

Speaking-related Anxiety in Computer-Assisted Language Testing Settings

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Abstract: This study conducted an investigation of 263 students' (172 male and 91 female) speaking-related anxiety when they are involved in computer-assisted oral tests at a comprehensive university in northern China. The authors collected data through two questionnaires, the Foreign Language Classroom Anxiety Scale (FLCAS) and the Speaking-related Anxiety in Computer-assisted Tests (SACAT). Results showed that the two instruments had sufficient reliability and high validity. Moreover, significant correlations between FLCAS and SACAT were disclosed. Results of regression analyses also revealed that learners' fear of negative classroom feedback was the most positive predictor for learners' speaking-related anxiety in computer-assisted tests. Besides, learners' classroom communication apprehension also played a positive role for predicting learners' fear in the process of taking computer-assisted oral tests.

Keywords: Foreign language anxiety, Speaking-related anxiety, Computer-based oral tests.

1. Introduction

Learners' anxiety is a crucial factor in the process of foreign language learning and further affects their learning motivation and learning outcome. Previous studies on foreign language anxiety (FLA) explored the main factors which may arouse anxiety, such as, gender, age, self-esteem, classroom environment, teacher's behavior and so on. For instance, some experts hold that foreign language anxiety among male students was generally higher than females (Awan et al, 2010; Cui, 2011; Hsu, 2009; Karaman; 2016). Horwitz and Cope (1986) divided foreign language anxiety into three categories: communication apprehension, test anxiety and fear of negative evaluation. Studies show that among the four basic skills of foreign language learning, speaking is the most anxiety-provoking in second language acquisition (Cheng, Horwitz, & Schallert, 1999; Macintyre & Gardner, 1991).

According to Horwitz, Horwitz and Cope (1986), learners' FLA frequently shows up in testing situations. With the development of technology, computer-assisted foreign language tests are becoming increasingly welcomed by many instructors because of its high efficiency. But on the other side, computer-assisted testing environments may also add extra pressure on learners' performance. Therefore, more empirical studies are still needed to investigate their test-related anxiety in a computer-based testing environment.

In this study, we developed two questionnaires for evaluating English as foreign language (EFL) learners' classroom anxiety and their speaking-related anxiety in computer-based tests. Moreover, we attempted to disclose the relationship between the two academic constructs and provide related pedagogical implications.

2. Methods

2.1. Participants

This study is carried out in a CALL-based English audio-video speaking course at Beijing University of Posts and Telecommunications (BUPT), a comprehensive university in northern China. 263 participants (172 male and 91 female) were invited to attend the study voluntarily. Before taking part

in this study, almost all participants have passed the College English Test (CET, a national English test for non-English majors) and 70% of the participants also had online CET experience. During the course, all the students were asked to use the self-developed language training and testing system, named the English Language Skill Training System for online speaking tests. On a whole, participants in this study shared similar experience in computer-assisted language tests at similar English proficiency level.

2.2. *Data Collection*

Two questionnaires were developed and further administered in this research to collect students' responses about their foreign language anxiety and speaking-related anxiety in computer-assisted testing environments. The first questionnaire is called the Foreign Language Classroom Anxiety Scale (FLCAS). It was developed based on the questionnaire of in-class foreign language anxiety (Horwitz et al., 1986). The second questionnaire is named Speaking-related Anxiety in Computer-assisted Tests (SACAT). It was designed to explore learners' speaking-related anxiety in computer-assisted language testing settings based on Young's (1990) study. Five-point Likert scale from 1 point "strongly disagree", to 5 points "strongly agree", was used to measure all the questionnaire items.

The first questionnaire consists of three factors, namely, fear of negative classroom feedback (like "I am afraid that my English teacher is ready to correct every mistake I make."), comfort of using English in classroom (like "I don't worry about making mistakes in English classes.") and classroom communication apprehension (like "I tremble when I know that I'm going to be called on in English class."). The second questionnaire includes fear of taking computer-assisted oral test (like "I am afraid that I will make mistake, and I'm anxious about it"), negative attitudes towards computer-assisted oral test (like "I feel nervous about a bad grade.") and fear of inadequate performance in computer-assisted oral test (like "I start to panic when I have to speak without preparation.").

