



# Effect of Anxiety on Cognitive Load in Foreign Language Oral Tests

## Yabancı Dil Konuşma Sınavlarındaki Kaygının Bilişsel Yük Üzerindeki Etkisi

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### Abstract

The aim of this study is to explore the relationship between cognitive load and anxiety in foreign language oral tests. The study also aims at exploring the effects of examiners' attitudes and before-test institutional procedures on the oral test anxiety of university students learning English as a foreign language. The study hypothesized that the level of anxiety is one of the major factors that increases the cognitive load during oral tests. 412 university students from four Turkish state universities were given a scale with two dimensions related to oral test anxiety developed by the researcher and a Subjective Rating Scale developed by Paas (1992). Correlation and regression of the cognitive load and anxiety factors in foreign language oral tests were conducted. Statistical analysis of the quantitative data revealed low and moderate associations between the before-test procedures and the examiners' attitudes and cognitive load, respectively. The study concluded that oral test anxiety is a significant factor that increases cognitive load. Therefore, educational institutions and test examiners should be attentive in organizing oral tests by taking the impact of organizational and affective factors into consideration.

*Keywords: Speaking anxiety, test anxiety, cognitive load, oral foreign language tests.*

### Öz

Bu çalışma, yabancı dildeki sınavlarındaki bilişsel yük ve kaygı arasındaki ilişkiyi araştırmaktadır. Bu çalışma aynı zamanda, sınav görevlilerinin tutumları ve sınav öncesi uygulanan kurumsal uygulamaların yabancı dil olarak İngilizce öğrenen üniversite öğrencilerinin konuşma kaygıları üzerindeki etkisini de ortaya çıkarmayı amaçlamaktadır. Bu çalışma, kaygı seviyesinin konuşma sınavlarındaki bilişsel yükü artıran ana etkenlerden birisi olduğunu varsaymaktadır. Türkiye'deki dört devlet üniversitesinden toplam 412 öğrenciye, araştırmacı tarafından oluşturulmuş ve kaygı seviyesini ölçen iki alt boyuta sahip bir ölçek ile birlikte, öğrencilerin bilişsel yüklerini araştıran ve Paas (1992) tarafından geliştirilmiş Özel Derecelendirme Ölçeği uygulanmıştır. Bilişsel yük ve yabancı dilde konuşma sınavı kaygıları arasındaki ilişkiyi ortaya çıkarmak amacıyla Korelasyon ve Regresyon analizleri yapılmıştır. Nicel verilerin istatistiksel analizleri, bilişsel yük ile sınav öncesi kurumsal uygulamaların ve sınav görevlilerinin tutumları arasında düşük ve orta seviyede ilişki olduğunu ortaya koymuştur. Bu çalışma, konuşma sınavlarındaki kaygının bilişsel yükü artıran önemli bir etken olduğunu ortaya çıkarmıştır. Bu sebeple, bu çalışma, eğitim kurumları ve sınav görevlilerinin, sınav organizasyonu ve duyuşsal faktörlerin etkilerini önemseyerek yabancı dilde sözlü sınavlar düzenlemeleri gerekliliğini ortaya koymuştur.

*Anahtar Kelimeler: Konuşma kaygısı, sınav kaygısı, bilişsel yük, sözlü yabancı dil sınavları.*

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## 1. Introduction

Tests and exams represent a major part of teaching and are often considered as sources of anxiety for students (Sayın, 2015). As a social behavior that is negatively correlated with achievement and learning, Sarason and Sarason (1990) defined anxiety as a type of cognitive and affective-emotional arousal based on feelings of inadequacy or being

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Received Date: September 30<sup>th</sup>, 2021. Acceptance Date: January 28<sup>th</sup>, 2022.

exposed to negative evaluation. Specifically, during oral tests in English in a foreign language (EFL) context, students often have to attend oral tests and talk on given topics in front of reviewers. As a result of various factors, they feel anxious and fail to reflect their actual oral proficiency in the target language (Paker & Höl, 2012).

