

EFL Learners' Perceptions of Fairness in Classroom Assessment and their Cognitive Test Anxiety

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Abstract

Earlier research has shown that fair assessment plays a crucial role in the classroom and is closely associated with students' academic success. Besides, multiple studies have consistently indicated that the cognitive aspect of test anxiety significantly and meaningfully influences test performance, highlighting the connection between test anxiety and academic achievement. Therefore, this correlational study was done to investigate the relationship between Iranian EFL learners' perceptions of fairness in classroom assessment and their cognitive test anxiety. It followed a quantitative method and a total number of 201 learners, 88 males along with 113 females, participated in the present study voluntarily. A convenience and random-sampling method were applied, using fair assessment and cognitive test anxiety questionnaire. The results of the study, using Pearson-moment correlation and Regression analysis, revealed that there was no significant relationship between Iranian EFL learners' perceptions of fairness in classroom assessment and their cognitive test anxiety. It also indicated no significant difference between male and female learners' perceptions of fairness in classroom assessment and their cognitive test anxiety. The findings of the study can be implemented in educational systems by teachers, learners, programmers, and researchers. It can be considered as a guideline for teachers especially EFL teachers in academic environments to find solutions for the problems and difficulties in the fairness of classroom assessment.

Keywords: Assessment; EFL Learners; Fairness; Cognitive Test Anxiety; Test Anxiety

1. Introduction

It seems that one of the main factors of education is an assessment that is directed with the goal of assessing learners' learning in a fair way (Green et al., 2007). Fairness is characterized as the quality of treating individuals with equality and in a just or reasonable manner, as defined by Green et al. (2007). Similarly, the Merriam-Webster Dictionary describes it as demonstrating objectivity and honesty, devoid of self-interest, bias, or favoritism. These definitions suggest that assessment practices (APs) are considered fair when they are free of biases and do not show favoritism.

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A systematic review by Baniyadi et al. (2023) reveals that fairness in classroom assessment is a complex concept that influences learners' perceptions of fairness, as well as their motivation, effort, and behavior. Therefore, for an assessment to be deemed fair, it must accurately gauge learners' proficiency in the subject, effectively distinguish between learner performances, and ensure that no learner is disadvantaged (Green et al., 2007). This underscores the critical role of fair assessment in the classroom, as Holmgren and Bolkan (2014) established a strong link between fair assessment and learners' academic achievement. Additionally, Berti et al. (2010) noted that learners' engagement is influenced by fair assessment, and Chory-Assad (2002) found a significant increase in motivation when learners perceived assessment practices as fair. Conversely, Ishak and Fin (2013) identified a significant correlation between unfair assessment and learners' truancy, while Murdock et al. (2007) demonstrated that cheating increased when learners perceived APs as unfair, serving as a strong predictor of learners' hostility and aggression.

On the other hand, cognitive test anxiety can affect students' learning outcomes, self-regulation, and self-efficacy. Test anxiety can be characterized as the experience of stress arising from the apprehension of test failure or the judgment of others (Cassady & Finch, 2015). In this context, Zeidner (1998) defines it as a collection of phenomenological, physiological, and behavioral reactions that accompany concerns about potential negative outcomes or the possibility of failure in an examination or similar evaluative circumstance. The concept of test anxiety primarily revolves around cognitive elements (thoughts related to failure), affective elements (feelings of fear or frustration), and behavioral elements (nervous habits like twiddling or jiggling) (Sarason, 1980). Cognitive test anxiety involves individuals' cognitive responses to evaluative situations or their internal dialogue regarding such situations, occurring before, during, and after evaluative tasks. (Sarason, 1980). As soon as learners feel the assessment is fair in the classroom, a stress-free environment is created in which learners can create a positive situation and feel a sense of belonging to the classroom (Freeman et al., 2007). Studies examining the correlation between test anxiety and academic success have established that the cognitive dimension of test anxiety significantly and meaningfully affects performance on tests (Cassady et al., 2002). Some studies have found that students who perceive the assessment as fair tend to have lower levels of cognitive test anxiety than those who perceive it as unfair (Rasooli et al., 2019; Wallace & Qin, 2021). However, other studies have suggested that the relationship between fairness and cognitive test anxiety is complex and moderated by other variables, such as students' assessment preferences, learning styles, and personality traits Baniyadi et al. (2023).

