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Yükseköğretimde Ölçme ve Değerlendirmenin Yeniden Düşünülmesi: Yabancı Dil Olarak İngilizce Öğrenenlerin Bilgisayar Destekli Değerlendirmeye Yönelik Algıları

Rethinking Assessment in Higher Education: EFL Students' Perceptions of Computer-Assisted Assessment

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Özet: Değerlendirme, öğrencilerin bilgi, kavrama, beceri ve yeteneklerinin yanı sıra öğrenme çıktılarını değerlendiren öğretim ve öğrenim çerçevesinin temel bir sürecidir. Son yıllarda dijital teknolojilerin hızlı gelişimi, değerlendirme dahil eğitimin neredeyse her yönünü dönüştürmüştür. Bilgisayar destekli değerlendirme (Computer-Assisted Assessment – CAA), anında geri bildirim sağlama, daha yüksek verimlilik ve öğretmenler ile öğrenciler için daha fazla esneklik sunma gibi birçok açıdan geleneksel kâğıt-kalem değerlendirme yöntemine göre üstünlük sağlamaktadır. Bu amaçla, bu çalışma lisans düzeyindeki Yabancı Dil Olarak İngilizce (EFL) öğrenenlerin bilgisayar destekli değerlendirme (CAA) hakkındaki algılarını araştırmayı ve bu algıları ile CAA ile ilgili önceki deneyimleri arasındaki ilişkiyi incelemeyi amaçlamaktadır. Araştırmanın katılımcılarını, Türkiye'de bir devlet üniversitesinde isteğe bağlı ve zorunlu hazırlık sınıflarına devam eden 102 öğrenci (63 kadın, 39 erkek) oluşturmaktadır. Veriler, öğrencilerin CAA'ya yönelik algılarını ölçen bir anket ve ara sınav puanları aracılığıyla toplanmıştır. Elde edilen bulgular, öğrencilerin CAA'nın yararlarına ilişkin genel olarak olumlu algılara sahip olduklarını göstermiştir ve bölümler arasında genel ortalama puanları açısından istatistiksel olarak anlamlı bir fark bulunmamıştır. Ancak, kadın ve erkek katılımcıların CAA'ya yönelik genel algıları arasında anlamlı bir fark tespit edilmiştir. Pearson korelasyon analizi, öğrencilerin CAA'ya yönelik algıları ile önceki deneyimleri arasında istatistiksel olarak anlamlı bir ilişki olmadığını ortaya koymuştur. Benzer şekilde, öğrencilerin CAA'ya yönelik algıları ile İngilizce dil yeterlikleri arasında da istatistiksel olarak anlamlı bir korelasyon bulunmamıştır.
Anahtar Kelimeler: Değerlendirme, bilgisayar destekli değerlendirme, Yabancı Dil Olarak İngilizce öğrenenler

Abstract: Assessment is a fundamental process in the teaching and learning framework that evaluates students' knowledge, comprehension, skills, and capacities, as well as the learning outcomes. The rapid development of digital technologies in recent years has transformed nearly every aspect of education, including assessment. Computer-assisted assessment (CAA) has many advantages over the conventional pen-and-paper assessment method, including immediate feedback, more efficiency, and more flexibility for teachers and students. Within this purpose, this study aims to investigate undergraduate EFL students' perceptions of computer-assisted assessment (CAA) and examine the relationship between their perceptions and their prior experience with CAA. The participants were 102 students (63 females and 39 males) enrolled in optional and compulsory preparatory classes at a public university in Türkiye. Data were collected via a questionnaire that measured students' perceptions of CAA and their midterm scores. The findings revealed that students generally held positive perceptions regarding the benefits of CAA, and no statistically significant difference was found in the overall mean scores across departments. However, a significant difference emerged between the general perceptions of CAA among female and male participants. Pearson correlation analysis indicated that students' perceptions of CAA were not significantly associated with their prior experience. Likewise, no statistically significant correlation was found between students' perceptions of CAA and their English language proficiency.
Key Words: Assessment, computer-assisted assessment, EFL learners

Introduction

The process of evaluating a person's knowledge, skills, comprehension, and talents is known as assessment. Students have been evaluated with pencils, pens, and paper for many years. However, because technology is constantly evolving, information and communication technology (ICT) has been incorporated into the assessment process. This has changed how evaluations are carried out, especially in educational institutions (Faniran et al., 2020). Within this framework, computer-assisted assessment (CAA) has emerged as a specialized field concerned with the effective incorporation of computers into assessment practices (Pascual-Nieto et al., 2008). Sim et al. (2004) conceptualize CAA as the use of computers to administer, grade, or analyze homework and examinations.

