heighten stress levels (Pike & Raymundo, 2024; Megawati & Apriani, 2023). Grieve et al. (2021) describe PSA as situational social anxiety triggered by actual or anticipated audience evaluation, with cognitive distortions exacerbating anxiety. Situational variables, such as audience size, spatial arrangement, and engagement, further amplify PSA (Ye et al., 2024). Perceived self-efficacy, as highlighted in SCT (Bandura, 1986), regulates anxiety responses, with lower self-efficacy associated with higher PSA (Ahmed et al., 2025).

Behavioural factors reflect how individuals act in response to fear. Avoidance is common, with students often declining speaking opportunities or under-preparing, which reinforces anxiety (Ibrahim et al., 2022). Nervous habits such as fidgeting, trembling, or reduced eye contact are also observed. Audience characteristics, including size and perceived scrutiny, influence behavioural responses, further affecting anxiety levels (Mohd Sobri Paridaluddin et al., 2023).

Physiological reactions are triggered by speech anxiety and often manifest as increased heart rate, excessive sweating, and trembling hands (Taly & Paramasivam, 2020; Huda et al., 2024). These responses are part of the body's fight-or-flight mechanism and can heighten cognitive anxiety, especially when interpreted as signals of impending failure (Megawati & Apriani, 2023). Recurrent physiological symptoms can disrupt communication and create a reinforcing cycle of anticipatory anxiety.

In summary, PSA is influenced by:

- **Cognitive factors:** fear of negative evaluation, self-efficacy, situational audience variables;
- **Behavioural factors:** avoidance, nervous habits, reactions to social context;
- **Physiological factors:** elevated heart rate, sweating, trembling hands.

Understanding these factors is essential for designing targeted interventions to reduce PSA in educational and professional contexts.

Past Studies

Research on public speaking anxiety (PSA) has consistently highlighted the complex interplay of cognitive, behavioural, and physiological factors. Mokhtar (2025) conducted a qualitative study on undergraduates at a Malaysian public university, revealing that students frequently experienced strong emotional reactions, such as nervousness and fear, along with physical symptoms like trembling hands and accelerated heartbeat during both virtual and physical presentations. Ye et al. (2024) employed a mixed-methods approach with 297 students to examine the influence of audience size, engagement, and spatial arrangement on PSA. They identified three main factors: engagement in a large audience, confinement or evaluation anxiety, and audience disengagement, demonstrating that environmental and audience-related conditions significantly affect anxiety levels. Mohd Naser and Mat Isa (2021) investigated 150 undergraduates at UiTM Shah Alam, finding that PSA was moderately prevalent and significantly related to oral presentation performance.

Building on these studies, Ibrahim et al. (2021) examined the causes of fear in public speaking among undergraduate students through the lens of Social Cognitive Theory. The study found that speaking before a large audience was the most influential external factor, whereas personal issues, time preferences, and worry about underperforming were less impactful. Internally, nervousness scored highest, while concerns about physical appearance were least significant. Students also reported strategies to manage anxiety, including creating a positive impression, correcting mistakes mid-speech, and using familiar vocabulary, showing how cognitive, behavioural, and environmental factors interact to shape PSA in line with SCT's triadic reciprocity.

Similarly, Syed Abd Rahman et al. (2025) focused on cognitive, behavioural, and physiological factors among undergraduates. Cognitive challenges included fear of verbal failure and social evaluation, while self-confidence remained relatively low, suggesting that anxiety does not always coincide with low confidence. Behavioural factors were moderate, with trembling voices and shaking hands most frequent, and poor eye contact least common. Physiological responses were the most prominent, with nervousness highest and sweating lowest, illustrating how bodily stress reinforces cognitive anxiety. These findings support the interconnectedness of PSA dimensions and confirm SCT’s relevance in explaining the triadic interaction of personal, behavioural, and environmental factors in ESL contexts.

Overall, these studies indicate that PSA among students arises from a combination of emotional, behavioural, physiological, and situational factors. Audience-related variables such as size, engagement, and spatial layout consistently influence anxiety levels, while cognitive and metacognitive strategies can mediate these effects. The evidence also underscores the moderate prevalence of PSA among Malaysian undergraduates and its direct impact on oral presentation performance, highlighting the need for targeted interventions that address both psychological and environmental dimensions.