To measure the sources of the FL speaking anxiety in EFL speaking classes, a number of scales have been developed, such as Sarason (1978); the Foreign Language Classroom Anxiety Scale (FLCAS) by Horwitz et al. (1986); Shomoossi & Kassaian, (2009); and Paker & Höl (2012). However, these studies mainly focus on exploring the psychological sources of speaking anxiety in oral exams. Therefore, the effects of external factors, such as the administrative or organizational aspects of implementing these exams, have been ignored. Nevertheless, these factors play a significant role in the cognitive aspect of language learning, such as cognitive load (Cassady, 2004). Since the cognitive capacity of learners is limited, external factors possess great potential to affect the learners' oral test performance negatively.

This study explores the effect of anxiety on the cognitive load of Turkish university students in oral foreign language tests. The following research questions are addressed:

1. Is cognitive load a predictor of anxiety in foreign language oral tests?
2. Is there a relationship between examiners' attitudes and oral test anxiety?
3. Is there a relationship between before-test procedures and oral test anxiety?

## 2. Literature Review

### 2.1. Test anxiety

Test anxiety in educational settings has been a focus of research for more than fifty years. Researchers have attempted to reveal the possible relationships between test anxiety and educational and cognitive psychology (Zeidner, 1998). According to Aydın et al. (2006, p. 145), "...test anxiety causes physical and psychological problems, affects motivation, concentration and achievement negatively, increases errors in the learning process, prevents transfer of their real performance into test results and studying efficiently, and decreases interest in language learning". Test anxiety is often regarded as a barrier to students' real performance in that their psychological state directly influences their behaviors and attitudes towards the tests.

Cassady (2004) defines testing in educational settings as a negative mental state for students' performance "...in the preparation phase generally, through the engagement of ineffective preparatory strategies driven by feelings of helplessness, attempts to avoid or reduce the occurrence of failure, or poor emotional self-regulation during the exam itself." (p. 571). According to Cassady (2004, p. 570), students with high anxiety reveal declinations in cognitive processing in two ways, namely, "(a) the student experiences cognitive interference during the assessment session, and (b) the student has general cognitive processing skill deficiencies that impair performance during test preparation as well as test performance". In this classification, Cassady (2004) points out the importance of the test preparation period as a major factor of anxiety, along with the anxiety that is experienced during the assessment session. Hence, the before-test period can be considered as equally critical and should be well planned not only by the students themselves but also by the teachers, as the organizers of the tests.

Among several dimensions of anxiety, foreign language speaking anxiety is one of the frequently visited topics for researchers. According to Phillips (1992), although language learning is associated with developing learners' capacity to communicate verbally in the target language, anxiety of speaking in a foreign language is regarded as an obstruction to learners' oral performances. According to Horwitz et al., foreign language speaking anxiety is an important factor that students with such a psychological state tend to "...postpone required foreign language courses until the last possible moment or change their major to avoid foreign language study. Students who experience moderate anxiety may simply procrastinate in doing homework, avoid speaking in class, or crouch in the last row." (Horwitz et al., 1986, p. 131).

On the other hand, although public speaking is often defined as an important source of anxiety in foreign language learning contexts (Horwitz et al., 1986), research focusing on different aspects of anxiety experienced by the test takers before and during the foreign language speaking tests is sparse. Although the procedures before and during oral tests are important determiners of student performance, the majority of studies have focused on failure and success as results of speaking anxiety in EFL classrooms, rather than investigating the role of reviewers or the test organization (Horwitz, 2001; Phillips, 1992; Zeidner, 1998). Little research have been conducted to understand other factors that may cause anxiety during oral language tests. For example, Liu (2007) developed an Oral English Test Anxiety Scale to find out the effects of preparation for tests, feelings about tests and concerns about tests on Chinese EFL students' oral test anxiety. The research reported that the majority of the participants experienced an anxious state. However,

factors such as the attitudes of interviewers or the before-test procedures were not included within the factors that may facilitate oral exam anxiety.

Hence, by investigating the relationship between two external sources of oral test anxiety, this paper is original in underlying the negative effect of the cognitive load on students' performance, caused by high levels of anxiety.

