



Educación XX1

ISSN: 1139-613X

ISSN: 2174-5374

educacionxx1@edu.uned.es

Universidad Nacional de Educación a Distancia
España

Öztürk, Gökhan; Doğan Şahin, Murat; Ölmezer Öztürk, Elçin; Elmas, Belgin
Modeling skill-based foreign language learning anxieties as a single construct
and testing its predictive aspect on foreign language classroom anxiety
Educación XX1, vol. 25, núm. 2, 2022, Julio-Diciembre, pp. 337-361
Universidad Nacional de Educación a Distancia
Madrid, España

DOI: <https://doi.org/10.5944/educxx1.30453>

Disponible en: <https://www.redalyc.org/articulo.oa?id=70672510016>

- Cómo citar el artículo
- Número completo
- Más información del artículo
- Página de la revista en redalyc.org

redalyc.org

Sistema de Información Científica Redalyc

Red de Revistas Científicas de América Latina y el Caribe, España y Portugal
Proyecto académico sin fines de lucro, desarrollado bajo la iniciativa de acceso
abierto

Modeling skill-based foreign language learning anxieties as a single construct and testing its predictive aspect on foreign language classroom anxiety

Modelar las ansiedades de aprendizaje de lenguas extranjeras basadas en las habilidades como una sola dimensión y probar su aspecto predictivo sobre la ansiedad en el aula de lengua extranjera

Gökhan Öztürk ^{1*} 

Murat Doğan Şahin ¹ 

Elçin Ölmezer Öztürk ¹ 

Belgin Elmas ² 

¹ Anadolu University, Turkey

² TED University, Turkey

* Autor de correspondencia. E-mail: gokhanozturk250@anadolu.edu.tr

How to reference this article/ Cómo referenciar este artículo:

Öztürk, G., Şahin, M.D., Ölmezer Öztürk, E., & Elmas, B. (2022). Modeling skill-based foreign language learning anxieties as a single construct and testing its predictive aspect on foreign language classroom anxiety. *Educación XX1*, 25(2), 337-361. <https://doi.org/10.5944/educxx1.30453>

Fecha de recepción: 30/03/2021

Fecha de aceptación: 04/09/2021

Publicado online: 29/06/2022

ABSTRACT

The aim of the current study was two-fold: i) to investigate whether four skill-based foreign language anxiety scales used in the literature can be confirmed as a single construct, and ii) to explore to what extent this potential single construct can explain foreign language classroom anxiety. The participants included 385 Turkish EFL learners in a university context and data collection instruments were four skill-based anxiety scales and the foreign language classroom anxiety scale (FLCAS). The results of the correlated traits and second order analysis revealed that four skill-based anxieties were confirmed as a single scale, referred to here as the skill-based foreign language learning anxiety scale (SB-FLLAS), measuring a latent variable, foreign language learning anxiety (FLLA). In addition, the SB-FLLAS explained these four anxieties with a high predictive degree on the FLCAS at 88%, demonstrated through structural equation modelling. The current study presents this new practical scale, which could be used in the measurement of skill-based anxieties, and suggests several practical and research implications for foreign language anxiety.

Keywords: foreign language anxiety, skill-based anxieties, EFL learners, FLCAS

RESUMEN

El objetivo del presente estudio es doble; i) investigar si cuatro escalas de ansiedad en lenguas extranjeras basadas en habilidades en la literatura pueden confirmarse como un solo constructo, ii) explorar hasta qué punto este solo constructo puede explicar la ansiedad en el aula de idiomas extranjeros. Los participantes incluyeron 385 estudiantes turcos de inglés como lengua extranjera en un contexto universitario y los instrumentos de recopilación de datos fueron cuatro escalas de ansiedad basadas en habilidades y una escala de ansiedad en el aula de idiomas extranjeros (FLCAS). Los resultados de los rasgos correlacionados y el análisis de segundo orden revelaron que cuatro ansiedades basadas en habilidades se confirmaron como una escala única llamada ansiedad por aprender una lengua extranjera basada en habilidades (SB-FLLAS) que mide una variable latente, ansiedad por aprender una lengua extranjera (FLLA), y esta escala única explica en gran medida estas cuatro ansiedades. Además, se demostró un alto grado de predicción de SB-FLLAS en FLCAS mediante el modelado de ecuaciones estructurales y se observó que el 88% de FLCAS se explicaba por SB-FLLAS. Al presentar una nueva escala práctica que podría usarse en la medición de ansiedades basadas en habilidades, el estudio actual finalmente presenta varias implicaciones prácticas y de investigación sobre la ansiedad por lenguas extranjeras.

Palabras clave: ansiedad por lenguas extranjeras, ansiedades basadas en habilidades, estudiantes de inglés como lengua extranjera, FLCAS

INTRODUCTION

Since Horwitz, Horwitz and Cope (1986) demonstrated foreign language anxiety (FLA) as a distinct phenomenon associated with foreign language learning. It has become a research focus in the field of applied linguistics. They defined anxiety as “a distinct complex of self-perceptions, feelings and behaviours related to the classroom language learning process” (p. 127), and the Foreign Language Classroom Anxiety Scale (FLCAS) has been validated as a unique instrument for measuring foreign language classroom anxiety. Numerous studies in this area have been conducted in various contexts with different methodological perspectives.

During late 1990s and early 2000s in particular, a considerable amount of research into FLA developed descriptive foci that aimed to reveal the level of anxiety among EFL/ESL learners and its relationship to certain variables. Some of these studies examined the anxiety level of learners based on their grades, performance and achievement level (Gregersen & Horwitz, 2002; Horwitz, 2001; Pappamihel, 2002; Phillips, 1992) whereas others investigated the issue of gender on foreign language anxiety (Voorhees, 1994; Pappamihel, 2001). The major findings of such studies reveal significant differences between genders, males feeling less anxious compared to their female counterparts, and a negative influence of this difference on learners’ performance and achievement in the foreign language learning process (for a detailed meta-analysis, see Teimouri, Goetze, & Plonsky, 2019).