Conceptual Framework of the Study

The conceptual framework of the study is presented in figure 1 below. This study is rooted from the social cognitive theory by Bandura (1986). The theory states that people learn by watching others as well by experience. Bandura (1986) states that cognitive factors play an important role in learning. Four cognitive processes are identified and they are attention, retention, motor reproduction and motivation. In the context of public speaking anxiety, this anxiety is a learned cognitive behaviour. A person pays attention to how the audience behaves. This memory then is retained in this mind and their motor reproduction system reacts in terms of behaviour before and during the speech. If the reaction is positive, chances of the presenter enjoying the speech is high. Fear towards presentation is therefore a learned behaviour (Rahmat, 2019).

According to Bartholomay and Houlihan (2016), there are three factors that cause public speaking anxiety. Firstly, cognitive factors refer to the speaker's feeling of nervousness, which may lead to embarrassment in front of the audience. It could also refer to the worry that the speaker has that the audience would think they are not a good speaker. Next, behavioural factors refer to situations such as the speaker having a trembled voice while presenting or even the speaker finding it difficult to make eye contact when they spoke. Finally, physiological factors would mean the speaker sweats during the speech or the speaker not feeling relaxed while giving the speech.

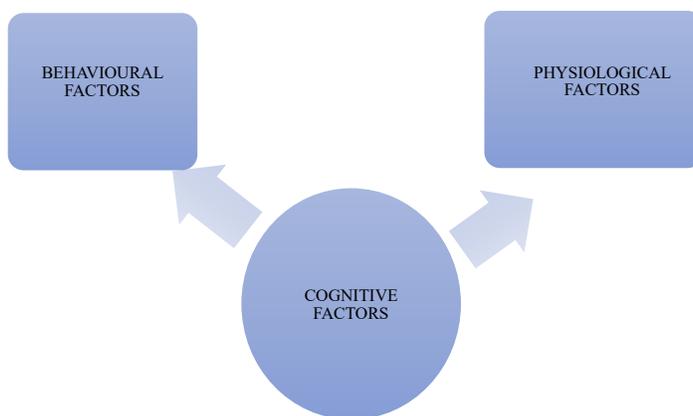


Figure 1- Conceptual Framework of the Study

How do Cognitive Factors Influence Public Speaking Anxiety?

METHODOLOGY

This quantitative study is done to explore the influence of cognitive factors on public speaking anxiety. A convenient sample of 158 participants responded to the survey. The instrument used is a 5 Likert-scale survey. Table 1 below shows the categories used for the Likert scale; 1 is for Never, 2 is for Rarely, 3 is for Sometimes, 4 is for Very Often and 5 is for Always.

Table 1- Likert Scale Use

1	Never
2	Rarely
3	Sometimes
4	Very Often
5	Always

Table 2 shows the distribution of items in the survey. The instrument is replicated from the constructs by Bartholomay and Houlihan (2016) to reveal the variables in the table below. Section B has 8 items on Cognitive factors. Section C has 4 items on Behavioural factors and section D has 5 items on Physiological factors.

Table 2- Distribution of Items in the Survey

NO		VARIABLE	SUB-CATEGORY	Cronbach Alpha
B		COGNITIVE	8	.917
C		BEHAVIOURAL	4	.811
D		PHYSIOLOGICAL	5	.880
		TOTAL ITEMS	17	.948

Table 2 also shows the reliability of the survey. The analysis shows a Cronbach alpha of .917 for Cognitive factors, .811 for Behavioural factors and .880 for Physiological factors. The overall Cronbach alpha for all 17 items is .948 and this shows a good reliability of the instrument used (Jackson, 2015). Further analysis using SPSS is done to present findings to answer the research questions for this study.

RESULTS AND DISCUSSION

Demographic Background

Table 3- Percentage for Demographic Profile

Qs	Demographic Profile	Categories	Percentage (%)
1	Gender	Male	28%
		Female	72%
2	Age	18-20 year sold	26%
		21-23 years old	63%
		24-26 years old	11%
3	Learning Mode	Full Time	92%
		Part time	8%
4	Self-Rating English Proficiency	Can Communicate in English	86%
		Cannot Communicate in English	14%
5	Experience with audience	Yes	91%
		No	9%
6	Trained in Public Speaking	Yes	17%
		No	83%

Table 3 depicts the demographic profile of 158 participants based on gender, age group, mode of learning, self-rated English proficiency, experience with an audience and training experience in public speaking. The majority of the respondents (63%) were aged between 21 and 23 years old and most of them were female (72%). Most respondents were full-time students (92%) who rated themselves as being able to communicate in English (86%). In terms of experience with an audience, a high percentage (91%) reported having such experience, though 83% of the respondents indicated that they had not received any form of training in public speaking.

