



(ISSN: 2587-0238)

Okay, İ. & Gökyer, N. (2024). The Relationship Between Students' Perceptions and Expectations of The Service Quality of Distance Education *International Journal of Education Technology and Scientific Researches*, 9(29), 703-726.

DOI: <http://dx.doi.org/10.35826/ijetsar.756>

Article Type (Makale Türü): Research Article

THE RELATIONSHIP BETWEEN STUDENTS' PERCEPTIONS AND EXPECTATIONS OF THE SERVICE QUALITY OF DISTANCE EDUCATION*

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Received: 14.07.2024

Accepted: 12.11.2024

Published: 01.12.2024

ABSTRACT

The aim of this research is to determine the perceptions and expectations of undergraduate students regarding the service quality of distance education and to examine the relationship between service quality, student satisfaction, and student engagement. The study focuses on students' expectations from distance education, the extent to which these expectations are met, student satisfaction, and student engagement. Additionally, it investigates whether these findings are influenced by various demographic characteristics. The study was conducted within the framework of a mixed-methods paradigm that incorporates both qualitative and quantitative data. The quantitative aspect was designed as a correlational study and utilized stratified random sampling to reach 532 participants. For the qualitative aspect, semi-structured interviews were conducted with 42 students using maximum variation sampling. The research encompasses 4th-year students studying at Firat University in Elazığ during the Spring 2019-2020 and Fall 2020-2021 semesters. Data were collected using the Student Engagement Scale, the Student Satisfaction Scale, and the Distance Education SERVQUEL Scale, and analyzed using SPSS. Parametric tests were applied due to the normal distribution of the quantitative data. Frequency and percentage values were used to determine demographic characteristics, the One Way ANOVA test was employed for multiple group comparisons concerning the gender variable.

Keywords: Distance education, Service quality, Student satisfaction

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Ethics Committee Approval: Permission was obtained from the Social and Human Sciences Research Ethics Committee of Firat University, dated 15/04/2021 and numbered 37008.

Plagiarism/Ethics: This article has been reviewed by at least two referees and has been confirmed to comply with research and publication ethics, containing no plagiarism.

* This study was derived from a doctoral thesis completed at Firat University, Department of Educational Administration.

INTRODUCTION

The biggest factor in the development of today's world societies is education, and universities are at the highest level of education. Universities are important institutions that ensure the educational development of young people and bring them into society. The qualifications that universities provide to individuals are of great importance in terms of the benefits they provide to society. In this context, it is an important responsibility for universities to comply with certain quality standards and to show continuous improvement.

There are various organizations and processes that determine and measure the quality standards of universities. The higher the quality of the institution, the greater the impact. Therefore, measuring quality and providing a quality education service accordingly increases competition among universities and is important to meet the demands and needs of students. When universities comply with quality standards and engage in continuous evaluation and development efforts, graduates are more likely to benefit society and contribute to the development of the country.

The 21st century globalization has significantly affected education systems. Globalization has brought about a series of changes in education by increasing economic, social, cultural and technological connections across the world. In this process, the concept of society has come to mean not only national states but also global societies. This situation has also affected the processes related to education and schooling and led to the spread of innovative methods such as distance learning.

In Turkey, as in many parts of the world, concepts such as distance learning and blended learning have been used more and more in recent years. Some Turkish universities, such as Anadolu University and Atatürk University, continue to use distance learning to support individuals' development in their areas of interest and lifelong learning. Many documents prepared by the Ministry of National Education indicate that distance learning in basic education will become more widespread in the future. It is planned to enrich the content of EBA (Education Information Network) by using digital resources and to use distance learning technologies for lifelong learning.

Many existing systems used by the Ministry of National Education such as MEBBİS, e-school, ÖBA and EBA will be made more useful, digital assessment and evaluation tools will be designed, and formal or distance learning centers will be established in cooperation with universities to support the professional development of teachers and school administrators. Distance learning enables individuals to access information faster, communicate with people anywhere in the world and interact across continents. In addition, the use of distance learning in in-service training and adult education is becoming widespread.

However, there may also be situations where distance learning becomes mandatory. For example, due to the COVID-19 pandemic that affected the whole world in 2019, face-to-face teaching activities were stopped and the importance of distance learning increased. In Turkey, as in other countries, distance learning became compulsory during the pandemic and EBA, which was launched by the Ministry of National Education in 2012, became one of the main tools in this process. EBA TV channels were established in cooperation with the Turkish Radio and

Television Corporation and became a part of the distance learning process. According to the data of the Ministry of National Education, as of June 19, 2020, a total of 2516 hours were broadcasted on EBA TV channels, approximately 3.1 billion accesses were provided in the distance education process and EBA was among the top 10 most visited websites in Turkey. In this process, 7,383,213 students and 1,030,516 teachers actively used EBA.

Throughout history, people have tried to cope with various epidemics, wars and natural disasters (such as earthquakes, floods, fires, storms) and these situations have disrupted education. For example, after the Van earthquake in 2011, the Elazığ earthquake on January 24, 2020, and the Kahramanmaraş-Adıyaman earthquakes on February 6, 2023, distance education was compulsorily introduced in higher education institutions as well as in basic education. During epidemic periods, people tried to continue their education life by organizing their routines differently. In 2019, the coronavirus outbreak that emerged in Wuhan, China, was declared a pandemic worldwide, and the mandatory distance education process started in Turkey as of March 23, 2020.

During the Covid-19 pandemic, most of the meetings, communications, teaching processes, communication and bureaucratic works were carried out in digital/electronic environment during the distance education process that started on March 23rd and still continues in Turkey. As 21st century skills such as distance learning tools have become more frequently used, the importance of digital platforms, web technologies and digital literacy has once again become evident.

In the digital literacy teacher's guide published by the Ministry of National Education (MEB), the digital literacy competency framework is organized under the following headings: basic technology, information, internet and data literacies; communication and collaboration; digital content creation; security; and problem solving (MEB, 2020). These headings show how critical digital competencies are in modern education.

