

The Role of Mindfulness in Mediating State-Trait and Foreign Language Anxiety

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Abstract

Issues related to the acquisition of a foreign language can result in negative psychological consequences further hindering the learning of the students. Anxiety among students tends to result in negative outcomes such as poor learning. Accordingly, it becomes crucial to deal with such issues to better foster the learning context of the foreign language. Thus, the purpose of this study was to test the influence of the state-trait anxiety and foreign language anxiety relationship. Additionally, mediating role of mindfulness was also examined. Aligned with the aim of the study positivism research philosophy was adopted and a quantitative-deductive approach was followed. All the variables were measured by adapting the questions from previous studies and a total of 429 students from 32 schools located in the Selangor state responded to the questionnaire distributed. The study results revealed that state-trait anxiety among the students may reduce mindfulness among the school students and it is also found to influence the foreign language anxiety. Further, mindfulness found to be a significant mediator between relationship of state-trait anxiety and foreign language anxiety. The results established that highly mindful students tend to have better learning in foreign language learning as compared to individuals with low mindfulness. From the results, variables showed symbiotic relationships and hence can be used as a model to develop a holistic personality of the learners in the future.

Keywords: mindfulness, state-trait anxiety, foreign language anxiety, test anxiety, communication apprehension

1. Introduction

Anxiety among individuals tends to trigger agitation and distress which can influence the learning process. Notably, many studies have focused on anxiety among young learners particularly in context of the foreign language. Anxiety tends to result in the limited ability of the learners to imagine, conceptualize, be creative, and get the indispensable skills in the 21st century (Cheng, 2023). Generally, anxiety is regarded as a complicated construct that represents the feelings of worry, and fear faced by the individuals. It has been widely studied concerning its association with language skills and writing as well. However, foreign language anxiety is another aspect of the anxiety that is prevalent among students and influences their motivation as well as their dedication to language learning as well. It is worth mentioning that 1/3rd of the learners at some level tend to experience foreign language anxiety. Thus, it becomes imperative to study foreign language anxiety (Rasool et al., 2023) especially, its predictors.

Foreign language acquisition is full of challenges that necessitate effort and focus on language learning anxiety, which may play a significant role in determining the efficacy of foreign language learning (Thomas et al., 2021). Several empirical studies (Bekkouche et al., 2022; C nat et al., 2021; Ngbea & Kwaghgah, 2021) found a greater prevalence of depression, anxiety, and stress symptoms as a result of foreign language acquisition, as well as uncertainty regarding student performance and progress in academics. For example, Pennycook (2017), emphasized that inadequate support for processes relating to the teaching of foreign languages within the Malaysia learning environment, as well as the absence of appropriate teaching mechanisms to aid learning outside the classroom, contribute to students' low levels of motivation and limited proficiency in language learning. Notably, the foreign language anxiety cannot be set aside when the second language acquisition is studied. Anxiety among the individuals tend to limit their learning which is detrimental to the overall learning environment (Gardner 2014). There may be different types of anxieties faced by the students, for instance, trait anxiety, situational anxiety, and state anxiety that ranges from temporary to long-term anxiety types (Kral'ova & Soradova, 2015; Zheng & Cheng, 2018). Trait anxiety is a stable personality characteristic, that persists over time and across various situations. In contrast, state anxiety is a temporary emotional response triggered by specific stimuli, typically lasting for a short duration, such as a few seconds or minutes. Situational anxiety refers to anxiety experienced in response to particular circumstances or events, which may be recurring or temporary (Kral'ova & Soradova, 2015). Both of the anxiety types tend to result in foreign language anxiety among the students. Research in foreign language learning has notably revealed that foreign language anxiety has been a crucial area in applied linguistics (Naser Oteir & Nijr Al-Otaibi, 2019). Therefore, the present study has considered the role of state-trait anxiety towards foreign language anxiety among students.