It is noteworthy that a significant portion of past efforts has been directed towards defining fairness in classroom assessments and understanding its consequences on students' performance, motivation, and involvement in classroom activities. Test anxiety and more specifically its cognitive domain which seems to be one of the crucial components influenced by fair assessment remains intact. Investigating this relationship can be useful to raise learners' awareness of fair assessment components and be familiar with the factors that may cause cognitive test anxieties. Therefore, this study aimed to examine if there is a significant relationship between learners' perception of fairness in classroom assessment and their cognitive test anxiety.

2. Review of Literature

2.1. Theoretical Framework of Fairness

The concept of test fairness experienced a significant attention with the advent of test evaluation approaches, yet a comprehensive framework for assessing test fairness did not emerge until the 2000s. Kunnan (2000) introduced the Test Fairness Framework (TFF), which is rooted in an ethical and principle-based approach, incorporating overarching principles and sub-principles. This framework revolves around five key test qualities: validity, lack of bias, accessibility, administration, and social consequences. In 2004, Kunnan further refined the framework, emphasizing access and administration qualities. TFF, as outlined by Kunnan (2004), views fairness in the context of the entire testing practice system, not just the test itself. The underlying principles of justice and beneficence, along with sub-principles, are elucidated. The justice principle strives to ensure fairness for all test takers, encompassing sub-principles that advocate for comparable construct validity and the absence of bias against any test-taker groups. The beneficence principle asserts that a test should contribute positively to society, avoiding harm.

According to Kunnan (2004), the first component of the framework, validity, is assessed through content representativeness, construct validity, criterion-related validity, and reliability. The absence of bias considers test content, language, disparate impact, and standard setting. Access, the third module, demands educational, financial, geographical, and equipment access for test takers. Administration focuses on optimal physical conditions, consistency across test sites, equivalent forms and instructions, and proper test security. The social consequences module involves collecting evidence on washback and remedies, urging test developers to address the impact of a test on instructional practices and mitigate detrimental consequences.

Bachman and Palmer (2010) present an alternative model, the Assessment Use Argument (AUA), comprising claims about assessment records, clarifications, conclusions, and consequences. For each claim, a robust validity argument necessitates both theoretical underpinning and empirical evidence. AUA (American University in Armenia) reported that interpretations must possess meaning, impartiality, generalizability, relevance, and sufficiency. Decisions should be sensitive to values and equitable, consequences should be advantageous, and assessment records should exhibit consistency. As per AUA, the accuracy of interpreting and applying test results relies on the completeness and consistency of a network of inferences and assumptions.

Numerous studies have explored test fairness based on these frameworks and theories (Fan et al., 2020; Grace, 2017; Rasooli et al., 2019, 2023; Resh & Sabbagh, 2016; Rezai et al., 2022). As an example, Rasooli et al. (2023) conducted a study exploring teachers' perceptions of fairness in classroom assessment. The research identified three overarching themes: individual mechanisms, social mechanisms, and the dialectical relationships that exist between these two dimensions. Tierney (2014) reconceptualized fair assessment from the perspectives of Canadian learners, emphasizing equity, multiple learning opportunities, transparency, trustful environments, and avoidance of equal assessment. Rezai et al. (2022) discovered Iranian university teachers' perceptions of demographic biases in assessment fairness, revealing themes of gender, ethnic, and socioeconomic biases acting as sources of score pollution in classroom assessments.

2.2. Cognitive Test Anxiety

Anxiety stands out as one of the most prevalent challenges in life, and when it specifically affects the anxiety associated with test-taking, besides difficulties in recalling correct information and performing adequately, it is termed as test anxiety. This phenomenon encompasses three core components: cognitive, affective, and behavioral (Zeidner, 1998). The cognitive facet of test anxiety involves four fundamental dimensions: deficiency in study skills, interruptions during practice or study sessions before exams, lack of motivation leading to avoidance of studying and a familiarity with failure, and an inability to overcome challenges (Cassady, 2004; Cassady & Finch, 2015; Zeidner, 1998).

Extensive research in the realm of cognitive test anxiety has identified two primary forms, traditionally labeled as worry and emotionality. The emotionality component mainly encompasses physiological responses such as high heart rate, headaches, dizziness, and feelings of panic associated with anxiety-inducing evaluative events (Sarason, 1984). On the other hand, the worry component, as outlined by Cassady (2010), encompasses various elements such as self-deprecating ruminations, distractibility while studying and taking tests, making comparisons with peers, anxiety regarding the potential impact of tests on self-esteem, avoidance of test preparation, and the impairment of study skills and cognitive processing.