The Covid-19 pandemic has accelerated the adoption of digital education tools and distance learning methods in Turkey as well as around the world. This process has led to permanent changes in education systems and revealed the necessity of developing digital literacy.

This study aims to determine the perceptions and expectations of undergraduate students towards the service quality of distance education and to examine the relationship between service quality, student satisfaction and student engagement. The research focuses on students' expectations from distance education, the level of fulfillment of these expectations, student satisfaction and student engagement. It also examines whether these findings are affected by various demographic characteristics.

Education is a concept that is gaining more and more importance worldwide. It is clear that societies with high levels of education develop rapidly and gain competitive advantage in various fields. Capturing this development potential is not possible in an ordinary education system. In this context, the importance of quality in education emerges. Therefore, the basic element that can help development is the creation and implementation of a quality education system.

The quality of education emerges in institutions that help students to develop their skills by providing them with opportunities to search, access and evaluate information, that teach them to look at things with a scientific perspective and skepticism, and that raise individuals with the knowledge, skills and experience to compete with people in developed countries (Cemaloğlu,2019). The quality of education service can be improved. However, it is first necessary to determine the current situation of the institution in terms of quality. While measuring the current level of quality is a problem, the question of which measurement tools to use is another problem. Especially the existence of distance education makes the situation more complex and makes measurement compulsory. In the education sector where competition is intense, distance education as a product should be of a quality that will create a competitive advantage for the institution (Akdemir ve Kılıç 2020; Akyürek,2020; Aksaraylı ve Pala, 2019).

Although the measurement of service, educational service and quality has been carried out many times in previous studies, no such study has been found in distance education. Due to this deficiency, this study aims to measure the service quality of distance education in universities and to determine the current situation of distance education. The aim of the study is to measure the service quality of distance education in educational institutions and to investigate the effect of service quality perceived by students on student satisfaction and student loyalty. By evaluating the results obtained, it is expected to contribute to improving the quality of existing higher education services.

In the literature, one of the most widely used models for measuring service quality is the Servqual model. The Servqual model measures service quality based on the difference between expected service and perceived service. If the service received meets or exceeds expectations, it is concluded that the service is of high quality. Conversely, if the service falls below expectations, a sense of dissatisfaction arises. For this reason, the Servqual model is also referred to as a gap analysis model. The Servqual model measures service quality by analyzing the gap between customers' expectations and their experiences, emphasizing that minimizing this gap is the key to delivering high-quality service. In this study, the service quality of distance education in higher education will be measured based on this model.

Especially as of 2020, the global pandemic has made remote education mandatory in educational institutions and highlighted the need to research the quality of distance education. This study aims to fill part of the gap in the relevant literature and provide concrete recommendations to educational practitioners and administrators based on the findings from the research.

Service Quality

To objectively define service quality, it is first necessary to examine the dimensions of service quality. The most common dimensions include reliability, physical assets, responsiveness, assurance, and empathy (Gök,2017). Service quality is defined as the difference between the perceived service and the expected service: If the perceived service is lower than the expected service, the quality is unsatisfactory; if equal, it is satisfactory;

if higher, it is of ideal quality. The Servqual model, developed by Parasuraman, Zeithaml, and Berry, is a widely used method to measure service quality based on this difference (Parasuraman, A., Zeithaml, V. A. ve Berry, 1988). The model is used to compare customer expectations and perceptions at different times, assess a company's competitive strength, and measure customer satisfaction. In its initial studies, the model was applied in five service sectors, enabling an objective measurement of service quality.

Student Engagement

Student engagement is a concept that has strong and positive effects on attending educational institutions, achieving high academic success, positive learning outcomes, and positive student behaviors. Low levels of student engagement, on the other hand, can lead to dropout, absenteeism, low academic achievement, and negative student behaviors. Internationally referred to as "student engagement," it is defined as the effort a student devotes to educational activities (Pascarella and Terenzini, 1991). In another definition, student engagement refers to the psychological, cognitive, emotional, and behavioral responses and the energy that students invest in learning processes and academic-social activities (Günüç, 2013).

Student engagement refers to the time and effort students devote to activities aimed at achieving the outcomes desired by the university (Kuh,2009). This concept is not limited to rote memorization but also includes deep understanding, critical thinking, and creative thinking skills (Başören,2015). Engagement should be viewed as a multidimensional construct, and these various dimensions must be considered during the evaluation process (Trowler,2010).

Student engagement encompasses activities such as regular attendance in classes, interaction with instructors, timely completion of assignments, and active involvement in exam preparation. It also reflects students' interest in the learning process, their active participation in classes, and the connections they establish within the university community (Axelson ve Flick, 2010). Engagement enhances learning outcomes, improves the university's performance, and elevates the quality of both teaching and learning processes.

Research on student engagement in higher education in Turkey is newer and more limited compared to studies in the West. Most research has focused on topics like service quality or student satisfaction in universities rather than student engagement (Öz, 2019). Existing studies on student engagement have typically been conducted at a single higher education institution, with results specific to those institutions. Therefore, more research is needed to determine the level of student engagement in Turkey's higher education system.

Determining student engagement in the context of higher education will provide significant insights to university administrators, stakeholders, and education policymakers on issues such as student retention, satisfaction, the effectiveness of teaching-learning processes, and relationships with stakeholders within the institution.

Student Satisfaction

As the importance of education has increased, efforts to enhance the quality of education have also gained significance. To establish a quality educational system, it is necessary to understand students' expectations and identify their needs. In addition to basic requirements such as classrooms and libraries, other needs like nutrition, accommodation, and social activities should also be considered in educational activities (Dilşeker, 2011). Student satisfaction consists of various factors, including the quality of the education provided, the physical condition of the institution, the available facilities, social, cultural, and sporting activities, and personal characteristics.