As findings related to this phenomenon became known, researchers investigating the impact of FLA on certain variables turned their focus on anxiety on a micro level, leading to a better understanding of the language learning process in terms of the tension and apprehension experienced by learners. Together, with the Foreign Language Speaking Anxiety Scale (Young, 1990), the Foreign Language Reading Anxiety Scale (Saito et. al., 1999), the Foreign Language Listening Anxiety Scale (Kim, 2000), and the Second Language Writing Anxiety Inventory (Cheng, 2004) have been used to measure skill-based anxieties in foreign language classrooms. The emergence of such measures not only helped researchers and practitioners gain a micro perspective of FLA, but also enabled them to carry out studies to investigate the relationship between different types of anxieties and other variables. For example, Chow, Chiu and Wong (2018) examined the relationship between foreign language listening and reading anxiety among 306 Chinese undergraduate EFL learners, testing their links with several cognitive and affective factors such as learning strategies and motivation based on regression and mediation analysis. The findings revealed a negative correlation between EFL performance and EFL reading-listening anxiety and “strong evidence that higher levels of reading and listening performances link to lower levels of EFL listening and reading anxieties” (p. 14). In another study, with an emphasis in oral production, Woodrow (2006) aimed to

investigate the impact of ESL speaking anxiety on the oral achievement of English for Academic Purposes (EAP) students and confirmed that speaking anxiety is a significant predictor of oral performance in participants' second language. In a similar vein, Gkonou (2011) investigated the relationship between foreign language classroom anxiety (FLCA) and speaking, and writing anxieties of 128 Greek EFL learners based on quantitative research. The results demonstrated a high and significant correlation between FLCA and speaking anxiety, and confirmed that FLCA and writing anxiety were two related but distinguishable variables.

In addition to these correlational approaches and a rich documentation of findings in the literature, research into foreign language anxiety has recently tended to focus on this phenomenon with a more regressional perspective investigating the inter and intra relationship between skill-based anxieties. For instance, Pae (2013) aimed to examine the relationship between four skill-based anxieties and general foreign language classroom anxiety in the Korean EFL context by testing a set of competing statistical models through chi-square and multiple regression analysis. The results indicate a significant relationship between each of the four anxieties, detecting each anxiety as an independent, "distinctive construct" (p. 249). It has also been demonstrated that each of the four skill-based anxieties contributes significantly to foreign language classroom anxiety (FLCA), confirming the all-existing data in the literature that reveal the relationship between FLCA and one skill-based anxiety. In another study, which aimed not only to measure to what degree the four anxieties are distinct constructs but also to investigate the construct validity of instruments measuring those four anxieties, Apple (2015) used the Rasch model to analyse the quantitative data collected from 315 EFL learners in the Japanese higher education context. Firstly, the analysis confirms that the items of existing foreign language anxiety instruments function well, although need some improvement particularly in the speaking anxiety. In addition, the research applied a similar treatment to participants regarding items in writing-speaking and reading-listening, revealing a distinction between passive input-related skills and active student-output related skills. Finally, Cheng (2017) developed and validated four brief instruments to measure L2 language-skill-specific anxieties in a study involving 523 Taiwanese college students and using a tripartite model of anxiety as the theoretical framework. The items were developed into an item pool after a thorough review of the literature and a focus group interview. Following statistical analyses including exploratory factor analysis, confirmatory factor analysis, and correlational analysis, the study presented "four 9-item scales of L2 listening anxiety (SLLAS), L2 reading anxiety (SLRAS), L2 speaking anxiety (SLSAS), and L2 writing anxiety (SLWAS)" (Cheng, 2017, p. 22) with good psychometric properties.

THEORETICAL BACKGROUND AND THE PURPOSE OF THE STUDY

This research review reveals a clear shift in the development of theoretical and research perspectives on FLA. While initially it was accepted and measured as a unidimensional construct, mostly associated with the speaking component of a foreign language rather than other language skills (Elkhafaifi, 2005), in the last decade, the phenomenon has received more multidimensional perspectives, focusing on the relationship between skill-based anxieties with the help of various modelling strategies (Pae, 2013; Winke, 2014). This multidimensional approach toward anxiety is valid and common not only in mainstream psychological theories of anxiety (Lowe, 2016) but also in the psychological aspects of language learning (Brady, 2019; Kutuk, Putwain, Kaye & Garrett, 2020). The major goal of this theoretical and research stance is to present a solid conceptualization of anxiety with the components it is potentially associated with and the outcomes related to them. Parallel to this, the current study embraces a multidimensional perspective of foreign language anxiety that “views anxiety as a construct consisting of different components triggered by different antecedents and relating to differential performances” (Cheng, 2017, p. 16).

Based on this theoretical approach to anxiety, the current study aims to develop a more holistic measurement tool that presents a multidimensional conceptualization of skill-based anxieties for two major reasons. Firstly, the research trend in recent years has been to consider the skill dimensions of foreign language anxiety through a multidimensional perspective (Cheng, 2017; Kutuk et al., 2020). However, Cheng (2017) generated anxiety-related items based on data from Taiwanese learners. This might include some culture-specific elements. Kutuk et al. (2020), on the other hand, adapted items from a class-related anxiety scale that was not originally developed for language learning and teaching contexts. Considering that developing new items based on a single cultural context or adapting items from another field of study may lead to weaknesses in foreign language anxiety research, the current study aimed to use tools specifically developed for measuring the four skill-based anxieties that have been validated in the literature in order to provide a better understanding of the multidimensional skill-based nature of foreign language anxiety.

Second, researchers examining skill-based anxieties in foreign language classrooms have to navigate a vast range of items and scales, leading to several problems in terms of efficient use of resources. This situation becomes more complicated in terms of the methodological and statistical procedures where those anxieties are studied with multidimensional perspectives: a situation already highlighted by some scholars (Nichols & Webster, 2015; Winke, 2014). For this reason, developing a more concise form of items that is more holistic and practical in the measurement of skill-based anxieties seems to be an urgent need for the

further investigation of foreign language anxiety. To ensure validation of this shortened version of skill-based items, the study compared its predictive power with the Foreign Language Classroom Anxiety Scale (FLCAS), the most commonly-used measurement of FLA in applied linguistics research. Within this scope and purposes, the present study aims to provide a holistic conceptualization of skill-based anxieties in foreign language learning with the purpose of presenting a more practical construct for both classroom and research contexts. The following research questions were addressed throughout the study:

1. a) Can four skill-based anxiety scales be confirmed as a single scale with four sub-dimensions?
b) If confirmed, can these four sub-dimensions explain a single latent variable called foreign language learning anxiety (FLLA)?
2. To what extent can FLLA predict and explain foreign language classroom anxiety of the FLCAS?