Hembree's (1988) research directed attention to the cognitive factor (i.e., worry) as a test anxiety exerting the most substantial negative impact on performance. Consequently, cognitive test anxiety is characterized by individuals' cognitive responses, including internal dialogues, to evaluative situations before, during, and after tasks. Common thoughts among individuals experiencing high levels of cognitive test anxiety revolve around self-performance comparisons, anticipation of failure consequences, low confidence, excessive worry over evaluation, concern for parental disappointment, feelings of being unprepared, and a loss of self-worth (Depreeuw, 1984; Hembree, 1988; Morris et al., 1981).

Cassady and Johnson (2002) delved into the relationship between cognitive test anxiety and academic performance, introducing a measure specifically focused on the cognitive dimension. Higher levels of cognitive test anxiety were found to be linked to lower scores on three course examinations. Gender variations in cognitive test anxiety were observed, with females demonstrating higher levels of the emotionality component. However, these gender differences did not exhibit a correlation with performance on course exams. Research indicates that gender-based distinctions in test anxiety are influenced by scholastic ability, and when academic aptitude is taken into account, the influence of gender on test anxiety becomes negligible (Zeidner, 1990). Despite heightened levels of reported test anxiety in females, it is not necessarily accompanied by lower performance scores (Hembree, 1988).

In a different study, Kuloglu and Gorkem-Orhan (2021) explored the link between test anxiety and cognitive flexibility levels among students preparing for university exams. The study involved 650 students, revealing that participants experienced anxiety due to social factors and cognitive and physiological anxiety. Female participants exhibited significantly higher test anxiety levels, and a low, negative relationship was identified between test anxiety and cognitive flexibility levels.

As can be implied from the reviewed studies, fair assessment and cognitive test anxiety have been studied from different aspects although the relationship between learners' perception

of fairness and their cognitive test anxiety has been overlooked, a gap that the present study aimed to fill in form of the following research questions:

RQ1. Is there any significant relationship between Iranian EFL learners' perceptions of fairness in classroom assessment and their cognitive test anxiety?

RQ2. Which construct of fair assessment is the best predictor of EFL learners' cognitive test anxiety?

3. Method

3.1. Participants and Settings

The setting of the current study was the institutes and schools which teach English as a foreign language. The optimal number of participants for various statistical analyses depends on several factors, including power and probability level. In a standard research study, a significance level of 5%, an effect size of 50%, and a statistical power of 80% are recommended (Hair et al., 2013; Marcoulides & Saunders, 2006). Regarding correlational studies, with a probability level of 0.05, an effect size (Cohen's *d*) of 0.5, a minimum expected correlation coefficient of 0.20, and a power level of 0.8, the minimum required total sample size would be 194 (Hair et al., 2013; Marcoulides & Saunders, 2006). Therefore, based on the proposed sample size for Confirmatory Factor Analysis in different sources, the selected sample size of 201 cases for the present study would be an ideal sample size. The participants of this study were 201 Iranian EFL learners who were selected from different educational contexts at institutes and English language schools to increase the generalizability of the findings. They were from both genders (Male= 88 and Female= 113), different fields of study (TEFL, English Translation, English Literature, and Others), and with different degrees (BA, MA, and PhD). The participants in this study were not categorized by age. The process of data gathering, through spreading the questionnaire electronically, took place in May 2023; the participants were Iranian EFL learners from different cities. Because of using the electronic google form link for gathering the data, convenience and random sampling was employed.

3.2. Instruments

The researcher used two questionnaires to gather the required data. Fair assessment questionnaire developed by Rezai (2022) consisted of overall 110 items on a five-point Likert scale from *strongly disagree* to *strongly agree*. The questionnaire's construct validity was confirmed through Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA), while its reliability was confirmed with an overall Cronbach's alpha coefficient of 0.91 (Rezai, 2022). However, the reliability of the instrument was calculated by the researcher, and cognitive test anxiety scale developed and validated by Cassady and Finch (2014), containing 17 items on a 4-point rating scale from *not at all typical of me* to *very typical of me*. The questionnaire was validated using the Rasch rating scale model and the scale enjoyed acceptable reliability. However, the reliability of the instrument was calculated by the researcher.

3.3. Procedures

The process of data gathering took place through spreading the questionnaire electronically, a convenience and a random-sampling method was applied to examine the participants' perceptions in this study. The researcher sent the questionnaire through social media to all learners who are studying English as a foreign language in institutes or English language learning schools. The participants were from different ages and both genders. They were from different cities in Iran. The answer of each participant was sent to the researcher's email. The data collection was inserted into SPSS to analyze the results. Data collection procedure started in April 2023, and lasted for about three months.

3.4. Study Design and Data Analyses

The researcher used a correlational and quantitative research method. Data analysis has been done by SPSS. The normality of the data has been checked by running the Kolmogorov-Smirnov test. Also, the reliability of data was checked by SPSS.