Satisfaction is defined by Oliver (1999) as “the pleasure derived from performing a particular task and achieving a sense of fulfillment” (Tatlı, Kokoç, and Karal, 2011). Astin (1993) described the satisfaction of undergraduate students as their assessment of the quality standards of university experiences, teaching staff, management styles, student interactions, the effectiveness of educational programs, and the institution's facilities. In higher education institutions, students determine quality standards based on these criteria. Okumuş and Duygun (2008) argued that there is a direct correlation between service quality and customer satisfaction. Deshields (2005) stated that it is important for universities to meet students' expectations to ensure satisfaction (cited in Kantoğlu, 2012).

As of 2020, the need has arisen to measure the quality of distance education in higher education and examine the relationship between perceived educational quality, student engagement, and satisfaction. This study aims to fill a gap in the literature and provide concrete recommendations for educational practitioners, administrators, and policymakers based on the findings.

When examining studies conducted domestically in the relevant literature, Ergün (2013); Taşkın, Demirelli, and Cingöz (2009); Yalçınkaya (2005); Bayrak (2005) have conducted research on measuring service quality in higher education institutions. Dursun (2011); Emrecik (2017); Gök (2017); Çelik (2017); and Ayvaz (2018) have examined the variables of service quality in institutions providing distance education.

When the relevant literature is reviewed, it is seen that authors have approached the studies on service quality from different perspectives. Sultan (2011), Kimaita (2011), Diedericks (2012), Tsiligiris (2015), Zheng (2012), Mfingwana (2017), Arrieta (2015), Harris (2008), Liao (2009), Mhlouli (2015), and Alston (2017) have examined the variables affecting service quality in higher education institutions. Rivers (2013) and Osai (2011) have researched service quality in secondary education institutions. Nsamba (2016) and Myugyanan (2012) have studied the antecedents of quality in distance education environments. Muda (2013) and Pendo (2017) have investigated the impact of leadership on service quality, while Salagi (2018) explored the effect of mentoring and teacher quality on service quality. McIntosh (2017), Wentzell (2011), Ong (2013), Ntelio (2013), Devnarrian (2011), and Haibambo (2018) have conducted research aimed at determining student perceptions of service quality.

Purpose

The aim of this research is to examine the impact of students' perceptions of the quality of distance education on student engagement and satisfaction in higher education. Additionally, the study aims to investigate students' expectations from education, the extent to which these expectations are met, and whether these findings differ based on students' demographic characteristics. The results are expected to contribute to improving the quality of services in higher education. In line with this general aim, the following questions are addressed:

1. What are the students' expectations regarding the quality and sub-dimensions of distance education in higher education?
2. What are the students' perceptions regarding the quality and sub-dimensions of distance education in higher education?
3. Do students' expectations of the quality of distance education differ significantly by gender, faculty, age, and department?
4. Do students' perceptions of the quality of distance education differ significantly by gender, faculty, age, and department?
5. What are the students' perceptions regarding student engagement and its sub-dimensions?
6. Do students' perceptions of student engagement differ significantly by gender, faculty, age, and department?
7. What are the students' perceptions regarding student satisfaction and its sub-dimensions?
8. Do students' perceptions of student satisfaction differ significantly by gender, faculty, age, and department?
9. Are students' perceptions of the service quality in distance education significant predictors of their perceptions of student engagement and satisfaction?

METHOD

Since this study uses both qualitative and quantitative data, it has been designed in the form of an explanatory sequential design, which is one of the mixed method designs. The purpose of the explanatory sequential design is to provide justification for the relationships obtained through quantitative data using qualitative data. The implementation of this design occurs in two stages: In the first stage, quantitative data that primarily answers the research question is collected; in the second stage, qualitative data is interpreted in a way that helps explain the quantitative results (Creswell & Plano Clark, 2018). Qualitative data can concretize the results by examining the situation in-depth, thus providing more detailed explanations of the quantitative results (Patton, 2014). The quantitative dimension of the research, conducted within the framework of the mixed-method paradigm, has been designed as correlational research. In the quantitative part, the relationship between higher education students' expectations and perceptions of the quality of distance education, student engagement, and student satisfaction levels has been examined. In addition, it was aimed to determine whether students' gender, age, and the faculties and departments they study in significantly affect their expectations and perceptions of service quality in distance education, as well as their levels of student engagement and satisfaction. For the qualitative dimension of the study, the interview method, one of the qualitative research methods, was used. A semi-

structured interview form was utilized to gather students' opinions about the variables that affect student engagement and satisfaction in relation to their educational and school experiences.

Study Group

The study population consists of 4th-year students enrolled at Firat University in Elazığ during the 2020-2021 academic year. The study group will be determined using the mixed sampling method. Mixed sampling is a method based on the combined use of qualitative and quantitative sampling techniques, aimed at developing sampling methods suitable for specific research questions, objectives, and needs (Christensen, Johnson, & Turner, 2015). In the quantitative dimension of the research, participants who will form the study group were selected using stratified random sampling, while participants for the qualitative dimension were selected using the maximum variation sampling method. Thus, it was aimed to identify different cases (such as high, medium, and low perception levels) based on quantitative data and to obtain qualitative data that encompasses every level of the study. Within this scope, in the first stage, a sample group was created from 4th-year students at Firat University, selected through stratified and random sampling.

Population and Sample

The study population consists of 4th-year students studying at the faculties and vocational schools of Firat University during the Spring semester of the 2019-2020 academic year and the Fall and Spring semesters of the 2020-2021 academic year. The mixed sampling method, which combines both qualitative and quantitative sampling techniques, was used. In the quantitative dimension, 381 students were selected for the study group using the stratified random sampling method, while in the qualitative dimension, 42 students were selected using the maximum variation sampling method. This approach was used to collect data that would cover every level of the study.