2.3. *Data Analysis*

Both the FLCAS and SACAT in the study were translated from English into Chinese since the participants were all EFL learners. Since the two questionnaires were all adapted from previous questionnaires, we firstly used exploratory factor analysis (EFA) and reliability analysis to confirm its validity and reliability. Then, we analyzed the correlation between all the factors of the two questionnaires. Finally, a stepwise regression analysis between factors of FLCAS (as predictor variables) and SACAT (as outcome variables) was conducted.

3. **Results and Discussion**

3.1. *Exploratory Factor Analysis of the Questionnaires*

After the process of EFA, three factors with 33 items were retained in the final version of the FLCAS (see Table 1). The three factors were fear of negative classroom feedback ($\alpha = 0.97$, $M = 2.95$, $S.D. = 0.77$), comfort of using English in classroom ($\alpha = 0.89$, $M = 2.78$, $S.D. = 0.69$) and classroom communication apprehension ($\alpha = 0.80$, $M = 3.08$, $S.D. = 0.80$). All the factor loadings were greater than 0.4 and the total variance explained was 62.76%. The alpha coefficients were around 0.80-0.89 for each factor (overall $\alpha = 0.90$), indicating a high internal consistency reliability of the scale.

The same analytical method was applied to test the validity and reliability of the SACAT. Three factors with 15 items were maintained in the final scale (see Table 2). The three factors were fear of taking computer-assisted oral test ($\alpha = 0.92$, $M = 3.1$, $S.D. = 0.87$), negative attitudes towards computer-assisted oral test ($\alpha = 0.93$, $M = 2.91$, $S.D. = 0.90$) and fear of inadequate performance in computer-assisted oral test ($\alpha = 0.87$, $M = 2.98$, $S.D. = 0.91$). All the factor loadings were greater than 0.40 and the total variance explained for the SACAT was 71.11%. The alpha coefficients were around 0.87-0.93 (overall $\alpha = 0.96$), indicating high reliability of the SACAT.

Table 1: Rotated factor loadings and Cronbach's alpha values for the three factors of the FLCAS (N=263).

Factors	Factor 1	Factor 2	Factor 3
Factor 1: Fear of negative classroom feedback, $\alpha = 0.97$; M = 2.95; S.D.= 0.77			
Item 1	0.60		
Item 2	0.65		
Item 3	0.65		
Item 4	0.75		
Item 5	0.68		
Item 6	0.70		
Item 7	0.68		
Item 8	0.65		
Item 9	0.77		
Item 10	0.64		
Item 11	0.68		
Item 12	0.83		
Item 13	0.56		
Item 14	0.76		
Item 15	0.82		
Item 16	0.81		
Item 17	0.78		
Item 18	0.77		
Item 19	0.83		
Item 20	0.71		
Factor 2: Comfort of using English in classrooms, $\alpha = 0.89$; M = 2.78; S.D.= 0.69			
Item 21		0.75	
Item 22		0.76	
Item 23		0.73	
Item 24		0.66	
Item 25		0.63	
Item 26		0.74	
Item 27		0.68	
Item 28		0.74	
Item 29		0.68	
Factor 3: Classroom communication apprehension, $\alpha = 0.80$; M = 3.08; S.D.= 0.80			
Item 30			0.58
Item 31			0.72
Item 32			0.58
Item 33			0.65

Note. Overall alpha: 0.90; total variance explained: 62.76%;

Table 2: Rotated factor loadings and Cronbach's alpha values for the three factors of the SACAT (N=263).