4. Results and Discussion

4.1. Normality

To investigate the normality of data distribution, the Kolmogorov-Smirnov test was used. A non-significant p -value ($p > 0.05$) indicates normality, that is, the distribution of a sample does not significantly deviate from a normal distribution. As shown in the table1, the p -value is not significant, indicating no violation of the assumption of normality.

Table 1

The Results of Kolmogorov-Smirnov Test

	Kolmogorov-Smirnov ^a		
	Statistic	Df	Sig.
Fairness in Classroom Assessment	.059	201	.08
Cognitive Test Anxiety	.098	201	.06

4.2. Reliability

According to Koo and Li (2016), values smaller than 0.5 indicate poor reliability, values between 0.5 and 0.75 are indicative of moderate reliability, values between 0.75 and 0.9 indicate good reliability and values greater than 0.90 indicate excellent reliability. In this study, the degree of reliability for the scale was investigated using the Cronbach alpha coefficient (1951), and values of 0.84 and 0.88 were obtained (Table 2), showing good internal consistency reliability for the samples.

Table 2

Reliability Indices of the Questionnaires

Reliability Index	Alpha
Fairness in Classroom Assessment	0.84
Cognitive Test Anxiety	0.88

4.3. Analysis of the Results

To examine the correlation between Iranian EFL learners' perception of fairness and their cognitive test anxiety, Pearson product-moment correlation was used.

Table 3

Correlation between EFL Learners' Perceptions of Fairness in Classroom Assessment and Their Cognitive Test Anxiety

Pearson Correlation		Cognitive Test Anxiety
Fairness in Classroom Assessment	Correlation Coefficient	-.11
	Sig. (2-tailed)	.50
	N	201

The gathered data displayed that there was not any significant correlation between Iranian EFL learners' insights about fairness in classroom assessment and their cognitive test anxiety with ($r = -.11$, $p = .50$). The findings are in line with the results of Lang and Lang (2010). He explored the correlation between cognitive test anxiety and performance on tests. The results indicated that individuals with cognitive test anxiety often possess greater abilities than what is typically demonstrated. In another study, Pepper and Pathak (2008) investigated the university students' perception of fair assessment at Southwestern University. In their study, the researchers found that participants APs as fair when there was clarity in assessment management and scoring criteria, regular feedback, and proactive involvement in the assessing process.

To address the second research question, multiple regression, a statistical technique used for predicting the outcome of a variable based on the values of two or more variables, was used. In this case, the independent variables were the constructs related to fairness in classroom assessment, and the dependent variable was cognitive test anxiety.

Table 4

Descriptive Statistics for the Constructs of Fairness in Classroom Assessment and Cognitive Test Anxiety

	Mean	Std. Deviation	N
Learning materials and practices	61.57	8.93	201
Test design	77.44	6.80	201
Opportunity to demonstrate learning	26.73	8.94	201
Test administration	70.32	4.15	201
Grading	34.03	8.69	201
Offering feedback	19.88	5.14	201
Test results interpretation	15.79	3.40	201
Decisions based on tests results	8.62	3.00	201
Test results consequences	12.21	2.33	201
Learner's fairness- related beliefs and Attitudes	27.05	2.94	201
Cognitive Test Anxiety	32.95	8.93	201

According to Table, the mean of the scores of the participants in the Cognitive Test Anxiety questionnaire as the dependent variable was 32.95 with a standard deviation of 8.93. Furthermore, the highest and lowest mean scores of the independent variable's components were 77.44 and 8.62 for test design and decisions based on test results, respectively.

Table 5

R Square Table for the Components of Fairness in Classroom Assessment as the Predictor of Cognitive Test Anxiety

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.33	.11	.06	8.66

The table displays information about how the two variables relate to one another. In Table, R shows the strength of the relationship between the outcome variable and all of the predictor variables combined. According to the Table, the $r = .33$ showed that there was a small correlation between the components of the independent and dependent variables. Furthermore, the R square value is .11 indicating that about 11% of the variation in learners' cognitive test anxiety can be explained by their perceptions of fairness in classroom assessment

Table 6

Results of the ANOVA Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1714.74	10	171.45	2.28	.01
	Residual	14255.65	190	75.03		
	Total	15970.39	200			

a. Dependent Variable: Cognitive Test Anxiety

b. Predictors: (Constant), Fairness in Classroom Assessment components

This table indicates whether or not the model is a significant predictor of the dependent variable. Since the significance value was less than $p = 0.05$, it is concluded that the regression model significantly predicted the learners' cognitive test anxiety. Furthermore, the results of the table show which component of perceptions of fairness in classroom assessment can significantly predict learners' cognitive test anxiety.