Table 1. Distribution of Personal Information of Students Participating in the Study.

| | N | % |
|--|-----|------|
| Gender | | |
| Female | 364 | 68.4 |
| Male | 168 | 31.6 |
| Age | | |
| 18-20 | 96 | 18.0 |
| 21-25 | 385 | 72.4 |
| 26 and above | 51 | 9.6 |
| Do you have your own computer? | | |
| Yes | 369 | 69.4 |
| No | 163 | 30.6 |
| Which device do you use to access the internet? | | |
| Mobile phone - Computer | 233 | 43.8 |
| Mobile phone | 174 | 32.7 |
| Computer | 78 | 14.7 |

| | N | % |
|--|------------|--------------|
| Mobile phone - Computer - Tablet | 47 | 8.8 |
| Internet plan | | |
| 1-5 GB | 69 | 13.0 |
| 6-10 GB | 105 | 19.7 |
| 11-20 GB | 103 | 19.4 |
| Unlimited | 255 | 47.9 |
| Faculty | | |
| Faculty of Education | 92 | 17.3 |
| Faculty of Communication | 81 | 15.2 |
| Faculty of Humanities and Social Sciences | 40 | 7.5 |
| Faculty of Economics and Administrative Sciences | 29 | 5.5 |
| Faculty of Health Sciences | 33 | 6.2 |
| Faculty of Engineering | 68 | 12.8 |
| Faculty of Architecture | 30 | 5.6 |
| Faculty of Science | 15 | 2.8 |
| Faculty of Dentistry | 16 | 3.0 |
| Faculty of Theology | 49 | 9.2 |
| Faculty of Technology | 47 | 8.8 |
| Other | 32 | 6.0 |
| Total | 532 | 100.0 |

Table 1 shows the distribution of the personal characteristics of the university students participating in the study. According to this table, 364 (68.4%) of the students are female, while 168 (31.6%) are male. When examined by age range, 96 (18.0%) of the students are in the 18-20 age group, 385 (72.4%) are in the 21-25 age group, and 51 (9.6%) are in the 26 and above age group. A total of 369 students (69.4%) reported owning their own computer, while 163 (30.6%) do not own one. Regarding internet access, the majority, 233 students (43.8%), use both mobile phones and computers to access the internet, 174 students (32.7%) use only a mobile phone, 78 students (14.7%) use a computer, and 47 students (8.8%) use all three devices (mobile phone, computer, and tablet) to access the internet.

Concerning the students' internet data plan, 69 students (13.0%) have a 1-5 GB plan, 105 students (19.7%) have a 6-10 GB plan, 103 students (19.4%) have an 11-20 GB plan, and 255 students (47.9%) have an unlimited data plan. In terms of the students' academic departments or faculties, 92 (17.3%) are in the Faculty of Education, 81 (15.2%) are in the Faculty of Communication, 40 (7.5%) are in the Faculty of Humanities and Social Sciences, 29 (5.5%) are in the Faculty of Economics and Administrative Sciences, 33 (6.2%) are in the Faculty of Health Sciences, 68 (12.8%) are in the Faculty of Engineering, 30 (5.6%) are in the Faculty of Architecture, 15 (2.8%) are in the Faculty of Science, 16 (3.0%) are in the Faculty of Dentistry, 49 (9.2%) are in the Faculty of Theology, 47 (8.8%) are in the Faculty of Technology, and 32 (6.0%) are in other faculties or departments.

Data Collection Tools

In this research, the Student Engagement Scale (SES), the E-Student Satisfaction Scale (ESS), and the Distance Learning Servqual Scale (DLSS) will be used.

DL-Servqual Scale

The DL-SERVQUAL scale, developed by Gök (2017), is designed to evaluate the service quality of distance learning programs. The scale consists of four sections, with reliability coefficients ranging from 0.811 to 0.881. The second section of the scale includes the dimensions that constitute the service quality of distance education. These dimensions are examined to evaluate the significance levels of service quality in distance education. In the third section, students' expectations regarding distance education services are investigated. Expectations are expressed using a 7-point Likert scale, where a feature rated as "truly unnecessary" scores 1 point, and a feature rated as "truly essential" scores 7 points. This scale serves as a significant tool for determining and improving the quality of distance education services (Gök, 2017).

Student Engagement Scale

The scale developed by Sun and Rueda (2012) and adapted into Turkish by Ergün (2014) is used to determine student engagement. The scale consists of 19 questions in a 5-point Likert-type format and is divided into three factors: emotional, cognitive, and behavioral engagement. In this study, the Cronbach's Alpha reliability coefficient of the scale was calculated as 0.839.

E-Student Satisfaction Scale

The E-Student Satisfaction Scale, developed by Kantoğlu (2012), was used to determine student satisfaction. The scale is a single-factor, 5-point Likert-type scale, with validity and reliability studies conducted. The Cronbach's Alpha coefficient of the scale was found to be 0.89, the KMO value was 0.837, and the total variance explained was calculated as 55.98%. These results indicate that e-learning student satisfaction is unidimensional. In light of this information, it was concluded that the six statements measuring e-learning student satisfaction load onto a single dimension, indicating that e-learning student satisfaction is unidimensional. In other words, the six statements used represent a single main factor in explaining student satisfaction. This suggests that the statements used in the measurement share similar characteristics and assess the same underlying concept.

Validity and Reliability of Qualitative Research

In this study, 42 students were reached, and interviews were terminated when data saturation was observed. In qualitative research, expert opinions and participant validation are used to ensure internal validity (Yıldırım & Şimşek, 2011, p. 115). For external validity, purposeful description and maximum variation sampling were employed. Direct quotations were included in the findings and discussion sections, and different viewpoints were utilized as much as possible. Student opinions were coded as S1, S2, S3, etc., for reference in case of follow-up. To ensure the reliability of the study, participants were described in detail, and the data collection and analysis process was explained thoroughly. The researcher took care to remain objective during the data collection, analysis, and interpretation stages.

Data Analysis

The main purpose of the qualitative aspect is to determine the opinions of students participating in distance education in higher education regarding the process. For this purpose, qualitative data collection methods such as observation, interviews, and document analysis were used. A standardized open-ended interview method was applied, and participants were asked open-ended questions prepared in a specific order (Patton, 1987, p. 112; Yıldırım & Şimşek, 2011, p. 123). The first three questions focused on demographic characteristics, while the remaining seven questions centered on opinions about the service quality of distance education. Content analysis and descriptive analysis techniques were used. The study includes a six-item form created by the researcher to determine the participants' gender, age, department, computer ownership, internet access devices, and internet usage quota.