Factors	Factor 1	Factor 2	Factor 3
Factor 1: Fear of taking computer-assisted oral test, $\alpha = 0.92$; M = 3.10; S.D.=0.87			
Item 1	0.75		
Item 2	0.76		
Item 3	0.77		
Item 4	0.68		
Item 5	0.61		
Item 6	0.63		
Factor 2: Negative attitudes towards computer-assisted oral test, $\alpha = 0.93$; M = 2.913; S.D.=0.90			
Item 7		0.63	
Item 8		0.74	
Item 9		0.79	
Item 10		0.72	
Item 11		0.60	
Item 12		0.65	
Factor 3: Fear of inadequate performance in computer-assisted oral test, $\alpha = 0.87$; M = 2.98; S.D.=0.91			
Item 13			0.53
Item 14			0.61
Item 15			0.78

Note. Overall alpha: 0.96; total variance explained: 75.11%;

3.2. Correlation analysis between English Language Learners' FLA and SACAT

Table 3 showed the results of Pearson's correlation analysis between all factors of the FLCAS and the SACAT. It can be seen clearly that two FLCAS factors, fear of negative classroom feedback and classroom communication apprehension both had a positive correlation with all three factors of the SACAT. It implied that students with negative attitudes towards unsatisfying in-class feedbacks or experienced high level of English communication anxiety, tended to have more pressure in online oral exams. On the contrary, the FLCAS factor, comfort of using English in classroom had a negative correlation with all three SACAT factors and the negative coefficients were -0.36 ($p < 0.01$), -0.37 ($p < 0.01$) and -0.44 ($p < 0.01$). It indicated that students with more comfort of using English in real classrooms may feel less anxious in online oral tests.

Table 3: The correlation among the factors of the FLCAS and SACAT (N=263).

	fear of taking computer-assisted oral test	negative attitudes towards computer- assisted oral test	fear of inadequate performance in computer-assisted oral test
fear of negative classroom feedback	0.71**	0.76**	0.78**
comfort of using English in classroom	-0.36**	-0.37**	-0.44**
classroom communication apprehension	0.61**	0.61**	0.62**

Note: ** $p < 0.01$

3.3. The Stepwise Regression Analysis for Predicting Participants' SACAT

In this stepwise regression analysis, the FLCAS factors were predictors while the SACAT factors were outcome variables. As shown in Table 4, fear of negative classroom feedback played the most powerful and positive role in predicating all three SACAT factors, namely, fear of taking computer-assisted oral test ($\beta = 0.58$, $T = 8.64$, $p < 0.001$), negative attitudes towards computer-assisted oral test ($\beta = 0.76$, $T = 18.59$, $p < 0.001$) and fear of inadequate performance in computer-assisted oral test ($\beta = 0.78$, $T = 20.10$, $p < 0.001$). That is, if language learners experienced high level of anxiety of negative feedback in class, they tend to feel more anxious in taking computer-assisted oral tests.

The factor classroom communication apprehension in the FLCAS made the positive prediction for the factor fear of taking computer-assisted oral test ($\beta = 0.17$, $T = 2.58$, $p < 0.001$). If students are anxious about speaking English with others in classrooms, they may also be afraid of speaking in front of a computer or become anxious of taking computer-assisted oral exams.

Table 4: Stepwise regression for predicting students' computer-based speaking anxiety (N=263).

Computer-based anxiety		B	S.E.	β	T	R^2
Fear of taking computer- assisted oral test	FNCF	0.65	0.08	0.58	8.64***	0.52
	CCA	0.19	0.07	0.17	2.58***	
	Constant	0.62	0.07		3.93***	
Negative attitudes towards	FNCF	0.88	0.05	0.76	18.59***	0.57

computer-assisted oral test	Constant	0.32	0.14		2.25**	
Fear of inadequate performance in computer-assisted oral test	FNCF	0.91	0.05	0.78	20.10***	0.61
	Constant	0.29	0.14		2.08**	

Notes: FNCF= Fear of negative classroom feedback; CCA = Classroom communication apprehension; *p < 0.05, **p < 0.01, ***p < 0.001.

4. Conclusion

This study explored learners' in-class foreign language anxiety and speaking-related anxiety in computer-assisted testing settings. Two questionnaires, the FLCAS and the SACAT were developed for achieving our research objectives. The findings revealed the significant correlations between foreign language anxiety and speaking-related anxiety in computer-assisted testing settings. The study also revealed that learners' fear of negative classroom feedback has the strongest and positive prediction for speaking-related anxiety in computer-assisted testing environments. Future studies through qualitative methods, such as interviews or observations, are still needed to provide more pedagogical implications for understanding and further relieving learners' foreign language anxiety.

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