With its physiological, behavioral, and cognitive dimensions, speaking test anxiety is generally associated with possible failure of oral performance. According to Aydın et al. (2020, p. 4293), "...individuals are afraid of being embarrassed by their unsatisfactory performance since they consider it as a threat to their ego or self-esteem; consequently, they either avoid evaluative situations or experience excessive stress if they cannot flee from being tested".

Zeidner (1988) conceptualizes five aspects of test anxiety; evaluative situations, personal variables, perceptions of test situations, nationwide test anxiety, and coping with reactions and adaptive outcomes. In the framework of the present study, evaluative situations are important determiners of anxiety in oral testing since they can be evaluated in the cognitive performance category. Zeidner (1988) also lists the evaluative situations as: *test environment and atmosphere, time pressure and speeded up conditions, external observer and audience, examiner characteristics, reassurance and emotional social support, evaluative feedback, and phase of testing*.

Among other factors listed by Zeidner (1988), as the focus of the present study, the test environment and atmosphere is key to understanding the underlying effects of test instructions and the examiners' perception on the performance of low level and highly anxious test takers. According to Zeidner, "high-test-anxious subjects tend to view most evaluative test situations as a particularly threatening context, thus increasing the strength of task irrelevant anxiety responses and avoidance behaviors that are debilitating to their test performance" (1988, p. 227). In other words, task irrelevant factors affect oral test anxiety with debilitating effects on the students' test performance by amplifying the cognitive load. Therefore, there is a need for evidence to uncover the underlying mechanisms of test instruction and the test atmosphere in understanding the reasons for oral test anxiety that brings about high levels of cognitive load in hindering the test takers' performance.

## 2.2. Cognitive load

Considered as a complex process of information processing, learning a foreign language relies heavily on the cognitive resources of the learners. Therefore, as a psychological and an affective state, test anxiety can be linked to the physiological and affective aspect of cognitive processing of information. The concept of cognitive load is primarily based on the knowledge that humans have limited cognitive capacity (Sweller et al., 2011). Therefore, overloading the limits of one's mental capacity results in error or low mental performance (Kalyuga, 2009). Paas et al. (2003, p. 64) define cognitive load as a mental effort, "... that refers to the cognitive capacity that is actually allocated to accommodate the demands imposed by the task; thus, it can be considered to reflect the actual cognitive load".

Paas et al. (2010) later defined cognitive load as a cognitive capacity that allows learners to process the information, and cognitive theorists as those who seek new instructional designs and procedures in order to use this limited capacity in a more efficient and effective way. According to Sweller et al. (2011), learning tasks have the potential to hinder learners' performance in the processing and storage of information. In a similar sense, Paas (1992, p. 429) highlighted the crucial role of cognitive load and stated that "... learners are able to introspect the amount of mental effort invested during learning and testing and this 'intensity of effort' may be considered to be an 'index' of cognitive load".

More specifically, Zeidner (1998, p. 34), underlies the importance of cognitive load as a source of anxiety and stated that "...the extra cognitive load of worry frequently serves to reduce task performance and efficiency". According to Zeidner (1998, p. 365), "... the reduction of anxiety would release attentional and cognitive resources, thus enabling test-anxious examinees to devote a higher proportion of their capacity to learning and performing evaluative tasks." With a similar approach, Cassady (2004, p. 571) proposes that "... high levels of test anxiety lead to interference in the working memory's articulatory processing loop during test preparatory efforts, leading to reduced efficiency for processing verbal information"

According to Zeidner (1998, p. 244), it is not surprising that "Whenever a person's priorities in allocation of attention gives precedence to the demands of enduring dispositions, such as the cognitive representations of test anxiety, less space capacity is left over for the demands of the task, particularly under conditions of cognitive load."

To sum up, if the students have to direct their attention to external sources such as the before-test phase or the atmosphere during the test, they are cognitively over-loaded, and as a result they become more worried about the implementation of the tests. On the other hand, directing the students' attention to test-relevant thinking reduces the tension by occupying less resources of the students' mental capacity (Zeidner, 1998).

Although empirical studies have presented certain influences of anxiety in various aspects of FL learning, sources of anxiety in FL language oral testing has not been adequately investigated (MacIntyre & Gardner, 1994; Liu, 2007).