Mindfulness is another construct considered in the present study. It is important to consider such a concept in the education sector

because it is associated with several positive outcomes and yields the benefits of constructive psychology (Brown & Ryan, 2003). For instance, it aids memorization and well-being resulting in reduced tensions. It usually involves being thoroughly aware of the current moment including the physical, mental, and communal experiences as well (Taylor et al., 2016). The integration of the concept of mindfulness into the education context is important because it has been linked to improved outcomes such as social, emotional, and academic. They also suggested conducting more studies in the context of student mindfulness (Zeilhofer, 2023). A recently conducted study has acknowledged the benefits of mindfulness in reducing anxiety. Additionally, they also suggested conducting more research into the identification of the process regarding mindfulness and anxiety (Xie et al., 2023). Previous literature identifies that mindfulness significantly predicts positive affect. Mindfulness is crucial for happiness and positive mental state or to reduce stress, however, limited knowledge is available regarding how it translates into happiness and reduces stress (Bajaj, Khoury, & Sengupta, 2023). Accordingly, this study also attempts to examine how mindfulness can mediate relationship between state-trait anxiety and foreign language anxiety. Accordingly, the study's purpose is to examine the role of state-trait anxiety toward the foreign language anxiety among the students. Additionally, the study makes a significant contribution to the literature by providing evidence regarding how the students' state-trait anxiety tends to influence foreign language anxiety among the students. Besides, the study offers valuable insights about the role of mindfulness.

2. Literature Review

2.1 State-Trait Anxiety, Mindfulness and Foreign Language Anxiety

State anxiety is the representation of the mental and physical temporary responses directly associated with certain ongoing circumstances. Whereas the trait anxiety represents the individual differences associated with the degree to reflect the state anxiety. State anxiety is temporal and carries unpleasant feelings of tension and restless thoughts (Spielberger, 2019). Whereas trait anxiety is a representation of the personality attributes related to the varying tendency among individuals to suffer from a state of anxiety in a particular situation. In a recent study, Saviola et al. (2020) examined 42 healthy participants regarding their State-Trait Anxiety. The study results revealed that both the males and females have different magnitudes of the state and trait anxiety among them. Individuals with high levels of trait anxiety are prone to getting apprehensive in various settings. A recently conducted study contended that learning English is required and a typical phenomenon that is happening across the globe. However, young students tend to face anxiety while learning English as a foreign language or second language (Shah, 2022). Another study contended that the anxiety among individuals regarding learning a second language or its acquisitions triggers foreign language anxiety (Marlow, 2021). Additionally, the relationships between different states such as delight or worry, and motivational dispositions determine their learning patterns and outcomes (Saito et al. 2018). Accordingly, the present study holds that students with lower state and trait anxiety tend to have lower foreign language anxiety and mindfulness among them. Hence, it is hypothesized that;

H1: There is a significant relationship between state-trait anxiety and mindfulness.

H2: There is a significant relationship between state-trait anxiety and foreign language anxiety

2.2 Mindfulness and Foreign Language Anxiety

Mindfulness as a trait has been linked to various positive outcomes among individuals. For instance, it helps individuals to focus on their present and not indulge in the past moments. Accordingly, a recently conducted study has contended that mindfulness as a personal attribute or capacity is well-acknowledged in the academic context. A lot of benefits in the classrooms involving second language acquisition have been reported. Such that individuals with a score on mindfulness tend to have less foreign language anxiety (Morgan & Katz, 2021). Although mindfulness is practiced by the Chinese public generally, but now it is also becoming popular in other cultures as well (Li et al., 2023; Yiyi & Congcong, 2021). Previously, Mrazek et al. (2013) in their study assessed mindfulness meditation among undergraduate school students, all of the selected students were provided the mindfulness meditation training for two weeks. Later on, the results of the study revealed that the Graduate Record Examination (GRE), is significantly different from the students who did the training and who did not get such intervention. These findings affirm that the students tend to reduce foreign language anxiety due to mindfulness. This may be attributed to the fact that such students tend to be aware of themselves and focus on the present moment without being judgmental (Skelly & Estrada-Chichon, 2021). Cheng (2023) reported that mindfulness among individuals tends to bring positive outcomes such as the capability to focus, being non-judgmental to the events, and improved open-minded thinking as well. Based on the literature presented above the present study holds that mindfulness among the students tends to serve as a coping mechanism for them due to which their anxiety in the foreign language class remains at lower levels as compared to the students who do not have such ability. Therefore, it is hypothesized that;

H3: There is a significant association between mindfulness and foreign language anxiety.