Findings for Cognitive Factors

This section presents the answer to research question 1: How do learners perceive cognitive factors in public speaking anxiety?

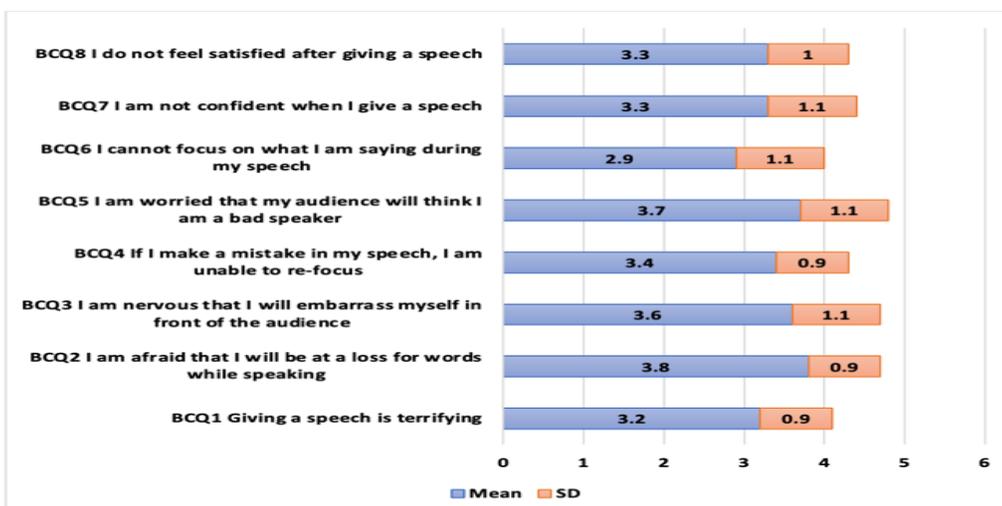


Figure 2- Mean for Cognitive Factors

As displayed in Figure 2, the highest anxiety-inducing cognitive factor was fear of being at a loss for words during speaking ($M=3.8, SD=0.9$), followed by worry about what the audience thinks of their speaking ability ($M=3.7, SD=1.1$) and fear of embarrassing themselves in front of the audience ($M=3.6, SD=1.1$). Learners also reported difficulty refocusing after making mistakes in their speech ($M=3.4, SD=0.9$), while experiencing both a lack of confidence when giving speeches and post-speech dissatisfaction ($M=3.3, SD=1.1, M=3.3, SD=1.0$, respectively). Additionally, learners found giving a speech to be terrifying ($M=3.2, SD=0.9$). The lowest anxiety factor was difficulty focusing on speech content during delivery ($M=2.9, SD=1.1$), suggesting that their fears about speaking may be worse than the actual speaking experience itself.

Findings for Behavioural Factors

This section presents the answer to research question 2- How do learners perceive behavioural factors in public speaking anxiety?