Computer-based assessment can be applied across a wide range of disciplines and offers opportunities for advancements in testing and evaluation. The two main types of CBA are formative and summative evaluations (Peat & Franklin, 2002). Summative evaluations help students determine how well they have learned. However, through pertinent feedback, formative assessments help students achieve their goals. Since its introduction into pedagogical contexts, CAA has been widely adopted due to its numerous advantages in the assessment process, which will be discussed in the following sections.

The Benefits of Implementing Computer-Assisted Assessment

Computers have become increasingly prevalent in assessment procedures due to several advantages, including the ability to reduce assessment load and provide novel approaches to assessment (Redecker & Johannessen, 2013). Compared with paper-based assessments, computer-assisted assessment allows the use of more sophisticated items and audiovisual materials. At the same time, the latter facilitates more sophisticated interactions between students and computers because CAA systems possess richer learner data. By recording and analyzing student interactions, one can gain a deeper understanding of the learning process and evaluate students' performance and the efficacy of the questions (Conole & Warburton, 2005).

Since CAA automatically marks students' responses to multiple questions across various activities, it provides a consistent method of marking, which is necessary for the assessment process to be valid and measurable (Conole & Warburton, 2005). This is one of the most significant aspects of using computers in assessment. As a result, it permits temporal flexibility in the evaluation process (Bull & McKenna, 2003). Additionally, it is proposed that CAA offers a more critical and integrated approach to assessment (O'Reilly, 2002). Through CAA, an assessment process can be repeated multiple times, encouraging students to use their skills for diverse versions of the same topic or situation (Bull & Danson, 2004).

Another key feature of CAA is its ability to provide immediate feedback, which motivates students to seek alternative resources and enables instructors to identify those who may need additional support (Tshibalo, 2007) and assess them according to their individual needs (Nicol, 2008). Even in classrooms with large student populations, CAA consistently and thoroughly provides feedback to each student (Tshibalo, 2007). By analyzing questions and student performance in detail, CAA can identify knowledge and learning gaps early on, which helps instructors make adjustments to the curriculum or language learning and teaching strategies (Bull & Danson, 2004). Additionally, computer-assisted tests yield more accurate results than paper tests because adaptive testing adjusts the test's difficulty based on the user's responses. This adjustment is more challenging when the user answers correctly and easier when they select an incorrect response (Ridgway et al., 2004).

The Drawbacks of Implementing Computer-Assisted Assessment

Several challenges have been identified in implementing computer-based methods/techniques for evaluating students' learning. For instance, according to Simin and Heidari (2013), integrating CAA into institutions is expensive from an administrative standpoint. Since CAA requires proficiency in technology and adherence to its guiding principles, staff members should receive training on these topics. Additionally, the computer system needs to be routinely monitored to prevent issues during critical periods, such as test periods.

From a pedagogical perspective, efficient use of computer-assisted assessment (CAA) requires sufficient training for both staff and students. Due to their practicality, multiple-choice questions are

frequently used in computer-assisted tests, but they are not ideal for assessing higher-order cognitive abilities (McKenna, 2001). Because CAA primarily uses multiple-choice questions, it seems to have limited ability to evaluate students' higher-order learning skills; instead, it tends to focus on evaluating basic knowledge (Bull & Danson, 2004).

McDaniel and Little (2019) argue that although many classroom studies show that multiple-choice questions (MCQs) do not necessarily result in lower-order or less learning, they often fail to require students to generate their own solutions, thereby limiting opportunities for analysis and synthesis, since deeper processing depends more on production than on recognition. The inability of CAA to be accessible to every student is one of the issues raised. To ensure that every student has access to exams, the necessary steps must be taken (Bull & Danson, 2004). Additionally, it is believed that, through CAA, students view learning as a data-transfer process rather than a knowledge-manipulation process (McKenna, 2001).

Previous Studies on the Implementation of Computer-Assisted Assessment

Several studies have examined the impact of Computer-Assisted Assessment (CAA) on the assessment process. CAA is a successful method of evaluating students' learning and a helpful tool for providing instant feedback (Miller, 2009; Sealey et al., 2003). Jiao and Brown (2012) investigated the influence of CAA on student performance. They found that learners appreciated receiving positive feedback on their achievements through an e-Tutor program during automatic marking. At the same time, less successful students were also motivated by the opportunity to receive immediate feedback. In line with these findings, Fletcher, Kearney, and Bartlett (2002) reported that participants' mean perception scores of the usefulness of CAA in learning assessment increased from 21% to 34% on the post-test, indicating a positive shift in students' attitudes toward CAA as a beneficial assessment tool.