Moreover, foreign language anxiety represents feelings of worry and negative emotional reactions due to difficulties in learning a second or foreign language (MacIntyre & Gardner, 1994). Due to the difficulty in learning the foreign language, it becomes difficult for the student to keep on the academic learning as well. A previously conducted study contended that negative emotions such as anxiety among students are a warning signal for mental health. Under such situations, students may face the anxiety of a foreign language which may potentially impair their learning process (Pekrun, 2014). Accordingly, it is affirmed that students undergoing anxiety and a poor state of mindfulness tend to experience foreign language anxiety. Hence, it is hypothesized that;

H4: Mindfulness is a significant mediator in the relationship between state-trait anxiety and foreign language anxiety.**3. Methods***3.1 Research Design*

The study aims to test the relationship between state-trait anxiety and foreign language anxiety. Additionally, the study also examines the mediating role of mindfulness between the relationship of state-trait anxiety, and foreign language anxiety among secondary school students in Selangor, Malaysia. This study is based on the correlational research design. Such research designs are suitable for research studies where purpose is test relationship between variables without any manipulation. The survey approach was followed because it enables to gathering of data from a widely dispersed population (Saunders et al., 2017). A brief of the research methods is presented in below Figure 2

3.2 Population and Sample Size

The study was conducted in Central Malaysia, particularly in the state of Selangor. Since, it is one of the highly developed states and both the local and foreign companies are working, additionally, resulting a requirement for the English language. Moreover, higher levels of depression, stress, and anxiety are also reported in the West Malaysian states (National Health and Morbidity Survey, 2017).

Therefore, the population of the study was the National Secondary Schools (Sekolah Menengah Kebangsaan) students from Selangor, Malaysia, aged between 13 and 16. The total population is 336,252 (Kementerian Pendidikan, 2022). The sample size was calculated by using the Raosoft Calculator. This calculator is developed to determine sample size and response rate for quantitative studies to accomplish a needed confidence level with a margin of error of usually 5% (McCrum-Gardner, 2010) It has also been used by previous study (Abdulsalim et al., 2023). Since population of study is known therefore it has been used for sample size calculation.

The minimum recommended size of the survey was calculated using Raosoft sample size calculator is 384 with the following settings (Raosoft, 2004):

- 336,252 students in population;
- “5% margin of error”;
- “95% confidence level”; and
- “50% response distribution”.

3.3 Measures

All the measures of the study were adapted from the previously conducted studies. For instance, learner's foreign language anxiety was measured by 33-item measure containing the three dimensions that are (a) Communication apprehension; (b) Fear of negative evaluation; (c) Test anxiety (Horwitz, et al., 1986). It has also been used in Malaysian context (Zulkifli, 2007). A 20-item scale was used to measure the State-trait anxiety among the students. STAI state subscale – items 1 to 10 in the questionnaire and STAI trait subscale – items 11 to 20 in the questionnaire (Spielberger, 1983) validated by a previous study (Bee Seok et al., 2018). Finally, the 10-item CAMM was used to obtain an assessment of present-moment awareness and non-judgmental, non-avoidant responses to thoughts and feelings for 10 to 17-year-old children and adolescents (Greco et al., 2011).

All of the measures were pre-tested before distribution for the data collection.

Following the completion of the questionnaire adaptation process, two (2) questionnaire translation experts (from English to Malay and Malay to English) and five (5) panels of experts for content validity were appointed, who were tasked with evaluating the validity of the instrument content in terms of consistency, the relevance of the item to the concept, relevance of the item to the topic of study and clarity of language, as well as back-translation in the questionnaire.