METHOD

Participants

The study was conducted at a Turkish state university among EFL students. The participants, who came from different cities in Turkey, were in their first year at university studying a one-year intensive English language program at the school of foreign languages. The program covers all language skills in an integrated way based on a UK publishing company course book series of different levels. Following a placement test, students are placed in different level classes and taught English in line with the content of the course book. The main goal of the curriculum is to improve learners' four language skills so they pass the proficiency exam at the end of the academic year. The exam has three components: a multiple-choice test of reading, listening, grammar, and vocabulary (60%), a writing exam (20%), and a speaking exam (20%). Students who score 60 and over in this four-skill proficiency exam at the end of the year progress to study in their departments, which include business and administration, engineering, tourism, law, etc. The study instruments were administered to 400 students in the program. During the data analysis, 15 students were identified as having missing answers and were eliminated. Thus, the total number of participants was 385; 209 female and 176 male.

Data Collection Instruments

Five major data collection instruments, the Foreign Language Classroom Anxiety Scale (FLCAS), the Foreign Language Listening Anxiety Scale (FLLAS), the Foreign

Language Speaking Anxiety Scale (FLSAS), the Foreign Language Reading Anxiety Scale (FLRAS), and the Second Language Writing Anxiety Inventory (SLWAI), were used in the study. The development of each instrument and information about their reliability and validity is explained below.

The FLCAS was developed by Horwitz, Horwitz and Cope (1986) as a self-report, 33-item scale and has been a standard instrument for years for measuring the level of anxiety experienced by foreign language learners. Developed as a 5-grade Likert scale, the FLCAS was reported to have a reliability of .93 Cronbach Alpha and .83 test-retest over an 8-week period. Horwitz, Horwitz and Cope (1986) reported no confirmatory or exploratory factor analysis findings regarding the scale.

The second instrument, the FLLAS, was developed by Kim (2000) after developing an item pool based on interviews with learners and a thorough review of the literature on listening anxiety and difficulties. The scale has 33 5-graded Likert items, with fear of spoken English, process-related anxiety, lack of self-confidence, and concern about insufficient prior knowledge as sub-categories. The reliability co-efficient of the scale was reported as .93

The FLSAS was developed by Saltan (2003) and includes items from the FLCAS in Horwitz, Horwitz and Cope (1986) and from a questionnaire used by Young (1990). In her dissertation study, Saltan (2003) compiled 18 items that were directly related to speaking anxiety in these two scales and formed the FLSAS as a 5-graded Likert scale with an inner-consistency of .83.

Saito, Garza, and Horwitz (1999) developed the FLRAS as a five-grade Likert scale specifically focusing on foreign language reading anxiety. The original form of the scale was composed of 20 items; however, Kuru-Gönen (2005) reported low factor loadings for two items in her dissertation study and put forward an 18-item version with 85 reliability coefficient.

The last instrument, the SLWAI, was developed by Cheng (2004). The scale contains 22 items categorized under three sub-factors: cognitive anxiety, somatic anxiety, and avoidance anxiety. All the items were in 5-grade Likert format and Cheng (2004) reported 91 of reliability co-efficient.

Data Collection Process

The aforementioned scales of skill-based anxieties (the FLLAS, FLSAS, FLRAS and SLWAI) were compiled in a single format containing 91 items. Together with the FLCAS with 33 items, the number of items participants had to respond to were 124. At this point, the researchers took two important points into consideration. The first was that the research focus had to have a holistic approach to foreign language anxiety that would potentially cover four skills, and the second was that the large number of items might tire participants and they would consequently not

provide reliable and valid responses. It was believed that a shortened version of the scales would better serve research purposes. For these reasons, the researchers formed a team of expert opinion including two English language teaching professors, one applied linguistics assistant professor, one educational psychology associated professor, and one testing and measurement assistant professor. During several meetings and lengthy discussions, the expert opinion team decided to omit certain items which overlapped or referred to the same feeling/emotional state in the skill-based single format scale. The following table shows the final version of the instruments before the data collection process.

Table 1

The number of items omitted/revised in the instruments

The Scale	Items in the original version	Items omitted	Items revised	Items in the final version
FLCAS	33	11	3	22
FLLAS	33	17	4	14
FLSAS	18	6	2	12
FLRAS	18	7	4	11
SLWAI	22	11	3	9

The scales presented in Table 1 were incorporated into a single format called the skill-based foreign language learning anxiety scale (SB-FLLAS) and, together with the 22-item FLCAS, they were prepared for the data collection process. Initially, this version was administered to ten students for feedback on face validity. After their positive feedback in terms of its length and comprehensibility, the single-format scale was administered to 400 students on the program in a one-week period. At the end of the data collection process, the responses of 15 participants were eliminated due to missing data and the responses of 385 participants were prepared for data analysis.

Data Analysis

Based on the purpose of the study, the first step of the data analysis process included the validity and reliability analysis. Confirmatory Factor Analysis (CFA) based on both correlated traits and second order modelling was applied to the skill-based scale to test its construct validity. The same procedure was then followed for the FLCAS. After confirming these two scales, a structural equation modelling procedure was carried out to reveal the predictive aspect of students' skill-based anxieties for the level of foreign language classroom anxiety. For this purpose, whether the skill-

based anxieties measurement model, which was primarily confirmed as correlated traits, predicted a foreign language learning anxiety (as a single umbrella construct) was confirmed. After confirming this model with second order, its aspect in predicting foreign language classroom anxiety was revealed and the predictive coefficients obtained from two structural models were interpreted. All analyses based on structural equation modelling were carried out using Mplus 7.0.

FINDINGS

First Research Question: Four Skill-based Anxieties as a Single Construct

The first research question aimed to determine whether four skill-based anxiety scales can be confirmed as a single construct with four sub-dimensions. To answer this, validity and reliability analyses of the skill-based foreign language learning anxiety scale (SB-FLLAS) were conducted. To do this, the findings regarding the construct validity of the scale were revealed, the Cronbach Alpha and Composite Reliability were computed via Jamovi, and the results were reported in order to determine the reliability of the scale in terms of internal consistency.

The SB-FLLAS has four sub-dimensions: listening anxiety (LA), speaking anxiety (SA), reading anxiety (RA), and writing anxiety (WA), each of which had 14, 12, 11, and 9 items respectively. Confirmatory factor analysis (CFA) was applied to demonstrate the construct validity of the four-dimensional scale. First, the four-dimensional correlated traits model was tested, and then the second order model was tested to determine a higher order latent variable (foreign language learning anxiety) based on the covariance between the four dimensions.