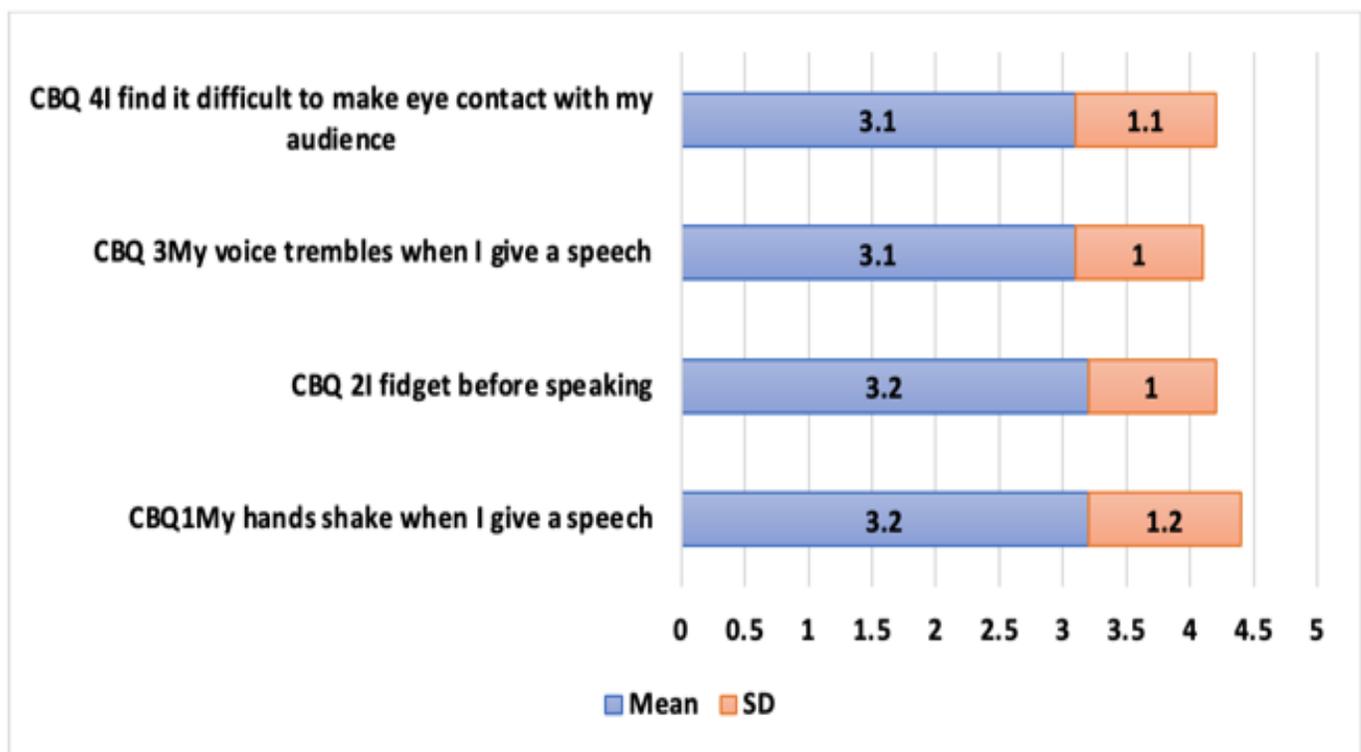


Figure 3- Mean for Behavioural Factors

Figure 3 shows the mean for behavioural factors. Two items share the mean of 3.2. The first is item 1 ($M=3.2, SD=1.2$) which states that the learners' hands shook when they gave the speech. Next is item 2 ($M=3.2, SD=1.0$) and it states that the learners fidgeted before they spoke. Similarly, two items shared the same mean of 3.1. The first is item 3 ($M=3.1, SD=1.0$) which states that the learners' voice trembles when they give the speech. Item 4 ($M=3.1, SD=1.1$) states that the learners found it difficult to make eye contact when they spoke.

Findings for Physiological Factors

This section presents the answer to research question 3- How do learners perceive physiological factors in public speaking anxiety?

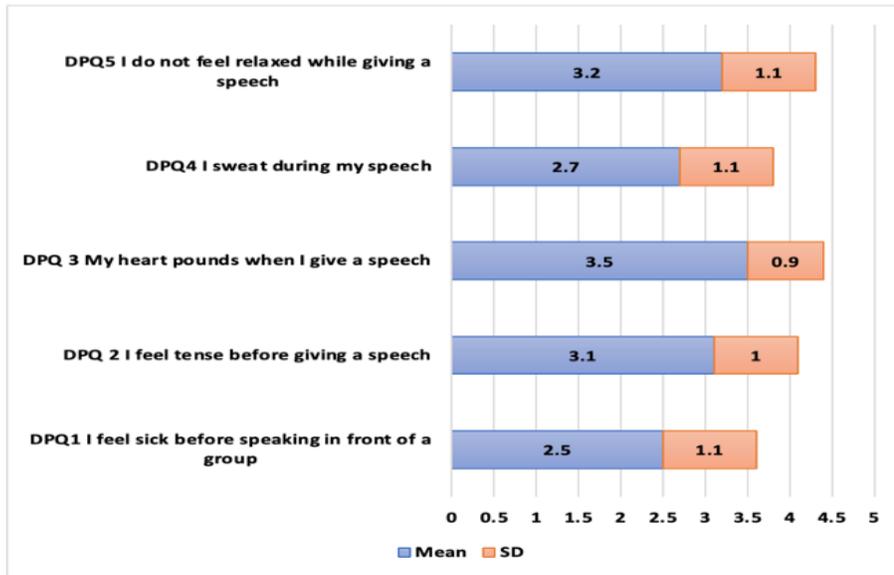


Figure 4- Mean for Physiological Factors

Based on Figure 4, the most influencing physiological factor in public speaking was that learners reported an increased heart rate (M= 3.5, SD=0.9). This is followed by not feeling relaxed while giving a speech (M=3.2, SD=1.1). Next, the tense feeling before giving a speech and sweating while giving a speech also contributed towards the learners’ PSA physiologically with M=3.1, SD=1.0 and M=2.7, SD=1.1 respectively. Lastly, feeling sick before speaking in front of a group was the least frequently reported physiological factor for public speaking anxiety among the learners with M=2.5, SD=1.1.

