A RESEARCH ON THE EFFICIENCY OF DISTANCE EDUCATION IN UNIVERSITIES DURING THE PANDEMIC

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ABSTRACT

During the pandemic period, there have been such upheavals from production methods to distribution strategies, and from supply methods to corporate functioning. Accordingly, it would not be wrong to say that all companies and sectors, regardless of national or international, are part of this fundamental transformation. When the education sector was evaluated from the same perspective, it is possible to say that it is one of the sectors most affected by the differences created by this pandemic. For instance, very soon after the pandemic, almost all higher education institutions switched to distance education activities instead of face-to-face education. This study aims to examine the effects of the devastation caused by the pandemic on students at the higher education level in the context of efficiency. In this research, the criteria has been set as which university students' efficiency was achieved during the distance education process, and the research included 1604 participants from 15 universities, who formed the study's sample. The data obtained was subjected to reliability and validity analysis, and it was by using the SPSS program, and the results were examined with different dimensions.

Keywords: Covid-19, pandemic, distance education, efficiency.

INTRODUCTION

When the pandemic process was analyzed, it is seen that there is a transition from face-to-face education to distance education applications, and this transition is gradually starting to normalize. Although we are inclined for this transition in the digital age, the negativities brought by the pandemic period necessitated an urgent system change around the world. In this context, the shortcomings and adaptation processes caused by being caught unprepared for the current process, have led to some negativity in the education system. Many deficiencies or problems which were encountered encountered in the beginning days decreased over time, but the efficiency phenomenon, which is the main subject of this research, appears problematic in itself.

The point of this study is to examine in detail how and with which methods distance education activities are carried out in universities in Turkiye during the pandemic period. Moreover, it is aimed to reveal the level of efficiency achieved by university students who are the recipients of distance education applications from these methods. In this paper, firstly the literature study is included. In this section the impact of the pandemic on education, ethical concerns that may arise in educational practices in this period, and the application phase of distance education processes are mentioned. In our study, we attempted to determine what was done, what could not have been done, what was right or wrong, and what should have been done about the education processes during the pandemic. We can point out two reasons that distinguish this study from others conducted

on distance education and took place during the pandemic period. The first is that it takes Istanbul, which has the highest number of higher education institutions in Turkiye and hosts students from 81 provinces, as its sample, and the second is that it has a scientific approach that examines the distance education process through many different dimensions. The data obtained from an important sample group of 1604 students from 15 universities and it was analyzed with statistical methods suitable for the determined purpose. We believe that the results obtained within the scope of the study will contribute to both educational institutions and academic staff in all kinds of arrangements to be made in distance education applications.

LITERATURE REVIEW

The Covid-19 pandemic, which firstly came to the agenda in the world and then broke out in our country in 2020, has disrupted all activities taking place in the public sphere globally. Various measures have been taken to prevent the spread of the virus and to avoid the pandemic. The beginning of these measures was shifting business life to home, and that was followed by continuing all levels of education with the distance education method. As of March 16, 2020, education has been suspended throughout Turkiye and as of March 23, 2020, face-to-face education has been replaced by distance education. As a result of this circumstance, it can be seen that the pandemic created a huge impact on education, and it a new period started. Most scholars, academicians, and tutors could not know how to manage in this process. Therefore, both tutors and students strived to understand o fully comprehend (Stewart, 2021, p.89).

Researchers working in fields such as distance education and teaching technologies have used the concept of 'emergency distance education' to distinguish the pandemic period from distance education carried out under ordinary conditions. Hodges prefers the word 'teaching 'instead of 'education'. The reason for such a word choice is that this process is mostly carried out under the responsibility of teachers (Yildirim, 2020, p. 9). The concept of 'emergency distance education' comes up as a teaching/learning method applied during the pandemic period and similar cases. The concept is based on the fact that distance education is a method that is currently applied. Thus, in addition to the concept of distance education in the field of educational sciences, the concept of emergency distance education has come to the fore with the pandemic.