3.4 Data Collection

A pilot study was conducted before distributing the questionnaires for the data collection. According to Johanson and Brooks (2010), the sample size required for the pilot study was 30 respondents. Therefore, the researcher decided to choose 154 national secondary school (SMK) students, aged 13-16 from different districts in Selangor state. The students who participated in the pilot study are from school settings that have the same characteristics as others in the Selangor state who were not involved in the main survey. After obtaining reliable findings, the main questionnaires were administered. Because of the post-COVID-19 pandemic visitors were restricted in schools to ensure health and safety practices. Therefore, the researcher coordinates all correspondence online or rather virtually and obtains the results through the same channel.

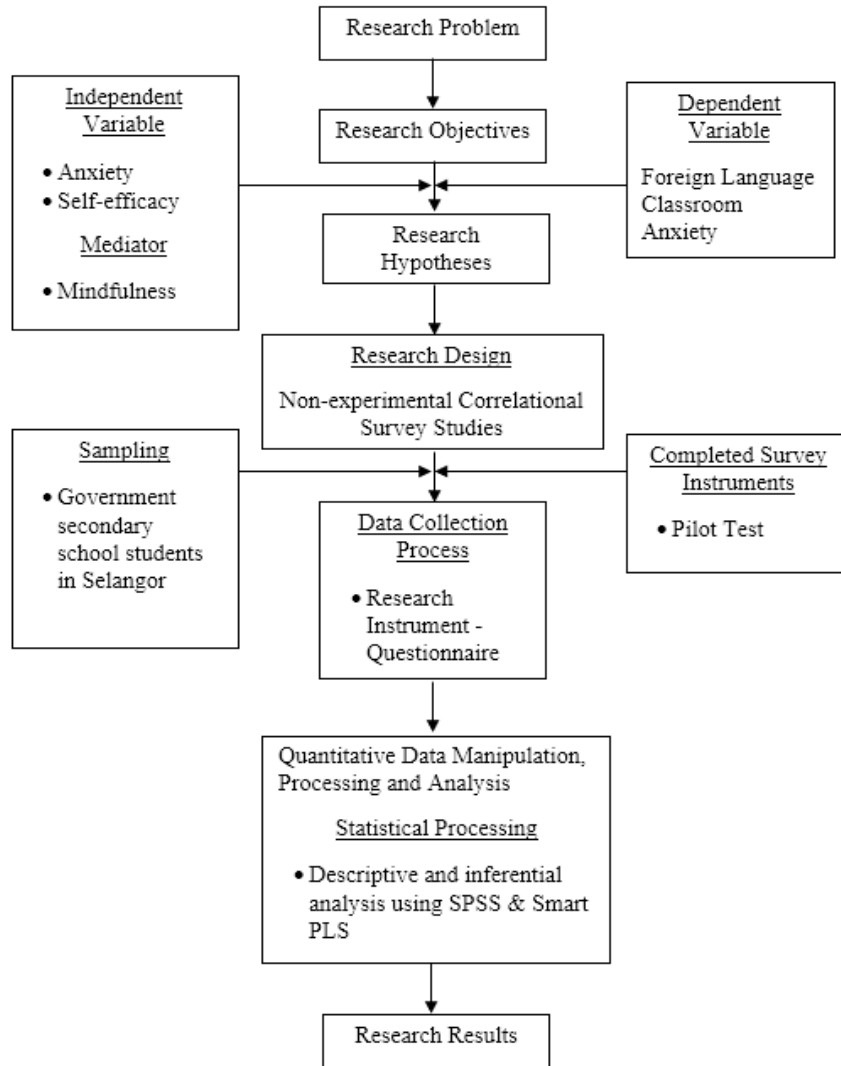


Figure 1. Research Design Process

4. Results

The results are presented in this section. Both the measurement model and structural model was assessed Smart PLS software.