Findings for Relationship between All Factors in Public Speaking Anxiety

This section presents the answer to research question 4- What is the relationship between cognitive factors and all other factors in public speaking anxiety? To determine if there is a significant association in the mean scores between all other factors in public speaking anxiety, data is analysed using SPSS for correlations. Results are presented separately in table 4, 5 and 6 below.

Table 4- Correlation between Cognitive and Behavioural Factors

		COGNITIVE	BEHAVIOURAL
COGNITIVE	Pearson (Correlation)	1	.773**
	Sig (2-tailed)		.000
	N	158	158
PHYSIOLOGICAL	Pearson (Correlation)	.773**	1
	Sig (2-tailed)	.000	
	N	158	158

Table 4 shows there is an association between cognitive and behavioural factors. Correlation analysis shows that there is a high significant association between cognitive and behavioural factors ($r=.773^{**}$) and ($p=.000$). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between cognitive and behavioural factors.

Table 5- Correlation between Cognitive and Physiological Factors

		COGNITIVE	BEHAVIOURAL
COGNITIVE	Pearson (Correlation)	1	.733**
	Sig (2-tailed)		.000
	N	158	158
PHYSIOLOGICAL	Pearson (Correlation)	.733**	1
	Sig (2-tailed)	.000	
	N	158	158

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

Table 5 shows there is an association between cognitive and physiological factors. Correlation analysis shows that there is a high significant association between cognitive and physiological factors ($r=.733^{**}$) and ($p=.000$). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between cognitive and physiological factors.

CONCLUSION

This study examined learners’ perceptions of cognitive, behavioural, and physiological factors in public speaking anxiety (PSA) and the interrelations among these factors, guided by Bandura’s (1986) Social Cognitive Theory (SCT). SCT posits triadic reciprocity, whereby personal factors (thoughts and beliefs), behavioural factors (actions and responses), and environmental influences (social context and surroundings) dynamically interact. In the context of PSA, cognitive, behavioural, and physiological responses are shaped by both internal processes and the evaluative nature of the audience.

Learners’ perceptions on cognitive factors - audience related emphasis

Cognitive factors were the strongest contributors to PSA, with learners reporting fear of losing words, concerns about audience judgement, and potential public embarrassment. Using the instrument adapted from Bartholomay and Houlihan (2016), these findings align with SCT’s triadic reciprocity, showing how environmental factors such as audience size, seating arrangement, and visible engagement heighten evaluative awareness. This awareness interacts with cognitive biases, including underestimating one’s performance, amplifying anxious thoughts and triggering behavioural and physiological responses (Ye et al., 2024; Cheng et al., 2017). The results highlight the key role of audience-related evaluation and situational cues in shaping learners’ personal cognitions and observable reactions.

Learners’ perceptions on behavioural factors in PSA

Guided by SCT, learners’ observable behaviours reflect the interplay between personal cognitions and environmental cues during public speaking. Learners reported behaviours such as handshaking and fidgeting, reflecting internal cognitive strain, especially in response to audience evaluation. Previous research similarly links these behaviours to cognitive appraisals and anxiety levels (Mokhtar, 2025; Rahmat, 2025; Syed Abd Rahman et al., 2025). These behaviours can become self-reinforcing, as noticing one’s own nervous actions may heighten perceived loss of control, further intensifying anxious thoughts. reactions.

Learners' perceptions on physiological factors in PSA

From an SCT perspective, physiological responses emerge as part of the reciprocal interaction between cognition, behaviour, and environmental triggers. Learners described sensations such as a heavy chest and

reduced relaxation (Mokhtar, 2025). Although physiological measures do not always align with self-reports during speaking tasks (Gallego et al., 2021), these symptoms were connected to audience-focused cognitive apprehensions. Learners appeared more attuned to cognitive and behavioural reactions during performance, yet these were accompanied by physiological arousal consistent with SCT's reciprocal model.

Relationships Between Cognitive, Behavioural, and Physiological Factors

Cognitive anxiety showed strong positive correlations with both behavioural and physiological symptoms, confirming SCT's principle of reciprocal determinism (Bandura, 1986; 1977). Audience-related cognitive concerns acted as a catalyst, fuelling visible anxiety behaviours and physiological arousal, which in turn reinforced negative self-appraisals. This cyclical pattern situates audience awareness as a central, differentiating factor in PSA, extending prior SCT-based findings (Syed Abd Rahman et al., 2025).