The terms of emergency distance education and distance education have become compulsory becauuse of the fact that the popularity of them have increased. Furthermore, these phenomena have taught educators what vulnerabilities and strenght sides of this education method are (Bozkurt, et al., 2022, p. 883). Emergency distance education is defined as an instructional communication method born out of necessity that emerged with the pandemic process. Distance education, on the other hand, is a multidisciplinary education ecosystem with many different components including planned learning and teaching activities. The difference between emergency distance education and distance education emerges at this point. Emergency distance education does not aim to establish a long-term sustainable learning ecosystem. Distance education, on the other hand, is planned, systematic, and based on strong theoretical foundations (Sezgin, 2021, p. 275). Emergency distance education is also described as the stage of action by stakeholders regarding education practices (Bozkurt, 2020, p. 116). Golden, on the other hand, preferred to use the concept of 'temporary distance education' instead of 'urgent distance education/teaching' (Yildirim, 2020, p. 9). Unlike the existing concept of distance education, these concepts, which are included in the literature, are the outcomes of the pandemic period. Since emergency distance, education/training or temporary distance education covers a limited period, and both teachers and learners continue to experience the current process while the pandemic period carries on, the 'urgent' part of the concept has lost its function over time. This is because distance education methods have still been advancing through developing new strategies, despite the initial purpose was to implement them particularly at the beginning of the pandemic period. Therefore, while distance education is a new and different method for both teachers and students, it has gained a normal dimension over time.

With the 2021-2022 academic year, distance education has become a part of the education process, especially at the higher education level. During this period, some universities continued distance education to a large extent. Moreover, some adopted the hybrid education method and provided courses to be taught both online and in the classroom (Adedoyin & Soykan, 2020, p. 6). In this way, a variety of students have developed themselves both academically and intellectually. In addition, the decision to offer forty percent of the courses in the curriculum online was notified to the universities by the Council of Higher Education in Turkiye.

With distance education replacing face-to-face education, protection of personal data in virtual environments, digital media literacy, and ethical awareness issues come to the fore. With regard to that, ethical framework in distance education should be determined for educational institutions, educators, and students. The determination of ethical boundaries in distance education prevents unethical and legal problems that may occur during education conducted in online environments. In this context, educational institutions must provide orientation training to both educators and students by mentioning the law on the protection of personal data, the ethical boundaries in distance education, and the problems that may arise when starting the distance education process. At the same time, educational institutions offer texts containing ethical rules prepared with names such as 'consent text, manifesto and ethical rules' to students in an online educational environment to prevent ethical violations while applying for exams during the distance education process. Therefore, while educators are informed by the institution, students are also informed through these texts during the distance education process. The extent to which informing students can prevent ethical violations in distance education is a controversial issue. Because avoiding ethical violations covers the behaviors that are put into action as a result of the individual point of view. It can be said that students who have individual ethical awareness take these warnings and texts more into consideration in the distance education process.

Within the scope of higher education, the Higher Education Quality Board of Turkiye has carried out a study regarding the problems experienced with the transition to distance education, and presented components that are set for the establishment of a quality assurance system in distance education. The components that a qualified distance education system should have a distance education policy, infrastructure opportunities, access conditions, qualifications, education and training processes, expert human resources, support services, information security, and ethical dimensions. Within the scope of information security and ethical dimensions in distance education, a large amount of data is recorded as a result of the interaction of the distance education system between educators, students, and the resources used and with the relevant higher education institution. In this case, a highly significant matter is how much of this data will be accessed, by whom, for what purposes, and under what conditions. In addition to the data accession, other important points are how the confidentiality of personal information will be ensured in resource generation and sharing. So, what the ethical principles are in the interaction of educator-student, student-student, student-institution, or educator-institution and how to protect these ethical principles should be determined and systematized (YOKAK, 2020). It can be said that within the framework of the ethical principles and system developed by institutions which provide education at the higher education level, ethical concerns that may arise for educators and students can be minimized or completely avoided.

Distance Education and Application Process

The instructors, who have sufficient knowledge and equipment about distance education applications, were able acquire positive results with the conveniences brought by information technologies, despite the conditions of education having been provided in distance. (Ersoz & Ozmen, 2020, p. 175). Many universities carried out studies that would enable them to give common compulsory courses with distance education methods before the pandemic period. Moreover, online settings provide a lot of opportunities for learners. As an illustration, authentic tasks can motivate students to study, while in classrooms, it just enables with teachers (Meri Yilan, 2023, p. 180). However, the practice of distance education in all departments and education levels of a university has been a situation encountered for the first time during the pandemic period.