Firstly, the findings of the correlated traits model were presented and model-data fit was tested. In the structural equation modelling, many fit indexes have been developed to determine the model data fit. The most important are the significance of the differences in chi-square values of expected and observed models: RMSEA, CFI, and SRMR (Kline, 2005). Of these values, the chi-square value is expected to be insignificant. However, since the chi-square value is a value affected by sample size, it tends to be significant as a result of the growth of the sample. Therefore, instead of the significance of the difference of chisquare values, the value obtained by dividing chi-square by degrees of freedom is interpreted (Wheaton et al, 1977). The value ranges referring to good fit of all these indices, the values obtained after the applied CFA, and the interpretations of these values are presented in Table 2.

Table 2*Fit statistics and interpretations of the Correlated Traits Model*

Modification	Fit Index	Value	Reference	Decision	Rationale
Before	Chi-Square/df	2.72	<2.5 perfect fit <5 good fit	Good fit	Tabachnick & Fidell (2008)
	RMSEA	.057 (.054-.060)	<.05 perfect fit <.08 good fit	Good fit	Hooper et al. (2008)
	CFI	.89	>.90 good fit >.95 perfect fit	Poor fit	Hu & Bentler (1999)
	SRMR	.049	<.05 perfect fit <.08 good fit	Perfect fit	Hu & Bentler (1999)
After	Chi-Square/df	2.12	<2.5 perfect fit <5 good fit	Perfect fit	
	RMSEA	.054 (.050-.057)	<.05 perfect fit <.08 good fit	Good fit	
	CFI	.90	>.90 good fit >.95 perfect fit	Good fit	
	SRMR	.047	<.05 perfect fit <.08 good fit	Perfect fit	

The first part of Table 2 shows the fit values for the model before modification. The chi-square/df value indicates a good fit as it is less than 2.5. The RMSEA value of .057 indicates good fit and the SRMR value of .049 indicates perfect fit. The CFI value of .89 is just below the acceptable model data fit threshold. In SEM applications, it is assumed that there is no relationship between the error variances of the observed variables. However, statistical programs suggest some modifications to improve model-data fit, and some of these modification suggestions are for co-variances that can be identified among the error variances of the observed variables. Modifications may be appropriate when there is a theoretical background in which common variability between unexplained variances of items can be explained. Accordingly, suitable modifications were determined and fit indexes in the second part of the table were obtained by making only three modifications, as it would not be appropriate to make too many modifications in accordance with the principle of parsimony. As seen in the second part of the table, after modification, the chi-square/df indicates perfect fit (2.12 <2.5), the RMSEA value acceptable fit (.054 <.080), the CFI good fit (.902 > .90) and the SRMR indicates perfect fit (.047 <.050). Considering all these values, it is concluded that the model and the data are in good agreement.

The factor loadings of all items in the model were statistically significant at a level of .001. Factor loads in the LA dimension were .51-.74, factor loadings in the

SA dimension were .63-.87, those in the RA dimension were .55-.74, and in the WA dimension, the factor loads were between .55-.81. The correlations between them are shown in Table 3.

Table 3
Correlations between sub-dimensions of the SB-FLLAS

	Listening	Speaking	Reading
Listening	-		
Speaking	.68*	-	
Reading	.75*	.74*	-
Writing	.66*	.70*	.78*

*p<.01

Analysis of the values in Table 3 show that the correlations between the sub-dimensions are moderate to high and all of them are statistically significant. Considering the fit statistics and factor loadings obtained as a result of the CFA, it was concluded that the construct validity of the scale was provided.

In addition to the procedure above and within the scope of the study, since the purpose was to demonstrate a new latent variable (foreign language learning anxiety) and reveal the degree of this variable in predicting foreign language classroom anxiety with the FLCAS, a second order latent variable should be created based on the covariance of the sub-dimensions of the S-BFLLAS. To do this, a second order CFA was applied. The results are presented in Table 4.

Table 4
Fit statistics and interpretations of the Second Order Model

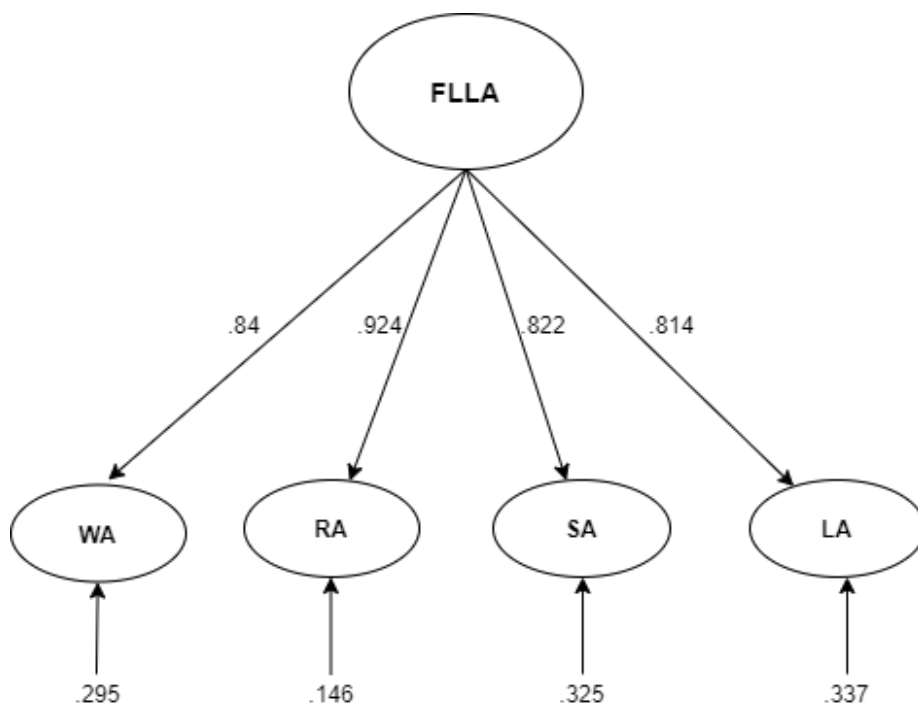
Fit Index	Value	Reference	Decision
Chi-Square/df	2.12	<2.5 perfect fit <5 good fit	Perfect fit
RMSEA	.054 (.050-.057)	<.05 perfect fit <.08 good fit	Good fit
CFI	.90	>.90 good fit >.95 perfect fit	Good fit
SRMR	.047	<.05 perfect fit <.08 good fit	Perfect fit

The modifications used in the correlated traits model are also applied in this model, and it was found out that the model fits the data. In this model, the structural

coefficients showing the relationship between the second order latent variable and the sub-dimensions are shown in Figure 1.