Moreover, the effect of anxiety on students' cognitive capacities is not well explored. In this perspective, this study hypothesizes that, if the oral testees have enough information about the implementation of the oral test, and if the examiners possess the relevant attitudes towards them, their cognitive sources will be freed; allowing them to convey their cognitive capacity to the test, which will improve test performance. Therefore, due to the heavy cognitive load imposed by task-irrelevant factors, test takers have less space to fulfill the demands of the tasks (Zeidner, 1998). This study attempts to provide evidence for the effect of two external factors that have the potential to positively affect students' performance in oral tests. Hence, the present paper tries to fill a gap in the field by investigating the effect of cognitive load on students' performance caused by the attitudes of the examiners, and before-test institutional procedures, as two factors that have not been researched before.

### 3. Method

#### 3.1. Data collection procedures

Quantitative research method was used to explore the relationship between tertiary level students' anxiety in oral exams and the cognitive load that they reported. Due to the Covid-19 Pandemic, the universities in Turkey shifted to emergency remote learning and began offering courses both in synchronous and asynchronous formats on March 30, 2020. Therefore, the data was collected via Google forms in the fall term of 2021 academic year.

The instruments were sent to 550 participants from four state universities and 430 responses were received. However, 18 responses were eliminated since the participants reported that they had not taken an oral test in English before. To ensure representativeness of the number of returns for the target population, the number of valid surveys was divided by the number of students who received the instruments. The response rate was calculated as 74.9 % as an acceptable response rate (Sheehan, 2001).

#### 3.2. Participants

Participants were 412 students (45% male; 55% female) from the preparatory classes of English Language Teaching (ELT) departments in four Turkish state universities who were reported to have taken at least one oral test during their preparatory year. After passing a standard national language test, the students who fail in the institutional exemption tests are required to enroll in the preparatory school for at least one year with an intensive language teaching program including the practice of the four skills besides grammar and vocabulary teaching. Hence, the proficiency levels of the participants can be described as B1 and/or B2 with reference to the Common European Framework of Reference for Languages (CEFR). The participants were aged between 18-22 years old ( $M= 19.2$ ) and were randomly selected among the target population.

#### 3.3. Measures

##### 3.3.1. Anxiety

Anxiety was measured by 7 items assessing the participants' opinions about the attitudes of oral test examiners' (e.g., "I feel less anxious when the examiners reword their questions" and "I feel less anxious when the examiners nod in approval"), and also by 6 other items assessing the participants' opinions about the procedures to be taken before oral tests (e.g., "I feel less anxious when I can watch a sample test video" and "I feel less anxious when I know the exact time when I will be tested"). A five-point Likert-type scale (1= strongly agree to 5=strongly disagree) was used to elicit the participants' agreement with each item. To determine the items of the questionnaires, a focus group interview was organized with the participation of the lecturers (3 female and 2 male) who had at least 10 years of experience as an oral test examiner. The participants of the focus group were asked to discuss their observations about possible reasons for the anxiety in oral tests. The interview was audio recorded and transcribed by the researcher. Following that, two external researchers with PhDs in ELT were involved in developing the item pool by analyzing the transcription. As a result of the blind data analysis, the items specified by both researchers were examined, and common items were chosen to develop the final form of the question sets. The inter-rater reliability between the two researchers was calculated as .84. A pilot study with randomly selected 52 participants from the same context was carried out to provide information about whether the scale was feasible and there were some items to be changed or to be modified for the main study.

### 3.3.1.1. Validity and Reliability analysis of the Speaking Test Anxiety Scale

Exploratory factor analysis (EFA) with a promax rotation using SPSS was used to discover the factor structure of the Speaking Test Anxiety Scale to provide evidence for construct validity. EFA is a statistical analysis technique that identifies the dimensionality of constructs by examining relations between items and factors (Çokluk, Şekercioğlu & Büyüköztürk, 2010). To determine the adequacy of the sample size, Kaiser-Mayer-Olkin (KMO) coefficient was calculated as (KMO= 0,86>0,70) and considered as adequate since the KMO coefficient value that is greater than 0,60 is considered as suitable for factor analysis (Büyüköztürk, 2005). Also, Bartlett's Test of Sphericity was used to determine if correlations between items of the scale were sufficiently large for EFA. Bartlett's Test of Sphericity ( $\chi^2(78) = 1369,87$ ;  $p < 0,001$ ) indicated that correlations between the items of the scale were large enough for EFA.