These interconnected cognitive, behavioural, and physiological factors, particularly the audience-focused cognitive processes, provide a foundation for discussing the theoretical and conceptual implications of PSA in ESL contexts.

Implications and Suggestions for Future Research

Theoretical and Conceptual Implications

This study reinforces and extends Bandura's Social Cognitive Theory (SCT) (1986, 1997) by applying it to public speaking anxiety (PSA) among Malaysian ESL learners. The study used an instrument replicated from the constructs of Bartholomay and Houlihan's (2016) in their three-component PSA model as the conceptual framework. Findings support SCT's core idea of triadic reciprocity. Strong interactions were observed among cognitive, behavioural, and physiological aspects of PSA, consistent with the theoretical framework outlined in Sections 2.1 and 2.3.

Cognitive anxiety was the most prominent factor. Learners frequently reported fear of forgetting words, concerns about audience evaluation, and potential public embarrassment. Audience-related variables such as size, seating, and engagement heightened evaluative awareness. This aligns with Bandura's (1986) view that the environment shapes cognition and behaviour. While the SCT-based PSA model identifies audience-focused evaluation within cognitive factors, these findings provide empirical support for this mechanism.

In Malaysian ESL learners, audience-focused cognitive concerns clearly influenced behavioural and physiological responses (Syed Abd Rahman et al., 2025; Mokhtar, 2025; Rahmat, 2025; Cheng et al., 2017). Observable behaviours included handshaking and fidgeting. Physiological responses included increased heart rate and reduced relaxation (Mokhtar, 2025). Cognitive biases, such as underestimating one's performance relative to external evaluation (Cheng et al., 2017), reinforced this ongoing cycle of anxiety.

These results confirm SCT's principle of reciprocal determinism (Bandura, 1986, 1977) and show that PSA is a multidimensional, interactive phenomenon rather than a set of isolated experiences. Targeting audience-focused cognitions and self-efficacy could improve both behaviour and physiology. Overall, the findings provide empirical support for the three-component PSA model of Bartholomay and Houlihan (2016), confirming its relevance in explaining cognitive, behavioural, and physiological interactions in Malaysian ESL learners.

Pedagogical Implications

The findings of this study confirm that cognitive factors are the most dominant component of public speaking anxiety (PSA) in ESL students. Therefore, pedagogical interventions should place a primary emphasis on

efforts to reduce cognitive anxiety, especially through training that helps students identify and challenge their irrational beliefs about speaking performance. Integrating cognitive restructuring strategies into communication courses can help students change negative perceptions to a more realistic perspective. In addition, the use of simulated audience situations with varying sizes, positions, and levels of audience involvement can train students to adapt to various levels of stress in a controlled environment. Graduated exposure activities can also be implemented to increase self-confidence or self-efficacy, in line with the concept of Bandura's Social Cognitive Theory, where consistent small success experiences can reduce perceptions of threat. In addition, meta-cognitive reflection practices such as journaling or analyzing speech recordings can help students assess their own strengths, correct misconceptions, and increase awareness of actual achievements versus imagined negative perceptions.

SUGGESTIONS FOR FUTURE RESEARCH

For future research, there are several potential research directions that are still underexplored in the literature. First, studies could focus on the development and evaluation of an intervention module based on Audience-focused Cognitive Reappraisal, which is a method of changing students' cognitive appraisal of the audience from a threat to a source of support. This study could test the effectiveness of the module in reducing cognitive anxiety specifically. Second, the use of virtual reality (VR) technology in controlled cognitive exposure deserves to be explored in more depth. Although VR has been used in public speaking training, there have been few studies evaluating the effects of manipulating audience factors such as audience size, facial reactions, or position on reducing cognitive anxiety in ESL students. Third, longitudinal studies that observe changes in cognitive, behavioral, and physiological factors over time could provide empirical evidence for Bandura's triadic reciprocal model in local contexts. Finally, cross-cultural comparative studies could be conducted to assess whether the perception of audience threat influences PSA to the same extent among ESL students from different cultural backgrounds, or if specific cultural factors have unique effects on the cognitive dimensions of PSA.

ACKNOWLEDGEMENTS

This paper represents a joint effort of all authors, and we gratefully acknowledge each other's contributions to the development, analysis, and writing of this work. We also thank the reviewers for their constructive feedback, which helped improve the final version of the paper.

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