4.1 Measurement Model Assessment

The aim of the study is to test the relationship between the variables instead of developing the new theories, therefore, PLS-SEM has been used for the data analysis. Further, PLS-SEM is used when sample size is relatively small and can handle complex models as well. Additionally, it helps to test the relationship between variables where framework is complex. It contains two-stages of analysis: MMA and structural model assessment (SMA) (Hair et al., 2017). MMA aims to test the association between the variables and their respective questions (Tabachnick & Fidell, 2007). According to Henseler et al. (2009) MMA helps to assess both the convergent and discriminant validity of the model. Therefore, the present study has used the confirmatory factor analysis (CFA) for the assessment of MMA. It was performed to assess the reliability and validity of the constructs considered under this study. The details of the parameters used in the study are provided in this section.

4.1.1 Composite Reliability (CR)

Internal consistency can be assessed using different parameters such as Cronbach’s alpha and composite reliability (CR). The most recent approach for the reliability assessment is CR (Starkweather, 2012). Accordingly, it has also been used in the present study for the assessment of the internal consistency of the variables. Firstly, the factor loadings were assessed for the items included in the present study for their respective variables. Factor loadings shows the relationship of the items with their respective variables. 0.50 is the threshold value for the factor loadings and they should be greater than 0.50 (Hair et al., 2017). All the factor loadings reported in the table 1 are greater than 0.50, hence there is no issue with them (Refer figure 2). All the items having negative or lower loadings. All the

values reported for CR are greater than 0.70, hence they meet their threshold value (Hair et al., 2016). Results reported in table 1 and figure 2 established that there is no issue with the internal consistency of the variables.

4.1.2 Convergent Validity

Average Variance Extract (AVE) is used for assessment of the CV. As per the parameters it is necessary that all the values of the AVE for all the constructs must be greater than 0.5 (Hair et al., 2017; Hair et al., 2014). AVE values are reported in table 1. As per the reported findings, it can be observed that none of the value of AVE is less than 0.5, hence, CV is established for all the variables included in the present study.

Table 1. Confirmatory Factor Analysis

First Order Constructs	Second Order Constructs	Items	Loading	CR	AVE
Communication Apprehension		CA_FLCA15	0.809	0.862	0.516
		CA_FLCA27	0.631		
		CA_FLCA29	0.783		
		CA_FLCA30	0.828		
		CA_FLCA4	0.643		
Fear of Negative Evaluation		CA_FLCA9	0.573	0.867	0.573
		FNE_FLCA13	0.625		
		FNE_FLCA19	0.859		
		FNE_FLCA31	0.772		
		FNE_FLCA33	0.890		
Mindfulness		FNE_FLCA7	0.592	0.893	0.686
		MF10	0.933		
		MF2	0.504		
		MF3	0.924		
		MF7	0.875		
State Anxiety		SA_STA2	0.724	0.897	0.593
		SA_STA4	0.706		
		SA_STA5	0.812		
		SA_STA6	0.827		
		SA_STA7	0.786		
Test Anxiety		SA_STA9	0.757	0.862	0.515
		TA_FLCA16	0.612		
		TA_FLCA20	0.825		
		TA_FLCA21	0.675		
		TA_FLCA25	0.843		
Trait Anxiety		TA_FLCA26	0.721	0.861	0.555
		TA_FLCA3	0.591		
		TA_STA11	0.696		
		TA_STA15	0.661		
		TA_STA16	0.790		
	State_Trait Anxiety	TA_STA18	0.797	0.829	0.907
		TA_STA20	0.772		
	Foreign Language Classroom Anxiety	SA	0.914	0.827	0.926
		TA	0.907		
		FNE	0.930		
		CA	0.902		
		TA	0.862		

4.1.3 Discriminant Validity

Since, multiple constructs are included in the research framework, therefore, it becomes necessary to identify whether all of the variables are different and does not overlap. Thus, the discriminant validity was assessed with denotes to the degree to which the variables are different. According to Henseler et al. (2015) “the heterotrait-monotrait ratio of correlations” (HTMT) can be used for the assessment of the discriminant validity because it is recent approach that also identify if there is no discriminant validity (Henseler et al., 2015). First of all, for discriminant validity all the values should be less than 0.85 (Kline, 2011). Or, the values of HTMT must be lower than 0.90 (Gold et al., 2001). Or in extreme cases it should be less than 1. As per the findings reported in table 2 all the values for the variables meet the HTMT parameters, hence, there is no issues of the discriminant validity.