Table 7 shows the extent to which the individual predictor variables contribute to the model. According to the Table, the level of significance for construct decisions based on tests results was less than 0.05 with a Beta number of .26. Therefore, it is concluded that the 99% of the relationship between the components of fairness in classroom assessment and cognitive test anxiety is predicted by this construct. However, other components did not have any significant effect on the relationship between the components of perceptions of fairness in classroom assessment and cognitive test anxiety.

Here, running the regression coefficient for fair assessment reveal that the Iranian EFL learners' perception of fairness in classroom assessment cannot predict their cognitive test

anxiety. In contrast to the aforementioned findings, Bazvandand and Rasooli (2022) conducted a study examining Iranian postgraduate university students' fairness in classroom assessment in higher education setting. Their results indicated that their ideas on fairness were influenced by the equity principle.

Aligned with the present investigation, Cassady and Johnson (2002) sought to methodically examine the potential correlation between cognitive test anxiety and academic performance in a group of 168 undergraduate students. Their results indicated that elevated levels of cognitive test anxiety were linked to notably lower test scores. Likewise, Thomas and Gadbois (2017) focused on identifying elements that could positively or negatively influence the academic achievements of college students. Their investigation indicated that both cognitive test anxiety and the application of emotion-focused coping techniques played pivotal roles in predicting the long-term academic success of students. This implies that a rise in cognitive test anxiety and a heightened dependence on emotion-focused coping strategies were linked to decreases in four-year GPA.

Table 7

Multiple Regression Analysis Between Independent Variable (perceptions of fairness in classroom assessment) and Dependent Variable (learners' cognitive test anxiety)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	30.81	7.87		3.91	.00
Learning materials and practices	0.18	.10	.01	.17	.86
Test design	.04	.08	.05	.60	.55
Opportunity to demonstrate learning	-.07	.17	-.03	-.43	.66
Test administration	-.6	.09	-.06	-.64	.52
Grading	-.17	.14	-.10	-1.17	.24
Offering feedback	.10	.22	.04	.43	.66
Test results interpretation	-.44	.25	-.14	-1.75	.08
Decisions based on tests results	.99	.30	.26	3.35	.00
Test results consequences	-.27	.24	-.09	-1.14	.25
Learner's fairness- related beliefs and attitudes	.31	.17	.14	1.82	.07

a. Dependent Variable: cognitive test anxiety

5. Conclusion

The concept of fairness as one of the most important issues attracted attention in different fields, one of which is the field of teaching and learning. It is noteworthy that studies in the field of fairness in the classroom and especially fairness in classroom assessment have mostly concentrated on what has an impact on or relationship with learners' perception of fairness of classroom assessment (Hamid et al., 2019; Scott et al., 2014; Shiba et al., 2015; Suskie, 2002). Besides, cognitive test anxiety is also one of the most challenging aspects of the learning process for most of the EFL learners in Iran because cognitive test anxiety generates a stressful environment where positive learning is not experienced and students feel a decreased

sense of belonging to the classroom. Indeed, selecting stress-free material that fits learners' personal characteristics, shapes a friendly learning environment, and helps teachers to improve their testing style. The findings of this study provide a conceptual framework for teachers and learners to get familiar with the fair assessment and cognitive test anxiety factors.

This study is beneficial for those students, teachers, and researchers who want to read the theories related to fair assessment and cognitive test anxiety. The findings of this study are useful for learners to be aware of fair assessment factors and be familiar with factors that may cause cognitive test anxiety during test taking. The result also can be considered as a guideline for teachers especially EFL teachers in academic environments to find solutions for the problems and difficulties in the fairness of classroom assessment. Curriculum designers also can use it to improve the efficacy of classroom assessment. Question developers also can benefit from the results to know what kind of questions are fair. It helps supervisors and assessment scholars to have more insights into learners' perceptions of fair assessment.

In this study, a small research scale consisting of 201 learners was analyzed. Thus, another study can be conducted to evaluate the relationship between these variables among learners on a larger scale. Additional research is needed to better understand the true nature of other variables that may affect learners' perception and their cognitive test anxiety in the EFL classes. Indeed, other pedagogical variables can be employed as predictors of cognitive test anxiety. Due to the constrained nature of the current study, the researcher examined only the results of two selected questionnaires in Khorasan Razavi Province. Thus, the same study with different questionnaires can be conducted in various geographical places.

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The authors declare no competing interests.

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