Several empirical studies indicate that students have a positive attitude toward using CAA as an assessment technique (Sobremisana & Aragon, 2016). According to a study, students who completed computerized practice examinations had positive attitudes toward their practice sessions and received an average score that was half a letter higher than those who did not (Gretes & Green, 2000). A quasi-experimental study by Koedinger et al. (2010) assessed a web-based tutor that provides timely instruction and assessment. The study demonstrated the potential of online formative assessment tools to enhance student achievement, finding that increased tutoring use was associated with improved learning outcomes. In another study, Pascual-Nieto et al. (2008) investigated the effectiveness of a web-based application as an alternative tool for assessing students' learning, asking participants to express their views on its advantages and disadvantages. The results indicated that most students held positive perceptions of the program, appreciating its ability to allow learners to review course material both inside and outside the classroom, as well as its provision of immediate and more detailed feedback.

Purpose of the Study

Despite the growing popularity of computer-based tests, little is known about how students perceive online assessments in general and the various categories of online assessment systems (Özden et al., 2004). Furthermore, published research on students' opinions of online tests in higher education is limited (Ricketts & Wilks, 2002). As student assessment has become a significant concern for higher education institutions due to the increasing number of students (Tshibalo, 2007), this study examines the opinions of students enrolled in Computer-Assisted Language Learning (CALL) classes who engaged in computer-based assessments over the semester. The primary aim is to investigate whether there is a relationship between students' perceptions of Computer-Assisted Assessment (CAA) and their experience with such assessments. Within this purpose, the research questions are as follows:

RQ1: What are learners' perceptions of the implementation of CAA?

RQ2: Do learners' perceptions differ by gender?

RQ3: Do learners' perceptions differ by department?

RQ4: Is there a relationship between learners' perceptions of CAA and their prior experience with computer-assisted assessment?

RQ5: Is there a relationship between learners' perceptions of CAA and their level of English achievement?

Method

Research Model

A correlational survey model was selected as the quantitative research method in this study to examine how EFL learners perceived computer-assisted assessment and the relationships among their perceptions, prior experience with CAA, and their English achievement scores. According to Putri et al. (2025), the methodological goal of correlational research is to determine and examine, without manipulation, the relationship between two or more variables. Although it cannot establish causation, this type of research helps determine whether the variables are related. There are three possible outcomes or relationships between variables in correlational research: no correlation, negative correlation, or positive correlation. When two variables are positively correlated, they tend to move in the same direction: one increases as the other increases. On the other hand, a negative correlation implies that one variable decreases when the other increases, and vice versa. However, when there is no correlation, there is no consistent relationship between changes in one measure and changes in the other (Shreekumar, 2024).

Setting and Participants

The study was conducted at a state university in Türkiye, and the participants were undergraduate EFL learners enrolled in both optional and compulsory preparatory classes. A total of 102 students participated in the study, including 63 females and 39 males. They were drawn from different departments, were taking year-long English language courses, and had been receiving CALL lessons as part of their language learning.

The participants were selected from intact classes and divided into two groups, with each group consisting of two classes. Descriptive statistics regarding demographic information showed that Class 1 included 20 students (7 male and 13 female), Class 2 included 23 students (15 female and 8 male), Class 3 included 29 students (17 female and 12 male), and Class 4 included 30 students (18 female and 12 male).

In terms of departmental distribution, 22 participants were from the Department of Public Administration, 12 from the Department of Foreign Trade, 18 from the Department of Tourism, 28 from the Department of International Relations, and 22 from the Department of History.

Data Collection Instrument

The data were collected through a questionnaire adapted from Jamil (2012), which comprised 28 items via a 5-point Likert scale organized into two sections. The first section included 12 items designed to assess participants' general perceptions of CAA use. The second section consisted of 16 items that asked students to reflect on their experiences with CAA. Although this second part of the questionnaire was initially intended only for participants with prior experience in CAA, in this study, it was administered to all students, since they had already been taking CALL classes and practicing computer-assisted assessment. Furthermore, as the original questionnaire had been developed for Pakistani students, the items referencing Pakistan were adapted to the Turkish context. The instrument was piloted twice with students from different departments and universities to ensure content validity. The use of a standardized five-point Likert scale, consistency of responses across pilot studies, and alignment with previously validated instruments support the reliability and internal coherence of the original data collection instrument. In this study, the two field experts who validated the instrument provided feedback on its merits and weaknesses. To ensure reliability, the scale's internal consistency was calculated, yielding a high Cronbach's α (.82), indicating good reliability (George & Mallery, 2019). Moreover, negatively worded items were reverse-scored prior to the analysis.