Principal component analysis was used as a dimensionality-reduction method that is often used to reduce the dimensionality of large data sets. Factor loadings which were greater than 0.32 were considered as acceptable (Tabachnick & Fidell, 2007). As a result of the factor analysis, 6 factors were found with eigenvalues greater than 1 and were considered as significant factors (Büyüköztürk, 2005).

The scree test is used to determine the number of factors to keep in a principal component analysis (PCA). The scree plot revealed a slope after the third point on the plot and the number of factors was considered as two accordingly. Following that, Varimax Vertical Rotating analysis was used to identify the number of components for the two factors. 12 items (q2, q3, q5, q8, q10, q14, q15, q17, q7, q9, q16, q18) with factor loadings lower than the cut point and were eliminated one by one and the data was re-analyzed each time. Finally, the 13-item structure was found to explain 45,04% of the total variance as shown in Table 1.

Table 1  
Exploratory factor analysis results for the Speaking Test Anxiety Scale

Item no	Factor loading		Corrected Item- Total Correlation	Eigenvalues	% of Variance	Cronbach's Alpha
	1	2				
q20	0,72	0,16	0,57	4,31	33,12	0,78
q24	0,70	0,00	0,50			
q22	0,68	0,38	0,66			
q21	0,66	0,14	0,51			
q25	0,65	0,35	0,59			
q19	0,59	0,03	0,40			
q23	0,48	0,27	0,41	1,55	11,92	0,71
q12	0,10	0,74	0,51			
q13	0,20	0,73	0,58			
q11	0,02	0,65	0,41			
q1	0,11	0,60	0,40			
q4	0,20	0,56	0,44			
q6	0,27	0,45	0,39			

As a result of Exploratory Factor Analysis, the items in the first and second factors were found to be loaded between 0,48-0,72 and 0,45-0,74 respectively. The first factor was named as “before-test procedures”, and the second factor was named as “attitudes of examiners”.

In order to find out the internal consistency of the scale, Cronbach's  $\alpha$  was calculated as .78 and .71 for the factors *before-test procedures* and the *attitudes of examiners* respectively. These values were found to be reliable since satisfactory internal consistency ranges from 0.70 to 0.90 (Blunch, 2008).

### 3.3.2. Subjective Rating Scale

As a common method used to find out the cognitive load during an oral test, the present study utilized the Subjective Rating Scale (SRC) developed by Paas (1992). As a self-rating scale, the SRC asks the participants to state the level of mental effort they invested during cognitive processing, such as a learning task or taking an exam. Assuming that the participants are able to state accurately the amount of cognitive effort that they expended on a task, Paas et al. (1994) reported self-rating scales that were reliable and sensitive and were easy to be implemented in the classroom. Figure 1 demonstrates the original Paas (1992) 9-point rating scale for mental effort during a cognitive task.

1	2	3	4	5	6	7	8	9
very, very low mental effort	very low mental effort	low mental effort	rather low mental effort	Neither low nor high mental effort	rather high mental effort	high mental effort	very high mental effort	very, very high mental effort

Figure 1. Paas (1992) subjective rating scale

### 3.4. Analysis of data

The normality of the data from the Subjective Rating Scale and Speaking Test Anxiety Scale were evaluated by using Skewness and Kurtosis. Since the values presented in Table 2 are within the range of  $\pm 2$ , the data was considered to be normally distributed (George and Mallery, 2010).