Figure 1

Structural predictors between the second order latent variable (FLLA) and sub-dimensions in the hierarchical model



Examination of the values in Figure 1 reveals that the structural predictor coefficients between the sub-dimensions and the second order latent variable, which is based on the covariance among the sub-dimensions of the scale, are quite high. Accordingly, 70% of variance in WA, 85% of variance in RA, 68% of variance in SA, and 66% of variance in LA (listening anxiety) are explained by the latent variable FLLA (foreign language learning anxiety). Based on these values, it can be interpreted that there is a high structural predictive relationship between the second order latent variable (FLLA) and the sub-dimensions (WA, RA, SA, LA) in the hierarchical model.

In order to determine the reliability of the scale in terms of internal consistency, Cronbach Alpha and Composite/Constructive Reliability (CR) values were calculated through Jamovi for the four sub-dimensions. The values obtained are presented in Table 5.

Table 5

Reliability coefficients of the sub-dimensions of the SB-FLLAS

Factor	C. Alpha	CR
LA	.91	.91
SA	.95	.96
RA	.91	.90
WA	.90	.89

Analysis of the values in Table 5 show that both C. Alpha and CR values are quite high. If these two coefficients, which are used to determine reliability in terms of internal consistency, are .70 and above, they are seen as evidence of reliability of the measurement results (Nunnally & Bernstein, 1994). Thus, it was concluded that the sub-dimensions of the scale were reliable in terms of internal consistency.

Second Research Question: Predictive Aspect of the SB-FLLAS on the FLCAS

In order to reveal a structural equation modelling between the SB-FLLAS and the FLCAS, the next procedure was to confirm the FLCAS as a single construct. As with the SB-FLLAS, the number of items in the FLCAS was also reduced in line with expert opinion, and the 20 items short form of the scale was applied to CFA. The model-data fit statistics obtained in this analysis are presented in Table 6.

Table 6

Fit statistics of the FLCAS to a single-construct model

Modification	Fit Index	Value	Reference	Decision
Before	Chi-Square/df	3.05	<2.5 perfect fit <5 good fit	Good fit
	RMSEA	.072 (.066-.079)	<.05 perfect fit <.08 good fit	Good fit
	CFI	.87	>.90 good fit >.95 perfect fit	Poor fit
	SRMR	.050	<.05 perfect fit <.08 good fit	Perfect fit

Modification	Fit Index	Value	Reference	Decision
After	Chi-Square/df	2.51	<2.5 perfect fit <5 good fit	Perfect fit
	RMSEA	.062 (.055-.069)	<.05 perfect fit <.08 good fit	Good fit
	CFI	.91	>.90 good fit >.95 perfect fit	Good Fit
	SRMR	.046	<.05 perfect fit <.08 good fit	Perfect fit

The values obtained as a result of the first CFA are shown in the first part of Table 6. The second part of the Table shows the values obtained by making two of the recommended modifications. Based on this, the Chi-Square/df value indicates a closely perfect fit ($3.05 < 5$), the RMSEA an acceptable fit ($.062 < .080$), the CFI a good fit ($.91 > .90$), and the SRMR indicates a perfect fit ($.046 < .050$). In line with these values, it was concluded that the data compatibility with the measurement model for the FLCAS is high.

In addition, the factor loadings of 20 items in the scale were statistically significant at .001. Apart from the two items (factor loads .17 and .32), the factor loadings of other items ranged from .52 to .74. Considering the fit statistics and factor loadings obtained as a result of the CFA, it was concluded that the scale was confirmed.

The C. Alpha and CR values were calculated to indicate the reliability of the FLCAS in terms of internal consistency, and the C. Alpha coefficient was .92 and the CR coefficient was .86. Based on this, it was concluded that the scale had high reliability in terms of internal consistency. Finally, the item total correlations of the items in the scale were calculated and these values ranged between .56 and .70, except for three items. The values obtained for those items were .19, .26, and .33. In general, it was again concluded that item-total correlation values in the scale were high.

As a last step, the purpose was to demonstrate to what extent both the sub-dimensions (WA, SA, RA, LA) and the latent variable (FLLA) of SB-FLLAS can explain foreign language classroom anxiety of the FLCAS through the correlated traits model and the second order model. The model-data fit values obtained with the structural equation model, in which the correlated traits model is used, are presented in Table 7.

Examination of the values in Table 7 shows that the Chi-Square/df value is 2.03. This value indicates perfect fit since it is under 2.5. The RMSEA value is .053. This value, being less than .080, indicates good model-data compatibility. The SRMR value is .049, which indicates that the model data fit is perfect since this value is below .50. Only the CFI of the fit indices at .86, is below the acceptable value of .90,

and therefore indicates poor model data compliance. The CFI compares the null model, which fixes the relationship between all latent variables to zero, and the covariance matrices of the existing model. Since all other fit statistics indicate good-perfect data fit, it was concluded that model data fit was acceptable. The figure regarding the structural predictive coefficients between the latent variables of the model is shown in Figure 2.

Table 7

Fit values of the Model with the SB-FLAS used as correlated traits

Fit Index	Value	Reference	Decision
Chi-Square/df	2.03	<2.5 perfect fit <5 good fit	Perfect fit
RMSEA	.053 (.051-.055)	<.05 perfect fit <.08 good fit	Good fit
CFI	.86	>.90 good fit >.95 perfect fit	Poor fit
SRMR	.049	<.05 perfect fit <.08 good fit	Perfect fit

Table 8

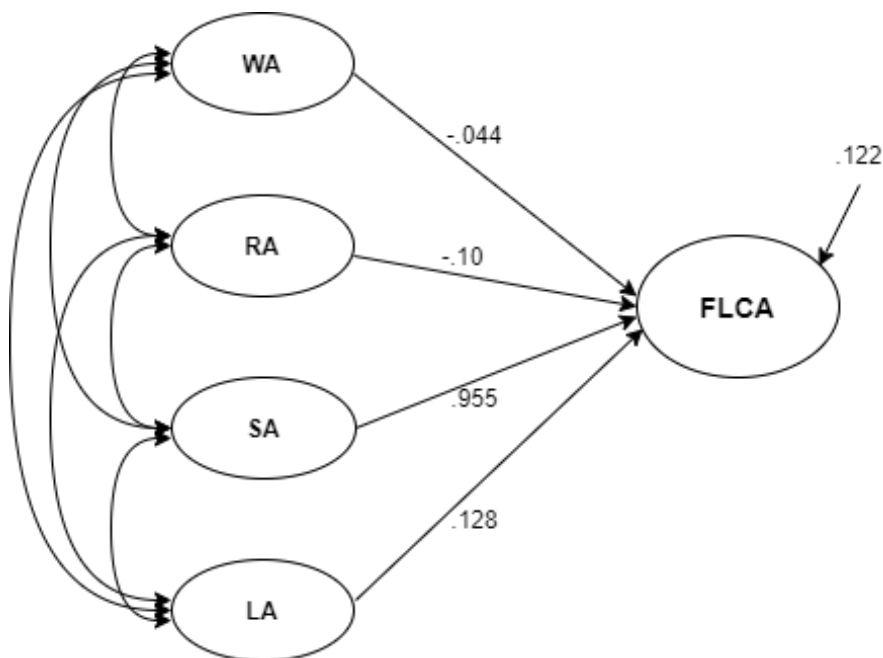
Standardized structural predictor coefficients in the model and the variance they explain