Qualitative data were analyzed in the following stages:

- 1. Coding the Data:** Participant responses were carefully reviewed multiple times and divided into meaningful sections.
- 2. Finding Themes:** Codes were grouped together, and common themes were identified.
- 3. Organizing Codes and Themes:** Codes and themes were reorganized into a format understandable to readers.
- 4. Making Sense of the Data:** Relationships were established, conclusions were drawn from the findings, and the importance of the results was explained.

In this research, similar studies were reviewed, research questions were developed, and codes and themes were organized.

Score Ranges for Data Collection Tools

Table 2 provides the score ranges and levels of participation for the DL-Servqual, Student Satisfaction, and Student Engagement scales. Since the kurtosis and skewness values were between -1.5 and +1.5, it was assumed that the data followed a normal distribution.

Table 2. Kurtosis and Skewness Values for UE-Servqual, Student Satisfaction, and Student Engagement Scales.

| Scale | Mean (X) | Standard Deviation (Ss) | Skewness | Kurtosis |
|---|----------|-------------------------|----------|----------|
| Service Quality of Distance Education Programs (Expectations) | 5.6463 | 1.25146 | -0.962 | 0.316 |
| E-learning Environment | 5.6363 | 1.29631 | -0.956 | 0.400 |
| Trust | 5.6015 | 1.47503 | -0.996 | 0.381 |
| Accessibility | 5.3741 | 1.43427 | -0.811 | 0.182 |
| Responsiveness | 5.7494 | 1.37648 | -1.088 | 0.569 |
| Service Quality of Distance Education Programs (Current Status) | 4.5857 | 1.39416 | -0.239 | -0.410 |
| E-learning Environment | 4.3880 | 1.41590 | -0.021 | -0.501 |
| Trust | 4.5388 | 1.55823 | -0.312 | -0.426 |

| Scale | Mean (X) | Standard (Ss) | Deviation | Skewness | Kurtosis |
|--------------------------|----------|---------------|-----------|----------|----------|
| Accessibility | 4.5388 | 1.55823 | -0.312 | -0.426 | |
| Responsiveness | 4.7340 | 1.54023 | -0.426 | -0.427 | |
| Student Satisfaction | 3.4248 | 1.14350 | -0.406 | -0.799 | |
| Student Engagement Scale | 3.4568 | 0.68771 | -0.020 | -0.162 | |
| Behavioral Engagement | 3.3959 | 0.60324 | 0.332 | 1.224 | |
| Emotional Engagement | 3.0222 | 0.61364 | 0.107 | -1.056 | |
| Cognitive Engagement | 3.8207 | 0.88079 | -0.621 | 0.091 | |

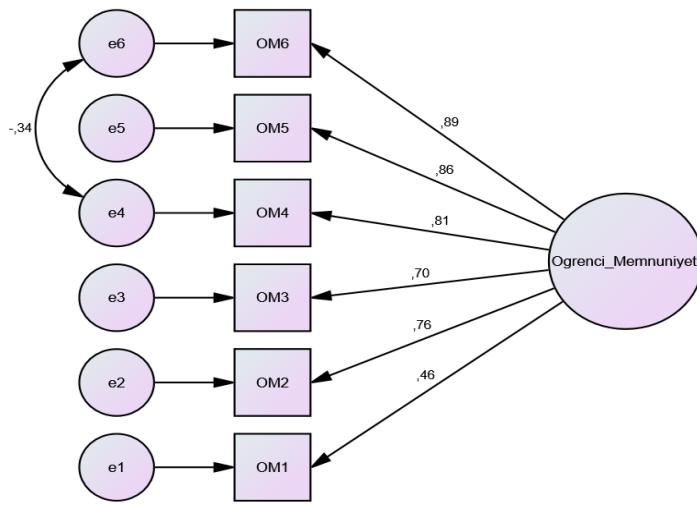
Reliability Studies

Table 3. Results of the Reliability Analysis for UE-Servqual, Student Satisfaction, and Student Engagement Scales and Sub-dimensions.

| Scale | N | Cronbach's Alpha |
|--|----|------------------|
| Expectations | | |
| Service Quality of Distance Education Programs | 24 | 0.965 |
| E-learning Environment | 8 | 0.892 |
| Trust | 3 | 0.843 |
| Accessibility | 3 | 0.784 |
| Responsiveness | 10 | 0.955 |
| Perception (Current Status) | | |
| Service Quality of Distance Education Programs | 24 | 0.966 |
| E-learning Environment | 8 | 0.887 |
| Trust | 3 | 0.828 |
| Accessibility | 3 | 0.816 |
| Responsiveness | 10 | 0.945 |
| Student Satisfaction | | |
| | 6 | 0.899 |
| Student Engagement | | |
| | 19 | 0.853 |
| Behavioral Engagement | 5 | 0.712 |
| Emotional Engagement | 6 | 0.783 |
| Cognitive Engagement | 8 | 0.882 |

Table 3 presents the results of the reliability analysis for the UE-Servqual, Student Satisfaction, and Student Engagement scales and their sub-dimensions. It was concluded that all scales and sub-dimensions have reliability coefficients of 0.70 and above (Kalaycı, 2010).