Data Analysis

After the data were collected, participants' responses were entered into the SPSS program. Descriptive statistics were used to present demographic information about participants across several variables, including gender, mean age, length of English-language study, and department. Independent samples t-tests were conducted to determine whether there were statistically significant differences in participants' general perceptions of CAA between male and female students. Additionally, a one-way analysis of variance (ANOVA) was carried out to examine differences in perceptions across the six departments. Finally, Pearson's correlation analysis was employed to investigate the relationships among participants' perceptions of CAA, their prior experience with it, and their midterm scores. A Test of Normality was conducted for every analysis prior to deciding whether to use a parametric or non-parametric test because it is recognized that the normality assumption must be verified, as it is thought to be a requirement for statistical procedures (Ghasemi & Zahediasl, 2012).

Findings

Findings regarding the first research question

The first research question investigated EFL learners' perceptions of computer-assisted assessment. Descriptive statistics of participants' overall mean scores indicated a positive level (M = 3.02, SD = .51), suggesting that the use of computers has a generally favorable effect on learners' perceptions of computer-assisted assessment. The results revealed that the most preferred item was Item 12, which stated that "CAA should be implemented in all universities of Türkiye." The second most preferred item was Item 6 (M = 3.68, SD = 1.40), reflecting the perception that "CAA is not adequate in Türkiye," followed by Item 2 (M = 3.44, SD = 1.41), which emphasized that "Students should be trained to use computers for online tests/exams." Conversely, the lowest mean score was observed for Item 4 (M = 2.38, SD = 1.44), which suggested that "CAA is a useless technique for me because I have no knowledge about it." The second least preferred item was "CAA is an interesting examination technique" (M = 2.43, SD = 1.41), followed by Item 3 (M = 2.49, SD = 1.42), which proposed that "Computers do not need to be used in tests or exams."

Findings regarding the second research question

Researchers and educators have discovered that men and women perceive and impact the relationships between the structures that influence the behavioral intention to use computers and e-learning differently (Terzis & Economides, 2011). To this end, an independent-samples t-test was conducted to examine whether there was a statistically significant difference in the general perceptions of CAA use between female and male participants. The results are presented in Table 1 below:

Table 1. Independent samples t-test results on students' general perceptions by their gender

Group	N	X	SD	df	t	P
Female	63	2.86	.47	100	-4.257	.000
Male	39	3.27	.48			

$p<0.05$

The results revealed a statistically significant difference between male participants (M = 3.27, SD = .48) and female participants (M = 2.86, SD = .47) in their overall perceptions of CAA, $t(100) = -4.26$, $p < .001$, $d = -0.86$, $r = -0.39$, indicating a large effect size. In other words, male students reported more positive perceptions of CAA compared to female students. This finding may be related to the notion that male students tend to show greater interest in using computers in both daily life and educational settings.

Findings regarding the third research question

Another variable examined in the study was participants' departments to determine whether department affiliation had a statistically significant effect on general perceptions of CAA use. The one-way ANOVA results indicated no significant difference among departments, $F(4, 97) = 0.210$, $p = .932$. Therefore, it can be concluded that participants' departments do not have a significant impact on their perceptions of computer-assisted assessment.

Findings regarding the fourth research question

Prior computer experience and communication abilities are crucial factors in computer-based assessments (Dammas, 2016). Thus, previous computer experience has been identified as a key factor influencing examinee performance (Russell et al., 2003). Within this purpose, the fourth research question examined any relationship between learners' perceptions of CAA and their prior experiences. The results indicated no significant correlation between the two variables, Pearson's r (102)=.049, p=.628. Therefore, it suggests that participants' prior experience with CAA did not have a meaningful effect on their perceptions of computer-assisted assessment.

Findings regarding the fifth research question

A Pearson correlation analysis was conducted to investigate whether there was a relationship between participants' perceptions of CAA and their level of English achievement; the results indicated a weak, positive correlation, r(102) = .170, p = .088, but this relationship was not statistically significant. As a result, there is no significant correlation between participants' opinions of CAA and their English achievement levels. This shows that their English achievement does not explain diversity in participants' CAA impressions, and other factors are likely to have a more significant impact.