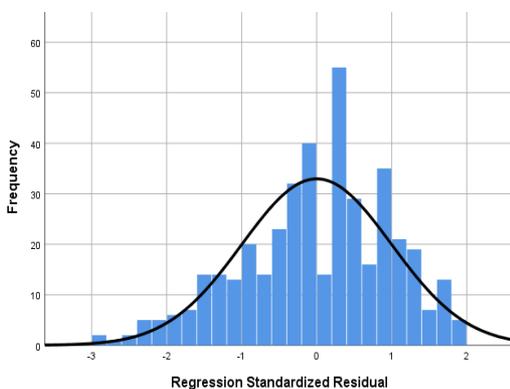
Table 2

#### Skewness and kurtosis of the sample

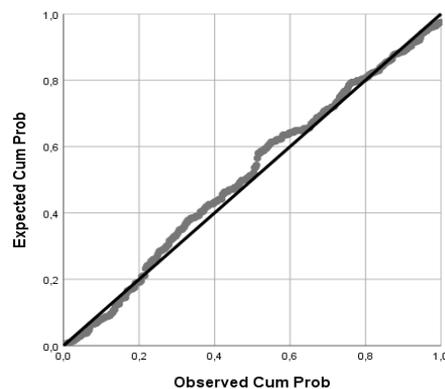
Variables	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Cognitive load	-0,49	0,12	-0,39	0,24
Attitudes of examiners	-0,90	0,12	1,79	0,24
Before-test procedures	-0,72	0,12	0,56	0,24

To explore the relationship between Cognitive Load and Speaking Test Anxiety Pearson Correlation Coefficient was used. Also, Multiple Linear Regression Analysis was used to determine how well the cognitive load predicted speaking test anxiety. Some assumptions were tested before regression analysis.

Cook's Distance was calculated to find multivariate outliers. The results revealed no outliers for the data set (Cook's Distance < 1). Besides, multicollinearity was calculated by the Variance Inflation Factor (VIF) for each independent variable and no multicollinearity was found between the variables (VIF=1,27). Additionally, to test the assumption of prediction errors, The Durbin-Watson statistic was calculated as 1,90 and no autocorrelation was detected in the sample according to the reference value ranging between 0 and 4 (Kalaycı, 2017). Finally, to test the homoscedasticity assumption, the histogram (Figure 1) and the normal P-P plot (Figure 2) for homoscedasticity were examined. Both the histogram and the P-P plot provided sufficient evidence of homoscedasticity. Statistical analyses were calculated by SPSS 25.0 statistical software.



Graph 1. The histogram for homoscedasticity



Graph 2. The normal P-P plot for homoscedasticity

#### 4. Findings

Descriptive statistics was employed to analyze the scores of the participants for both dimensions. Table 3 shows the average scores for the first dimension namely, examiners' attitudes. According to the table, the participants received the highest average score for I feel less anxious when the examiners nod in approval ( $M = 4.61$ ), followed by I feel less anxious when the examiners reword the question ( $M = 4.51$ ), and for I feel less anxious when the examiners provide clues about the topic I was given ( $M = 4.49$ ). These findings suggest that the participants feel less anxious when they receive positive feedback and help from the examiners.

Table 3  
*Examiners' attitudes as a source of oral test anxiety*

<i>I feel less anxious when the examiners...</i>		N	Min	Max	M	SD
1	nod in approval	412	2,00	5,00	4,61	0,586
2	ask me personal questions	412	1,00	5,00	4,33	0,890
3	make jokes	412	1,00	5,00	4,34	0,827
4	ask me how I feel	412	1,00	5,00	4,32	0,744
5	reword their question	412	1,00	5,00	4,51	0,685
6	provide clues about the topic I was given	412	1,00	5,00	4,49	0,621

As for the second dimension presented in the Table 4, the participants received the highest average score for I feel less anxious when I am informed earlier (beforehand) about the procedures during the test ( $M = 4.52$ ), followed by I feel less anxious when the speaking topics are given before the test ( $M = 4.35$ ), and for I feel less anxious when I can see sample speaking topics before the test ( $M = 4.35$ ). These findings indicate that the participants feel less anxious when they have information about the content of an oral test.