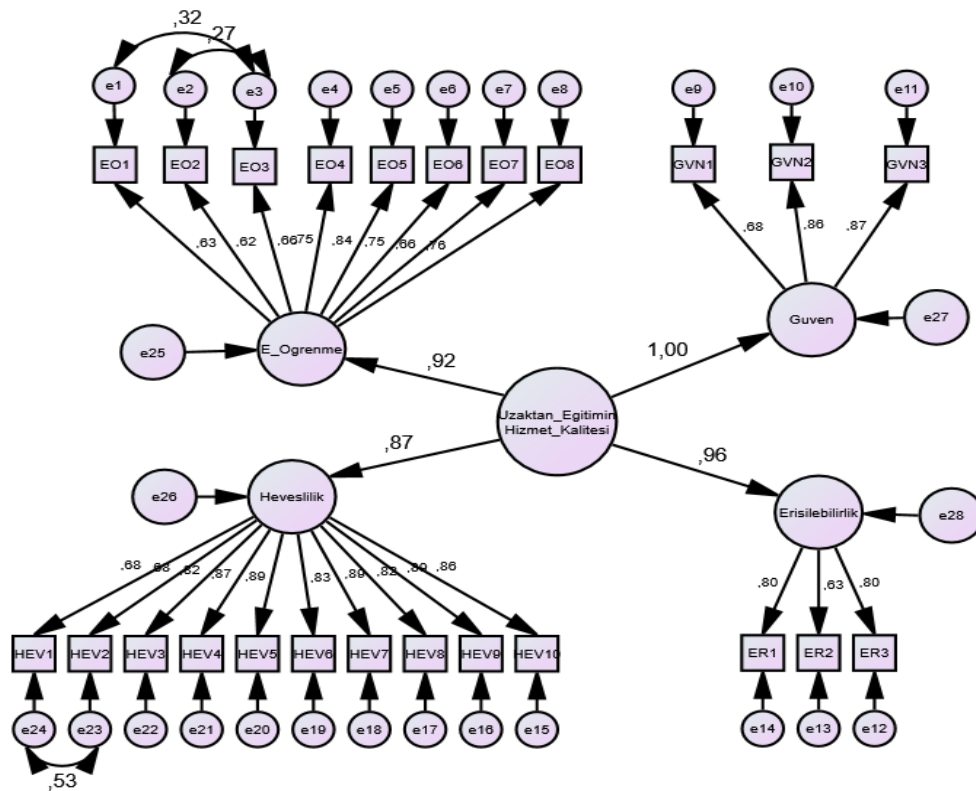
Validity Studies



CMIN=18,711; DF=8; CMIN/DF=2,339; p=,016; RMSEA=,051; TLI=,988; CFI=,993

Figure 1.Confirmatory Factor Analysis Results for the Student Satisfaction Scale.

The fact that CMIN/DF values are less than 5, RMSEA values are less than 0.08, and CFI and TLI values are above 0.90 indicates acceptable fit indices. These results show that the scale meets these conditions, providing construct validity, and that the items are grouped under a single dimension.



CMIN=1010,268; DF=245; CMIN/DF=4,124; p=,000; RMSEA=,078; TLI=,916; CFI=,925

Figure 2. Confirmatory Factor Analysis Results for the UE-Servqual Scale.

The fact that CMIN/DF values are less than 5, RMSEA values are less than 0.08, and CFI and TLI values are above 0.90 indicates acceptable fit indices. These results show that the scale meets these conditions, providing construct validity, and that the items are grouped under four dimensions (Hu & Bentler,1999).

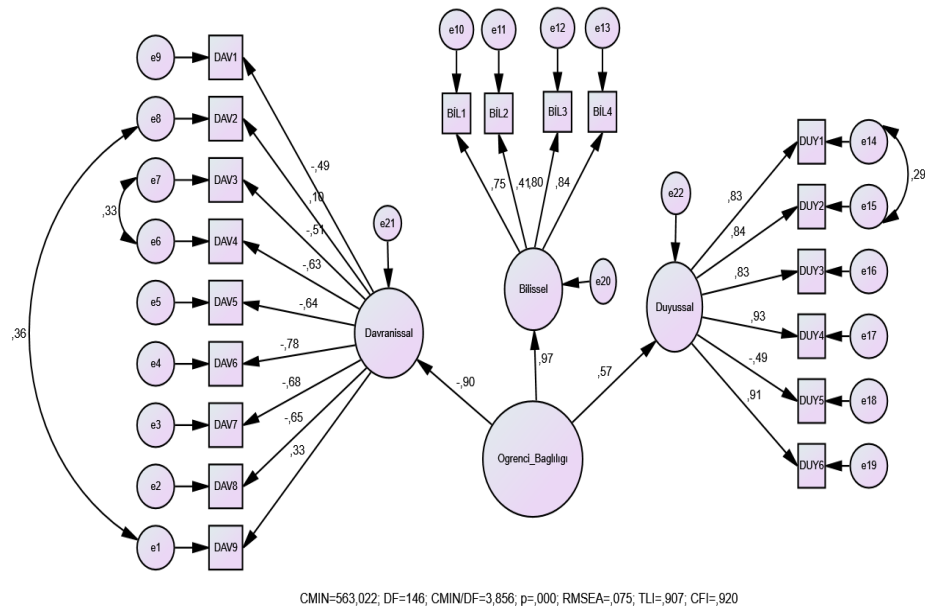


Figure 3. Confirmatory Factor Analysis Results for the Student Engagement Scale.

The fact that CMIN/DF values are less than 5, RMSEA values are less than 0.08, and CFI and TLI values are above 0.90 indicates acceptable fit indices. These results show that the scale meets these conditions, providing construct validity, and that the items are grouped under three dimensions.

FINDINGS

Below are the student opinions regarding the service quality of distance education, based on the questions asked.