Table 2. Heterotrait-Monotrait Ratio

	CA_FLCA	FNE_FLCA	MF	SA_STA	TA_FLCA	TA_STA
CA_FLCA						
FNE_FLCA	0.85					
MF	0.185	0.207				
SA_STA	0.408	0.35	0.226			
TA_FLCA	0.919	0.776	0.201	0.383		
TA_STA	0.391	0.436	0.196	0.807	0.393	

4.2 Structural Model Assessment (Inner Model)

Both the reliability and validity was established then structural model was also tested. For testing the structural model PLS-SEM was used by considering bootstrapping procedure with 5000 subsamples. Path coefficients, t-values and p values were assessed to accept or reject a relationship (Ringle et al., 2005).

Table 3 below shows the values for the variance inflation factor (VIF) and explained variance (R²). All the values of the VIF are less than 3 which indicates no issues of the multicollinearity. Additionally, values of the R² are also presented in Table 3 which indicates that the explained variances for MF are low whereas it is higher for STA and valued at 0.551. On the other hand, the explained variance in MF is also higher and valued at 0.556, indicating that variables have captured the variance.

Table 3. VIF and R²

	FLA	MF
MF	1	
STA	1.507	1
	R²	
MF	0.111	
STA	0.551	0.556

Table 4 illustrates the proposed relationship among the study variables. The “structural equation modeling technique (SEM)” was employed, and the path coefficients have been presented in Table 4. The findings revealed that there was a significant association of STA with FLA ($\beta = 0.381, t = 7.878; p < 0.05$), and MF ($\beta = -0.194, t = 4.185; p < 0.05$) thus H2 and H3 were supported. Meanwhile, MF was also significantly related to FLA ($\beta = -0.126, t = 2.737; p < 0.05$), subsequently H1 was also supported. Additionally, the table also shows that MF is a significant mediator between the STA and FLA ($\beta = 0.061, t = 1.869; p < 0.05$). Finally, hypothesis H4 is also supported.

Table 4. Path coefficients

Relationships	Beta	SD	T value	P value	Decision
MF -> FLA	-0.126	0.046	2.737	0.006	Supported
STA -> FLA	0.381	0.048	7.878	0.000	Supported
STA -> MF	-0.194	0.046	4.185	0.000	Supported
STA -> MF -> FLA	0.024	0.011	2.285	0.022	Supported

5. Discussion and Conclusion

The study aimed to test the influence of state trait anxiety on foreign language anxiety in Malaysian schools. Additionally, the study also tested the mediating role of mindfulness in the relationship between state-trait anxiety and foreign language anxiety. Data were collected by using questionnaires from the school students located in Selangor. Data were subjected to PLS-SEM for data analysis.

The study hypothesized a relationship between the STA and FLA. Results posited a positive influence of the STA on FLA. These findings affirm that the students tend to have foreign language anxiety and are already caught up in state-trait anxiety. Findings confirm the existing literature, for instance, a recent study also contended that the English language has emerged to be a compulsory language that is being taught globally. However, young students tend to face anxiety while learning English as a foreign language or second language (Shah, 2022). Besides, another study reported that students having good mental health tend to have less foreign language anxiety (Kasap, 2021).

Additionally, the study also tested the influence of the MF on FLA. The results presented a negative relationship between the MF and FLA. These findings establish that mindfulness results in foreign language anxiety. The findings are consistent with the previous studies. For instance, mindfulness helps to reduce the foreign language anxiety among the individuals (Morgan & Katz, 2021). This may be attributed to the fact that such students tend to be aware of themselves and focus on the present moment without being judgmental (Skelly & Estrada-Chichon, 2021). In a previous study Fallah (2017) mindfulness is used to reduce stress and improve mental health among students. This study also reveals that when students are aware of their present situation, not stuck in their past or future and they are non-judgmental to the events happening they tend to have less foreign language anxiety. The study findings indicate that higher levels of mindfulness among the students affect the foreign language anxiety. It helps to reduce anxiety among students. Moreover, mindfulness is dominant in the Chinese population, and it is being practiced in different cultures so it can be stated as another reason for such results.