Structural effect	Structural coefficients	T
LA → FLCA	.13*	2.51
SA → FLCA	.96**	17.92
RA → FLCA	-.10	-1.27
WA → FLCA	-.04	-.78
R ² = .88		

* p<.05 ** p<.001

The values in Table 8 belong to the standardized predictive structural effects between latent variables in the structural model. It was observed that one standard deviation change in students' listening anxiety caused .13 standard deviation change in their foreign language classroom anxiety, and this effect is statistically significant at the level of .05. It was also seen that one standard deviation change in students' speaking anxiety caused a .96 change in their classroom anxiety and this change is significant at .001 level. On the other hand, it was concluded that .10 and .04 negative changes in foreign language classroom anxieties of students caused by

Structural predictive coefficients between the latent variables of the model



The first of the values in Table 9 belongs to the chi-square/df value, which is 1.95 and indicates a perfect model-data fit. The next value, RMSEA, is .051. This value is very close to perfect fit. The SRMR value is .053 and although it is very close to perfect fit, this value indicates a good fit between the model and the data. The CFI value (.87)

is slightly below .90, which is an indicator of good model-data fit as the cut-off value. As all other fit indices indicate good to perfect model-data fit, it was concluded that the overall model data fit was acceptable. Upon the indication of the model-data fit, the structural predictive values obtained between the latent variables as a result of the analysis can be seen in Table 10 and the entire model in Figure 3.

Table 9

The fit values and interpretation of the second structural model

Fit Index	Value	Reference	Decision
Chi-Square/df	1.95	<2.5 perfect fit <5 good fit	Perfect fit
RMSEA	.051 (.049-.053)	<.05 perfect fit <.08 good fit	Good fit
CFI	.87	>.90 good fit >.95 perfect fit	Poor fit
SRMR	.053	<.05 perfect fit <.08 good fit	Good fit

Figure 3

Predictive aspect of FLLA on FLCAS

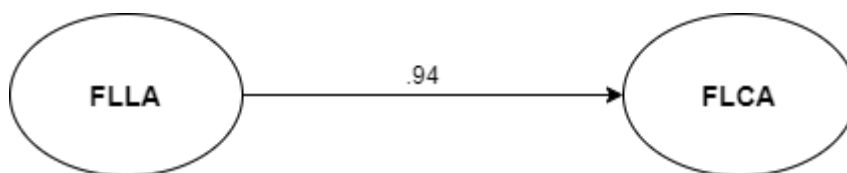


Table 10

The structural predictive values of the model

Structural effect	Structural coefficient	T
FLLA → FLCAS	.94**	84.6

$R^2 = .88$

* $p < .001$

The first value in the table shows the structural predictive effect of foreign language learning anxiety on foreign language classroom anxiety. The value is .94, which indicates the change in the outcome variable (FLCAS) caused by a standard deviation change in the predictive variable (FLLA). At the end of the table is the

variance explained by FLLA in FLCAS, which is .88. This means approximately 88% of the variability in foreign language classroom anxiety (FLCA) measured by FLCAS is explained by foreign language learning anxiety (FLLA) measured by SB-FLLAS.

DISCUSSION

Foreign language anxiety and the negative influence it has on language learning, as shown in a recent meta-analysis by Teimouri, Goetze, and Plonsky (2019), has long been a primary focus for researchers in the field of applied linguistics since it was confirmed as a distinct type of anxiety in students' in-class learning process (Horwitz et. al. 1986). Over the last 35 years, research perspectives on this phenomenon have evolved from simple statistical descriptions of the foreign language classroom anxiety level of students to multidimensional research perspectives examining the anxiety level experienced separately in each language skill, and, finally, their inter and intra relationship with each other. In line with this trend in research perspectives, the current study aimed to present a holistic perspective toward the notion of anxiety that students experience in language learning classrooms by incorporating skill-based anxieties into a single construct and validating its predictive aspect on the FLCAS.

By answering to the first research question, we present the confirmation of four-skill-based foreign language anxiety scales as a single construct. The shortened version of FLSAS, FLLAS, FLRAS, and SLWAI were combined into a single scale with four dimensions and, based on the CFA results and the values in correlated traits model, this single-scale version is valid and reliable. The factors, the skill-based anxieties, were also found to be highly or moderately correlated to each other, which has also been highlighted by several recent studies (Cheng, 2017; Khalaf, 2017). More importantly, whether these four factors explained a single latent variable was further examined, and it was found that these sub-factors highly explained this latent variable, which is called foreign language learning anxiety (FLLA). Based on this, it can be concluded that the SB-FLLAS (see Appendix), including the shortened version of skill-based anxieties, was confirmed and validated to measure FLLA. Similar to Pae (2013), who argues that all four skill-based anxieties contribute to a general type of classroom anxiety, and Kutuk et al. (2020), who present "a single common factor that represents L2 class anxiety as a multidimensional construct" (p. 654), the current study also indicates that the existence of these skill-based anxieties in SB-FLLAS provides a multidimensional and holistic construct, an umbrella-concept of anxiety (FLLA) in language classes including the four skills.

For the second focus of the study, in order to confirm the validity of the SB-FLLAS, the explanatory power of it on the FLCAS, probably the most commonly used and accepted scale in the field, was tested through a correlated traits model. The results show that the four-factor SB-FLLAS explains 88% of the FLCAS, which refers to

a highly predictive power. In other words, the SB-FLLAS and FLCAS almost have the same power in explaining the anxiety experienced by learners in foreign language learning process. This finding is significant in two respects. First, the literature is saturated with studies demonstrating the bivariate relationship among skill-based anxieties and between the FLCAS and a language skill. For instance, Liu and Yuan (2021) have recently found a high positive correlation between FLCA and listening anxiety. Moreover, in their mediation analysis examining the effect of some other variables, Chow et al. (2018) revealed a significant correlation between reading and listening anxiety. In the same vein, Gkonou (2011) put forward a significant relationship between FLCA and anxieties in productive skills. Contrary to those and many other studies in the literature focusing on those bivariate relationships, the current study examined multivariate relationships between the FLCAS and the four skill-based anxieties, and a latent variable, FLLA, was demonstrated.