Table 4  
*Before-test performance procedures as a source of oral test anxiety*

<i>I feel less anxious when...</i>		N	Min	Max	M	SD
1	I can talk about the test with the students who have taken the exam before me	412	1,00	5,00	3,95	1,000
2	the speaking topics are given before the test	412	1,00	5,00	4,35	0,784
3	I can watch a sample test video	412	1,00	5,00	4,20	0,819
4	I am informed earlier (beforehand) about the procedures during the test	412	2,00	5,00	4,52	0,572
5	I know the exact time when I will be tested	412	1,00	5,00	4,19	0,972
6	I am informed about the content of the test	412	1,00	5,00	4,32	0,744
7	I can see sample speaking topics before the test	412	1,00	5,00	4,35	0,701

The research question addressed the relationship between the sources of anxiety in foreign language oral tests and cognitive load. In order to find out the relationship between cognitive load, and the two anxiety measures, Pearson product moment correlation coefficients were computed, and the results are presented in Table 5.

Table 5  
*Correlations between two anxiety factors and cognitive load*

Variables	M	SD	1.	2.	3.
1. Cognitive load	6,43	2,30	1		
2. Attitudes of examiners	4,38	0,49	0,10*	1	
3. Before-test procedures	4,26	0,54	0,31**	0,46**	1

\* $p < 0,05$ ; \*\* $p < 0,01$ ;  $N = 412$

The association between oral test anxiety (as measured by the two anxiety scales) and cognitive load (as measured by the Subjective Rating Scale) was calculated by Pearson product moment correlation coefficient. Preliminary analyses were carried out to ensure the assumptions of normality and linearity are met. Results of the Pearson

correlation indicated that there was a low positive association between the before-test procedures and cognitive load ( $r(412) = .31, p < 0,01$ ) and a moderate positive association between the before-test procedures and the attitudes of the examiners ( $r(412) = .46, p < 0,01$ ). The results also indicated a weak positive correlation between the attitudes of examiners and cognitive load ( $r(412) = .10, p < 0,05$ ).

Since the correlation analysis provided statistically significant relationships between examiners' attitudes, before-test procedures and cognitive load, a regression analysis was carried. Table 6 presents the results of the regression analysis.

Table 6  
*Regression analysis for predictors of cognitive load*

Variables	B	SE B	$\beta$	t	p
(Constant)	1,50	1,07		1,40	0,16
Attitudes of examiners	-0,23	0,25	-0,05	-0,92	0,36
Before-test procedures	1,40	0,22	0,33	6,22	0,00
R=0,310	Adjusted R <sup>2</sup> =0,092		F <sub>(2;409)</sub> =21,81		p<0,001

Dependent variable= Cognitive load

According to Table 6, attitudes of examiners and before-test procedures have a significant relationship with cognitive load as the dependent variable ( $R=0,310; F_{(2;409)}=21,81; p < 0,001$ ). The components of speaking test anxiety accounted for 9% of the total variance change on cognitive load. As the standardized beta coefficient was calculated; Before-test procedures was found as an important predictor of cognitive load ( $\beta=0,33; p < 0,01$ ).

## 5. Discussion

Among many factors that influence speaking in a foreign language, anxiety has a profound effect on foreign language learning (Horwitz et al., 1986). Therefore, identifying the students who are anxious while speaking in a foreign language is crucial in understanding the potential factors that cause anxiety since such a psychological state hinders the cognitive capacity of the students and results in low performance. From this perspective, the present paper investigated the relationship between EFL learners' oral test anxiety and their cognitive load.

The findings of the present research showed that testing conditions are important determiners to explain speaking test anxiety that may create high levels of cognitive load, which acts as a barrier to reflecting the students' actual oral performances. One of the neglected phases of oral foreign language tests is the before-test procedures, which should be clearly explained by the educational institutions. If the test takers are informed about the procedural details, they will feel less anxious and will spend much of their cognitive capacity on the preparation phase (Cassady, 2004).

Results of the present study also showed that the attitudes of the oral test examiners play a significant role in increasing the anxiety level of the test takers. Therefore, a negative oral test atmosphere created by the examiners is a significant negative predictor of the test takers' performances by increasing their cognitive load. As a result of this, the test takers become more anxious and their cognitive capacity is hindered accordingly (Zhang & Liu, 2013).