Table 4. Category and Code Distribution of Student Opinions on the Service Quality of Distance Education.

| Categories | Codes |
|--|--|
| Student expectations about the learning environment and learning materials | Enriching learning materials |
| | Availability of lecture notes in PDF format |
| | Ease of use of learning materials |
| | Learning materials being accessible at all times |
| | Institution staff being ready to help students |
| Student perceptions about the learning environment and learning materials | Enriching learning materials |
| | Availability of lecture notes in PDF format |
| | Ease of use of learning materials |
| | Learning materials being accessible at all times |
| | Institution staff being ready to help students |
| Impact of the process on student satisfaction | Teacher’s approach |
| | Effectiveness of teaching methods |
| | Time allocated for extracurricular activities |
| | Repetition of lessons |
| Impact of the process on student engagement | Attendance issues |
| | Student-student interaction |

| Categories | Codes |
|---|---|
| | Lack of communication between student and teacher Boredom of lessons Intensity of lessons |
| Student success | Lack of motivation Possibility of cheating during exams Intensity of lessons Inability to deliver student-centered lessons Burden of assignments |
| Student opinions on improving the process | Solving infrastructure problems Resolving student-based internet access issues Teachers being more proficient with the system Solving interaction issues Students playing a more active role in the process |

Category 1: Student Opinions on Expectations Regarding the Service Quality of Distance Education

Direct quotes from participants related to this category are as follows:

“I think teachers should upload not only PDFs but also supplementary videos and visual content.” (S5-S23)

“There is a requirement to attend lessons during the day. I believe I should be able to access lecture notes and content shared by teachers 24/7 after classes.” (S12-S35-S13)

“Continuing lessons remotely makes it harder for me to understand and learn. In this situation, I expect teachers to share notes that will help me learn and succeed in exams.” (S7-S11-S20)

“The obligation to attend classes means I spend all day in front of the screen. I expect class durations to be shortened, and the weekly course load to be reduced.” (S8-S10-S41)

“When I encounter a problem, I expect to be able to reach faculty staff or student affairs, as there can be disruptions during class.” (S21-S9-S32)

Category 2: Student Opinions on Perceptions Regarding the Service Quality of Distance Education

“I don’t think distance education is as effective as face-to-face education.” (S14-S25-S28)

“Teachers upload PDFs to the system and just read the slides in class. Sitting in front of the computer all day to follow the lessons makes me anxious and more tense.” (S24-S29-S33)

“I spend my entire day following lessons on the computer and preparing assignments. I don’t think it’s right for teachers to assign so much homework.” (S12-S15-S27)

“I think the process has been unplanned and mishandled.” (S4-S17)

“I find spending so much time in front of the internet tiring and boring.” (S8-S21)

"I think teachers are also very tired from this process, and the heavy workload is another obstacle to lessons being effective." (S20-S18)

Category 3: Student Opinions on the Impact of the Service Quality of Distance Education on Student Satisfaction

"I am satisfied with the service I receive from the distance education system of the faculty." (S34-S30)

"I am satisfied with the process because continuing education remotely allows me to dedicate more time to my other tasks." (S26)

"The fact that teachers record live lessons and upload them to the system helps me a lot when I want to watch the lessons again. Or, if I miss a class, watching the recorded lecture improves my success." (S24-S17)

"I think teachers should use different methods and techniques when explaining the lessons, and students should play a more active role in the process." (S42-S6)

"When choosing universities, I liked the idea of being away from my family, but during the pandemic, being at home and following classes remotely made me feel safer." (S3-S19)

Category 4: Student Opinions on the Impact of the Service Quality of Distance Education on Student Engagement

"I sometimes have problems joining live lessons. My siblings are also in live lessons, which prevents me from using the computer and the internet." (S9-S13)

"Being at home during live lessons makes it difficult for me to focus on the class." (S28-S14)

"There is an attendance requirement for live lessons, but I think many of my friends open the session but don't actually listen to the lesson. This causes me to lose motivation." (S15-S16)

"I spend my entire day following lessons in front of the computer." (S6-S11)

"I think teachers reading slides during lessons is both boring and a waste of time. I can read the lecture notes and learn the lesson myself." (S26-S3)

"Attending lessons remotely makes me feel disconnected from my classmates. Knowing how they're studying would motivate me more." (S7-S11-S10)

"I hesitate to comment on the lesson because I fear that teachers will think I am criticizing them." (S5)

"I have no way to communicate with teachers until the next live class, except by sending an email." (S18)

Category 5: Student Opinions on the Impact of the Service Quality of Distance Education on Student Success

"Some lessons are practice-based. It's almost impossible to understand and learn these lessons through live sessions." (S17-S16-S4)

"I find it very boring and unproductive to sit in front of the computer or tablet all day and follow the lessons. I can easily find the information I'm looking for on the internet, so I don't think it's necessary to attend the lessons." (S4-S3-S26)

"I think some of my friends are cheating in exams and passing the courses. This decreases my motivation to study and attend lessons. If others are cheating and passing, why should I bother studying?" (S7-S10-S11)

"Not being able to see my friends, like in face-to-face education, decreases my internal motivation." (S7)

"I think teachers are assigning too much homework. I spend a significant part of my day preparing for lessons, completing assignments, and uploading them to the system." (S5)

Category 6: Student Opinions on Improving the Service Quality of Distance Education

"I think providing support to both teachers and students on the use of technology would increase the perceived service quality." (S32-S20-S27)

"I believe the university's distance education infrastructure needs to be improved. There are disruptions during the lesson, or when the teacher calls on me, there is a disconnection. This makes it harder for us to learn the topics." (S26-S17-S2)

"I have a sibling who attends live lessons at the same time. Since I don't have an unlimited internet plan, I can't always attend classes." (S9-S13)

FINDINGS

"It has been determined that students' expectations regarding distance education are higher than the current situation. This result of the research is supported by both quantitative findings and qualitative data." Çakmak's (2013) study and the study by Dursun, Oskaybaş, and Gökmen (2013) also support this finding. Çakmak's study showed that the quality of service in distance education does not meet expectations. The study by Dursun, Oskaybaş, and Gökmen revealed that expectations were not met in five sub-dimensions of service quality.

"It has been determined that the expectations and perceptions of the current state regarding the quality of service in distance education are higher for students who own their computers compared to those who do not." This quantitative finding is consistent with the qualitative data, as reflected in the student comment: "I have a sibling attending a live class at the same time at home. Since I don't have an unlimited internet plan, I can't always attend the classes" (S9-S13).