Finally, and more importantly, the findings of the current study also have the potential to remedy existing problems in multidimensional perspectives of anxiety research in the field of second language acquisition. First, as Cheng (2017) maintains, “researchers generally concur with the benefits of this multidimensional approach to investigating the antecedents and consequences of anxiety and to tailoring treatments of anxiety according to individuals’ anxiety profiles” (p.16). Within this multidimensional framework, it is not really possible to investigate foreign language anxiety with the help of an instrument, the FLCAS, which met the needs of researchers in the 1990s but was recently confirmed as a unidimensional instrument (Panayides & Walker 2013). Thus, the demonstration of the SB-FLLAS as a valid instrument covering four skill-based anxieties and highly predicting foreign language classroom anxiety will fill this gap. Not only researchers, but also practitioners will be able to examine their learners’ anxiety levels in all language skills, identify the inter and intra relationships between those anxieties, and diagnose anxiety-related antecedents and consequences based on this measurement. Secondly, as previously mentioned, trying to deal with a great number of items and their potential statistical procedures has long been a problem in anxiety research in applied linguistics, especially when researchers want to address to each language skill (Nichols & Webster, 2015; Winke, 2014). Thus, with the manageable number of items referring to each skill-based anxiety and the satisfactory reliability-validity coefficients, it can be concluded that SB-FLLAS will respond to this research need in measuring skill-based anxieties in foreign language classrooms at the same time.

CONCLUSIONS

Within the scope of its research purposes, this study incorporated shortened versions of four different skill-based anxiety scales into a single scale called the SB-

FLLAS. This scale was also confirmed to measure a single latent variable called foreign language learning anxiety and this single variable explained the 88% of foreign language classroom anxiety by the FLCAS, a standard instrument in foreign language anxiety measurement. Based on these findings, the SB-FLLAS was confirmed and validated as an instrument to be used in measuring skill-based foreign language anxieties and foreign language learning anxiety simultaneously. This not only makes a significant contribution to practitioners who would like to identify the level of their learners' anxiety in foreign language classrooms but also has important practical uses for researchers conducting multidimensional perspective studies on skill-based foreign language anxieties.

Probably the biggest limitation of this study is that it was carried out in a single context. Language skills here are taught in an integrated way, which might be considered a strength in measuring skill-based anxieties with a single instrument. Potentially, findings might change if it were conducted in teaching contexts where language skills are taught separately since how those skills are taught will definitely influence the level of anxiety learners experience. Finally, there are also some research implications. First, more research is definitely needed for further validation of the SB-FLLAS, and research in different contexts and with different groups of participants will definitely contribute to development of the scale. Secondly, correlational and regression studies consisting of shortened forms of already existing scales and other skill-based language anxiety scales based on literature reviews and student interviews (Cheng, 2017; Khalaf, 2017; Kutuk et al., 2020) can be conducted, and the predictive aspect of the SB-FLLAS can be tested. Such studies will contribute to both to the development of more concrete items and scales and to the understanding of skill-based anxieties on a multidimensional level.

REFERENCES

- Apple, M. (2015) A Rasch model analysis of the "Four L2 Anxieties". In Q. Zhang Q. (Eds) *Pacific Rim Objective Measurement Symposium (PROMS) 2015 Conference Proceedings* (pp. 51-70). Springer.
- Brady, I. K. (2019). A multidimensional view of L2 motivation in Southeast Spain: Through the 'ideal selves' looking glass. *Porta Linguarum*, (31), 37-52.
- Cheng, Y. (2004). A measure of second language writing anxiety: Scale development and preliminary validation. *Journal of Second Language Writing*, 13(4), 313-335. <https://doi.org/10.1016/j.jslw.2004.07.001>
- Cheng, Y. (2017). Development and preliminary validation of four brief measures of L2 language-skill-specific anxiety. *System*, 68, 15-25. <https://doi.org/10.1016/j.system.2017.06.009>

- Chow B.W.-Y., Chiu H.T., & Wong S.W.L. (2018). Anxiety in reading and listening English as a foreign language in Chinese undergraduate students. *Language Teaching Research*, 22(6), 719-738. <https://doi.org/10.1177/1362168817702159>
- Elkhafaifi, H. (2005). Listening comprehension and anxiety in the Arabic language classroom. *Modern Language Journal*, 89, 206–220.
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6(1), 53-60.
- Horwitz, E. K., Horwitz, M., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70, 125-132. <https://doi.org/10.1111/j.1540-4781.1986.tb05256.x>
- Horwitz, E. K. (2001). Language anxiety and achievement. *Annual Review of Applied Linguistics*, 21, 112-126. <https://doi.org/10.1017/S0267190501000071>
- Hu, Li-tze, & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Gkonou, C. (2011). Anxiety over EFL speaking and writing: A view from language classrooms. *Studies in Second Language Learning and Teaching*, 1(2), 267-281. <https://doi.org/10.14746/ssllt.2011.1.2.6>
- Gregersen, T., & Horwitz, E. K. (2002). Language learning and perfectionism: Anxious and non-anxious learners' reactions to their own oral performance. *Modern Language Journal*, 86(4), 562-570.
- Kim, J. (2000). *Foreign language listening anxiety: A study of Korean students leaning English* [Unpublished doctoral dissertation]. The University of Texas, Austin.
- Khalaf, M. A. (2017). English language anxiety: Development and validation of a brief measure. *International Journal of Psychology and Educational Studies*, 4(2), 42-53. <https://doi.org/10.17220/ijpes.2017.02.005>
- Kline, R. (2005). *Principles and practices of structural equation modeling* (2n ed.). Guilford Press.
- Kuru Gönen, S. İ. (2005). *The sources of foreign language reading anxiety of students in a Turkish EFL context* [Unpublished Master Thesis]. Anadolu University.
- Kutuk, G., Putwain, D. W., Kaye, L., & Garrett, B. (2020). Development and validation of a new multidimensional language class anxiety scale. *Journal of Psychoeducational Assessment*, 38(5), 649-658. <https://doi.org/10.1177/0734282919875881>
- Liu, M., & Yuan, R. (2021). Changes in and effects of foreign language classroom anxiety and listening anxiety on Chinese undergraduate students' English proficiency in the covid-19 context. *Frontiers in Psychology*, 12, 670824. <https://doi.org/10.3389/fpsyg.2021.670824>