Moreover, the mediating role of mindfulness in the relationship between STA and FLA was also tested. The results established mindfulness as a significant mediator between the relationship of the STA and FLA. The reason for such findings can be attributed to the measurement of STA. Since it comprises both the short-run and long-run anxiety, therefore, it is possible that jointly they have resulted in current findings. Additionally, such findings may also occur due to the multidimensional conceptualization and measurement of foreign language anxiety. Overall, the research findings have established that foreign language anxiety exists among school students in Malaysia which needs to be addressed and requires serious initiatives.

5.2 Implications of the Study

The study offers valuable theoretical contributions. The study addressed the key issues of the anxiety among the Malaysian students. By doing so, the study offers valuable insights regarding how such issues can be addressed and better resolved. The study signified the importance of anxiety among the school students. Therefore, the present study informs the school management about the presence of anxiety among the students. Additionally, it offers valuable insights for the key decision-makers in Malaysia's education system that specific changes to the country's education policy are needed to better support students' acquisition of foreign languages.

Globalization has resulted in increased use of the English language and other foreign languages as mandated medium of communication in classes. Therefore, this study's findings are crucial because they facilitate the policymakers and other stakeholders in the Malaysian education sector to better develop an understanding of the main ideological, cultural, and pedagogical elements that may lead to secondary school students' apprehensions regarding foreign language learning.

For alleviation of the foreign language anxiety among students, it is needed to recognize and take the initiative to address the factors that lead to foreign language anxiety. Drawing from the current research conducted in the Malaysian school student context, it is needed that the school management should necessary steps. First of all, the schools can arrange training and awareness sessions about the importance of the foreign language to establish its need and importance for the future career path.

To deal with foreign language anxiety, mental health workshops can be arranged in schools so that students can learn about how to cope with the anxious feelings they face. By increasing the awareness about foreign language anxiety, schools can positively foster the change in the student mindset. Besides, the international student's engagement within the school system of Malaysia will enable communication between the students. All these initiatives can be made possible with the help of the teachers. For this purpose, it is advised that there should be a teacher training program in place so they can better reduce the student's foreign language anxiety.

Drawing from the study's conceptual framework and findings, it is suggested that mindfulness meditation sessions should be arranged for the students so they can better deal with foreign language anxiety. Lastly, the emotional support provided to the students will also enable them to cope with language anxiety. Going further, it will also reduce their state-trait anxiety as well. By implementing these strategies, schools can create a nurturing environment that empowers students to overcome foreign language anxiety and thrive academically and socially.

5.3 Limitations and Future Directions

The study offers valuable future research avenues based on the limitations that are discussed in this section. First of all, the cross-sectional nature of the research study limits its ability to fully capture the variance in foreign language anxiety. Accordingly, it is suggested that future studies should consider longitudinal, experimental, or time-lagged research designs to better understand the factors behind foreign language anxiety. Therefore, these findings should be interpreted with caution. The data were collected from the students in Selangor, Malaysia. However, the study did not include students from other countries such as Saudi Arabia, Pakistan, and Asian countries studying in Malaysia. It would provide valuable insights by conducting a study to compare the foreign language anxiety in both local and international students in Malaysia. Future studies are recommended to use some other sampling techniques. And, it is also suggested that future studies should consider adopting some other methodological approach such as qualitative research or mixed methods that will help to explore more factors and advance the understanding of foreign language anxiety. The study has considered mindfulness as a mediator, therefore, future studies are recommended to consider mindfulness as a moderator from the personality or capability perspective. Malaysia is one of the leading education and tourism countries, so it would be interesting to consider students from other regions to replicate the research framework in future studies to have cross-national insights.

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Authors' contributions

Yin Liang, Chang was responsible for study design and writing paper. Fonyy, Hutagalung was responsible for first revision. Fong Peng, Chew responsible for final revisions. All authors read and approved the final manuscript.

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Data sharing statement

No additional data are available.

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