Discussion and Conclusion

Drawing on findings from the first research question, which examined EFL students' overall perceptions of computer-assisted assessment, it was revealed that they hold positive beliefs about its implementation. Similarly, Fletcher et al. (2002) reported that participants' average perception ratings showed a favourable shift in their views toward CAA, underscoring its significance as an advantageous assessment instrument. Besides, Vu (2021) examined the viability of digital representation for assessing EFL speaking skills at a university in Vietnam, and based on the findings, it was reported that attitudes toward computer-assisted assessment (CAA) were favourable among both teachers and students. They favoured the computer-assisted English assessment (CAEA) over the existing paper-and-pencil mode of testing because they felt comfortable using it.

The second research question aimed to investigate whether participants' perceptions differ by gender. Based on the findings, there is a statistically significant difference between male and female students in their general perceptions of CAA use. Several contradictory findings have been reported in the literature regarding gender differences. Öz (2014) examined pre-service English teachers' perceptions of web-based assessment, considering variables such as gender, duration and frequency of internet usage, and level of computer literacy. The results indicated that female participants scored lower than male participants across four dimensions—intention, usefulness, ease of use, and computer attitude—but reported higher levels of anxiety. However, no statistically significant differences were found between female and male participants in their overall opinions and attitudes toward web-based assessment. Akdemir and Oğuz (2008) investigated whether undergraduate students' test scores differed between computer-based and paper-and-pencil tests. They found that gender differences did not appear to influence performance in either format.

The third research question investigated whether EFL learners' perceptions differ by department and found no statistically significant difference. Kuluşaklı (2024) investigated the attitudes of undergraduate students toward online assessment in terms of their major, gender, and whether they were taking the test for the first time. The results showed that students' opinions were not significantly influenced by their major. In other words, there was no relationship between the students' attitudes regarding online assessment and their majors. However, Ricketts and Wilks (2002) investigated which factors influence students' opinions of computer-assisted assessment and found differences in learners' perceptions of CAA across subject areas, including Biology, Business, Geography, and Computing.

Based on the findings regarding the fourth research question, examining the relationship between participants' prior experience and their perceptions of CAA, it was reported that there is no significant correlation between the two variables. Eid (2005) found that students' scores on computer-based and paper-based math problem-solving assessments were comparable. Students' scores on online tests were unaffected by their computer experience or anxiety level. Nevertheless, Dammas (2016) investigated

the relationship between prior computer experience and performance in computer-based tests, and the results indicated that most students (46.938%) agreed that previous computer experience influences their performance.

The fifth research question investigated participants' perceptions of CAA and their midterm scores, and a Pearson correlation analysis indicated a weak positive relationship; however, this association was not statistically significant. This demonstrates that learners' English achievement levels do not effectively predict their perceptions of CAA, suggesting that other factors play a more substantial role in shaping their beliefs. Although the present data do not reveal a significant correlation between learners' perceptions of CAA and achievement, earlier research has demonstrated that appropriate use of CAA can promote learning outcomes. For instance, Lowry (2005) reported that providing students with access to a CAA system for self-assessment had a favourable impact on their learning performance. In a similar vein, Özden et al. (2004) found that many students believed that receiving instant feedback and scores via CAA increased their motivation and improved their academic performance.

Limitations of the study

The participants of the study consisted of 102 students enrolled in optional and compulsory preparatory classes at a state university. They were selected as a sample from among students studying in different faculties and departments. Therefore, the study's findings reflect the perceptions and experiences of a relatively small group of students regarding computer-assisted assessment (CAA).

Implications

The study's conclusions offer educators and researchers several educational and practical implications. According to participants' favorable opinions of computer-aided assessment (CAA), incorporating digital assessment technologies can improve student engagement and promote successful learning outcomes. Therefore, to ensure familiarity and reduce potential anxiety about technology-based testing, educational institutions should provide training and exposure to CAA systems, as students' experiences with them positively impact their perceptions.

The gender differences in learners' perceptions underscore the need to account for gender when designing and implementing CAA platforms. These disparities may be reduced, and more equitable learning opportunities may be promoted by offering equal access, assistance, and encouragement. Future studies could investigate other factors that influence students' perceptions of CAA. A deeper understanding of how perceptions change over time as a result of increased exposure to technology-enhanced assessments may also be possible with longitudinal studies. Additionally, research comparing various academic fields or educational settings may yield a better understanding of the efficacy and acceptance of CAA in higher education.

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