- Lowe, P. A. (2016). An investigation into the psychometric properties of the test anxiety measure for college students. *Journal of Psychoeducational Assessment*, 36(4), 322-336.
- Nichols, A. L., & Webster, G. D. (2015). Designing a brief measure of social anxiety: Psychometric support for a three-item version of the Interaction Anxiousness Scale (IAS-3). *Personality and Individual Differences*, 79, 110-115. <https://doi.org/10.1016/j.paid.2015.01.043>
- Nunnally, J., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill
- Pae, T.-I. (2013). Skill-based L2 anxieties revisited: Their intra-relations and the inter-relations with general foreign language anxiety. *Applied Linguistics*, 34(2), 232-252. <https://doi.org/10.1093/applin/ams041>
- Panayides, P., & Walker, M. (2013). Evaluating the psychometric properties of the foreign language classroom anxiety scale for Cypriot senior high school EFL students: the Rasch measurement approach. *Europe's Journal of Psychology*, 9(3), 493-516.
- Pappamihel, E. N. (2001). Moving from the ESL classroom into the mainstream: An investigation of English language anxiety in Mexican girls. *Bilingual Research Journal*, 25(1-2), 31-38. <https://doi.org/10.1080/15235882.2001.10162783>
- Pappamihel, E.N. (2002). English as a second language students and english language anxiety: Issues in the mainstream classroom. *Research in the Teaching of English*, 36, 327-355. <http://www.jstor.org/stable/40171530>
- Phillips, E. (1992). The effects of language anxiety on students' oral test performance and attitudes. *Modern Language Journal*, 76, 14-26. <https://doi.org/10.1111/j.1540-4781.1992.tb02573.x>
- Saito, Y., Horwitz, E. K., & Garza, T. (1999). Foreign language reading anxiety. *The Modern Language Journal*, 83(2), 202-218. <https://doi.org/10.1111/0026-7902.00016>
- Saltan, F. (2003). *EFL speaking anxiety: How do students and teachers perceive it?* [Unpublished Master Thesis]. Middle East Technical University.
- Tabachnick, B. & Fidell, L. (2008). *Using multivariate statistics*. Allyn and Bacon.
- Teimouri, Y., Goetze, J., & Plonsky, L. (2019). Second language anxiety and achievement: A meta-analysis. *Studies in Second Language Acquisition*, 41, 363-387. <https://doi.org/10.1017/S0272263118000311>
- Voorhees, M. G. (1994). *Foreign language anxiety and gender*. [Unpublished Master Thesis], Iowa State University.
- Wheaton, B., Muthen, B., Alwin, D., & Summers, G. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, 8(1), 84-136. <https://doi.org/10.2307/270754>

- Winke, P. (2014). Testing hypotheses about language learning using structural equation modeling. *Annual Review of Applied Linguistics*, 34, 102-122. <https://doi.org/10.1017/S0267190514000075>
- Woodrow, L. (2006). Anxiety and speaking English as a second language. *RELJ Journal*, 37(3), 308-328. <https://doi.org/10.1177/0033688206071315>
- Young, D. J. (1990). An investigation of students' perspectives on anxiety and speaking. *Foreign Language Annals*, 23(6), 539-553. <https://doi.org/10.1111/j.1944-9720.1990.tb00424.x>

APPENDIX A. SKILL-BASED FOREIGN LANGUAGE LEARNING ANXIETY SCALE (SB-FLLAS)

WRITING ANXIETY (WA)

1. I feel my heart pounding when I write English compositions under time constraint
 2. While writing English compositions, I feel worried and uneasy if I know they will be evaluated
 3. My mind often goes blank when I start to work on an English composition
 4. I tremble or perspire when I write English compositions under time pressure
 5. If my English composition is to be evaluated, I would worry about getting a very poor grade.
 6. I do my best to avoid situations in which I have to write in English.
 7. My thoughts become jumbled when I write English compositions under time constraint
 8. I often feel fear when I write English compositions under time constraint
 9. I freeze up when unexpectedly asked to write English compositions
-

READING ANXIETY (RA)

1. I am worried about all the new symbols you have to learn in order to read English
 2. I get upset when I am not sure whether I understand what I am reading in English
 3. By the time you get past the funny letters and symbols in English, it's hard to remember what you are reading about.
 4. When reading English, I often understand the words but still can't quite understand what the author is saying
 5. I usually end up translating word by word when I am reading English
 6. It bothers me to encounter words I can't pronounce while reading English
 7. When reading English, I get nervous and confused when I don't understand every word
 8. I get upset whenever I encounter unknown grammar when reading English
 9. I am nervous when I am reading a passage in English when I am not familiar with the topic
 10. I feel intimidated whenever I see a whole page of English in front of me
 11. When I am reading English, I get so confused I can't remember what I am reading
-

SPEAKING ANXIETY (SA)

1. I am never quite sure of myself when I am speaking in English.
2. I am afraid of making mistakes in English classes
3. I tremble when I know that I am going to be called on in English classes
4. I start to panic when I have to speak without preparation in English classes
5. I get embarrassed to volunteer answers in English classes
6. I don't feel confident when I speak English in classes
7. I can feel my heart pounding when I am going to be called on in English classes.
8. I always feel that the other students speak English better than I do.
9. I feel very self-conscious about speaking English in front of other students
10. I get nervous and confused when I am speaking in English classes
11. I am afraid that the other students will laugh at me when I speak English
12. I get nervous when the English teacher asks questions which I haven't prepared in advance.

LISTENING ANXIETY (LA)

1. I get nervous if a listening text is read only once during English listening texts
 2. When someone pronounces the words differently from the way I pronounce them, I find it difficult to understand
 3. When a person speaks English very fast, I worry that I worry that I might not understand all of it
 4. I am nervous when I am listening to English if I am not familiar with the topic
 5. If I let my mind drift even a little bit while listening to English, I worry that I will miss important ideas.
 6. During English listening tests, I get nervous and confused when I don't understand every word
 7. I fear I have inadequate background knowledge of some topics when listening in English
 8. I get worried when I have little time to think about what I hear in English
 9. I get worried when I can't listen to English at my own pace
 10. I get upset when I'm not sure whether I understand what I am listening to in English
 11. When a person speaks English very quietly, I am worried about understanding
 12. It is difficult for me to listen to English when there is a little bit of background noise
 13. I get annoyed when I come across words that I don't understand while listening to English
 14. It frightens me when I cannot catch a key word of an English listening passage
-