In this respect, educational institutions should train their teachers and instructors about the importance of the attitudes of oral test examiners; i.e., the danger of creating an atmosphere that makes the students anxious, and modify the speaking classes and tests accordingly. As a result of this, students will be able to spend much of their cognitive capacities on the exam-related tasks rather than external factors such as the general organization of the test or the attitudes of the examiners. From this point of view, institutions and teachers should change the context of foreign language testing in order to reduce stress and the cognitive load. Due to the Covid-19 pandemic, both the language instructors and learners have become more accustomed to online applications of language learning, and are capable of utilizing such tools in a more effective way. Hence, organizing online oral exams might be helpful in providing a stress-free environment where the students do not have to speak physically in front of an interviewer and will not be exposed to a heavy cognitive load (Sayın, 2015). As administrators and test assessors become aware of the negative effect of test anxiety on cognitive capacity, they would optimize oral tests to reduce or eliminate test anxiety, and help the test-takers to devote their cognitive capacity on the given tasks (Zhang & Liu, 2013).

## 6. Conclusion

This study investigated the effect of cognitive load caused by two external factors in oral tests in the foreign language learning context. Focusing on exploring the psychological sources of speaking anxiety in the language classroom, the existing literature on speaking anxiety has provided sufficient evidence about the factors affecting the language

learners' oral performance on speaking tasks in the target language. However, the effect of cognitive load on the oral performance of EFL learners during oral tests has not been well explored yet. In this sense, the present study provides evidence on the importance of cognitive load caused by two particular external factors, namely, examiners' attitudes and before-test institutional procedures, on the oral test anxiety of university students in an EFL context.

Consequently, the present study explored the impact of FL oral test anxiety on Turkish university students' mental capacities due to cognitive load, which in turn affected their test performance. In this respect, before-test procedures and the examiner' attitudes were found to be the two predictors of cognitive load that negatively affect the foreign language learners who suffer from anxiety in oral language tests. To put it briefly, this study concludes that oral test anxiety possesses a debilitating effect on the students' test performance by increasing their cognitive load and hindering their performance.

This study has a number of implications for the institutions that organize FL oral tests. The procedures followed before and during the implementation of oral tests can increase the cognitive load of the students and negatively affect their oral test performance. Therefore, the exam organizers and the examiners should be aware of this fact and should act accordingly in order to reduce the level of anxiety in foreign language oral tests. In order to reduce or even eliminate the anxiety in oral foreign language tests, language instructors should organize demo sessions following the same procedures of the actual speaking test, which will help the students to understand the general organization and feel less anxious about the speaking test, as well as devote more of their cognitive capacity for preparation. Also, foreign language teaching intuitions should provide in-service training for their instructors to inform them about the importance of their attitudes and behaviors during the implementation of oral tests.

This study also has implications for the researchers studying speaking anxiety. Unlike the existing research on speaking anxiety in foreign language learning, the present study focused on the effect of cognitive load caused by two external factors rather than focusing only on the psychological factors such as public speaking anxiety, fear of making mistakes, feelings of inadequacy or being exposed to negative evaluation. Further research on speaking anxiety should focus on cognitive processes that take place for the students who are orally tested in different contexts. Research on different age groups and various proficiency levels might present diverse findings about the relationship between the cognitive capacities and oral performance of language learners. Also, further research should focus on other factors, such as during the test or the physical conditions of testing rooms that might affect the speaking performance of the oral test takers by increasing their cognitive load.

This study has a number of limitations. Firstly, 412 students from four Turkish state universities participated in the study. A larger number of participants from other universities and countries would enable the researchers to gain more reliable findings about the relationship between cognitive load and oral test performance. Another limitation of the study is related to the research design. The present study is based on the quantitative research method. However, for a deeper understanding of the factors that negatively affect oral test takers, further studies should use the mixed methods design by utilizing interviews with the participants. Observation forms can additionally be used for data triangulation.

## 7. Ethical Consent of Research

This research (2021-YÖNP-0199) was approved by decision number 06/52 by the Scientific Research and Publication Ethics Board of Çanakkale Onsekiz Mart University on 25.03.2021.

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