When E-Student Satisfaction was examined based on whether the student owns a personal computer, it was concluded that students with their own computers have higher E-Student Satisfaction. This result indicates that student satisfaction varies based on whether students have personal computers. Generally, students with their own computers tend to have higher satisfaction levels due to more flexibility and convenience in accessing online educational materials and having a personal study space. This finding highlights the importance of educational institutions providing the necessary technological tools to students. Indeed, such research demonstrates that access to technology and technical skills significantly impact the e-learning experience. The study by Watkins, Leigh, and Triner (2004) emphasizes the critical role of technological infrastructure and user-friendly e-learning environments in increasing student satisfaction and learning success. In addition to access to technology, technical skills and motivation also emerge as important factors for success. In this context, it is understood that educational institutions should provide adequate technological support to their students and improve e-learning environments.

It has been concluded that students' expectations regarding the quality of service are higher than their perceptions of the current situation. This shows that the current performance of distance education systems does not meet student expectations. This indicates that educational institutions need to take steps to improve service quality.

It was found that the expectations and perceptions of the current state of distance education service quality have a significantly positive impact on student engagement and e-student satisfaction. The impact of current state perceptions on student engagement and satisfaction was found to be greater than expectations. This suggests that students' satisfaction with the current state has a stronger effect than their expectations of improving service quality. In other words, improving the current state may be more effective in increasing student engagement and satisfaction. This result aligns with the study by Özgen and Köse (2023), who also found a positive significant effect of service quality in distance education on satisfaction and university loyalty.

Participants concluded that distance education does not sufficiently ensure student engagement and success. This result also aligns with the qualitative findings of the research. The student view, "I think some of my friends are passing the classes by cheating in the exams. This reduces my motivation to study and attend classes. When others pass the class by cheating, I wonder why I should bother studying" (S7-S10-S11) and "Not being able to meet with my friends like in face-to-face education decreases my intrinsic motivation" (S7), corresponds with these findings. This result also aligns with the study by Kaysi and Aydemir (2017), which found that the interactions between learners themselves and with the course instructor are very weak.

These findings suggest the need to develop quality improvement strategies to better meet the needs and expectations of students in distance education practices. It would be an important step for educational institutions to consider student feedback and improve their teaching methods and technological infrastructure. In their study, Kazak and Karahüseyinoğlu (2023) expressed that quality in the distance education process can be

improved by supporting disadvantaged students with technological resources, using Web 2.0 tools to make lessons more engaging, and providing free Wi-Fi services in rural areas where internet access is problematic.

CONCLUSION and DISCUSSION

According to the results of this research, the perceived quality of service in distance education and expectations have a significant positive impact on student engagement and e-student satisfaction. However, the impact of current service quality perceptions on student engagement and e-student satisfaction is much greater than the effect of expectations on these two factors.

Perception and Expectations of Service Quality: Participants indicated that their perceptions and expectations of the service quality in distance education differ. The fact that their expectations are higher than their perceptions shows that the quality of service in distance education needs improvement.

Student Engagement: Participants expressed that distance education does not sufficiently ensure student engagement. This indicates that distance education programs need to take additional measures to increase student engagement.

Student Success: Participants also noted that distance education is not sufficient in ensuring student success. This points to the need for distance education programs to develop more effective strategies to improve student success.

These findings demonstrate the need for distance education programs to improve service quality, student engagement, and student satisfaction. Especially, since perceptions of the current state have a greater impact on student engagement and satisfaction, distance education programs must adopt a more careful and thorough approach in these areas.

SUGGESTIONS

In distance education, as in traditional education, regular quality assessments should be conducted. This is crucial for evaluating and improving the effectiveness of educational processes and shows the need for educational institutions to take steps to improve service quality.

The process of clarifying rules and concepts in internet-based distance education is ongoing. This emphasizes the need for defining and improving quality standards in distance education.

It has been noted that there is a need for more detailed studies in the sub-dimension of physical features regarding service quality. This indicates that more in-depth studies should be conducted to evaluate the usability, accessibility, and technical infrastructure of distance education platforms. Educational institutions should take student feedback into account and improve their teaching methods and technological infrastructure.

Ensuring equality of opportunity and fairness in distance education is an important issue. Studies on this topic are crucial for creating a more equitable learning environment among students.

Studies on service quality should be repeated across different courses, and awareness among instructors should be increased. This means that instructors should actively participate in the distance education processes and ensure compliance with quality standards.

To improve the quality of service in distance education, universally valid digital content should be developed, and support should be provided to both students and educators.

Higher education institutions should be provided with hardware, equipment, and infrastructure support, and institutions should be regularly audited. It is understood that educational institutions must provide sufficient technological support to their students and improve e-learning environments.

Measures should be taken to ensure the reliability of assessment tools.

These recommendations provide guidance for future studies aimed at quality management and continuous improvement in distance education.

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Ethics Statement: "In this article, the journal writing rules, publication principles, research and publication ethics rules, and journal ethics rules have been complied with. The responsibility for any violations that may arise regarding the article belongs to the author(s). The article's ethics committee approval was obtained by the Firat University Social and Human Sciences Research Ethics Committee with the decision numbered 37008 dated 15.04.2021.

Declaration of Author(s)' Contribution Rate:

| CONTRIBUTION RATE | CONTRIBUTORS |
|---------------------------|--------------------------|
| Idea or Notion | Necmi GÖKYER-İlkay OKAY |
| Literature Review | Necmi GÖKYER- İlkay OKAY |
| Yöntem | Necmi GÖKYER- İlkay OKAY |
| Data Collecting | Necmi GÖKYER- İlkay OKAY |
| Data Analysis | Necmi GÖKYER- İlkay OKAY |
| Findings | Necmi GÖKYER- İlkay OKAY |
| Discussion and Commentary | Necmi GÖKYER- İlkay OKAY |

Funding: No contribution and/or support was received during the writing process of this study. ,

Informed Consent Statement: Informed consent form was obtained from all participants in the study.

Data Availability Statement: For questions regarding data sets, etc., the corresponding author should be contacted.

Conflict of Interest: There is no conflict of interest between the authors and other individuals, institutions or organizations related to the research.



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