It has brought some problems as well as advantages of providing education entirely through distance education applications (Kurnaz & Sercemeli, 2020, p. 266). For example, educators who ~~try~~ tried to teach classes through distance education practices, but experienced shortcomings in using these applications and teaching lessons, had a situation of coping psychologically with the difficulties of this situation (Ersoz & Ozmen, 2020, p. 175). Contrary to this situation, educators and students have also attained some gains through distance education systems (Altiparmak et al., 2011, p. 320):

- Educator-student interaction, which continues their lives in different environments, has been provided.
- With the increase in distance education activities, students have the opportunity to benefit from educational institutions in different parts of the world.

When the research conducted is evaluated, it is necessary to design an educational model by conducting a systematic and comprehensive study of online learning processes. There was no such design in the education given during the pandemic period and defined as emergency distance education. In other words, within about a year, was it possible to create a model or support system that would nurture students in every sense, such as resources that students can access and environments where they can interact outside of the classroom? When evaluated in terms of the applications made and their results, the situations in question have reached a significant degree of success (Erkut, 2020, p. 128).

The explanations made by scientists show that even if the pandemic period we are in is taken under control, it is not far from the possibility that we will encounter similar pandemic periods again. In this context, it is very important to analyze, evaluate and take forward-looking measures in a wide range of distance education applications both before and during the pandemic period (Basaran et al., 2020, p. 371).

As a requirement of the distance education system, students had to continue their education on their own. This situation causes problems such as lack of interaction, loneliness, and lack of communication. Considering these problems, the most functional learning methods should be preferred in the distance education system (Ekici, 2003, p. 48-49). It is thought that efficiency can be obtained from this education model by making use of the advantages brought by distance education and by producing solutions that will minimize the disadvantages.

The prominent feature of the technologies used in distance education is that they provide students with the opportunity to be independent of time and place. It is thought that distance education will be as successful as morning classes if the interaction and communication between students and teachers in distance education can be provided at an efficient level (Yilmaz & Horzum, 2005, p. 111). However, it should be noted that the differences and specific details within the ecosystem of the relevant scientific discipline must be taken into account. It should also be said that the value of face-to-face education is an undeniable fact.

METHODOLOGY

Within the scope of the study, primarily the superstructure of the methodology was designed and an evaluation was made on the number of students in higher education institutions in Turkiye. In this context, the first part of which sample from the main population would be determined within the framework of which limitations and constraints has been designed. Perhaps it was one of the most crucial parts of the research because the sample to be selected and the criteria determined had to be created to fully reflect the main population. The website of the Presidency of the Council of Higher Education in Turkiye, which is the most reliable and clear source of student statistics, istatistik.yok.gov.tr was the primary source used at this stage. The period to cover was decided as 3 semesters within the scope of the study. After reaching the current student numbers as of the beginning of the 2021-2022 academic year, the question of how to choose among 207 universities in Turkiye arose. First of all, such a choice should have been made so that it could both express itself in general and have the ability to represent higher education institutions in terms of student selection. In this context, Istanbul has been the primary reason for preference, as it has the largest crowd in terms of the number of universities and student population. It is extremely important to indicate that being the city which hosts students from 80 other cities of Turkiye, we believe that Istanbul could truly reflect the country. For this reason, all hesitations about conducting research at universities in Istanbul disappeared. Next was the determination of the type of education. In the study, students studying in the morning classes and night classes formed the second ring of the sample. The third step for constructing the superstructure of the methodology was deciding which level to choose for the learning situation. All of them were included in the study, because it was not possible to make a separation between associate, bachelor's, master's, and doctorate degrees, and the awareness arises for students at all levels. After this stage, it was necessary to answer three important questions: First of all, how many of the 61 universities in Istanbul would be included in the research? Second, would a choice be made between state and foundation universities? Third, what percentage of the sample would be selected from the total number of students studying in Istanbul? In this context, choosing a representation of two per thousand as a sample was sufficient to conduct research with a solid and accurate design. Statistical data was very important at this stage. The total number of students studying an associate degree, bachelor's degree, master's degree, and a doctorate in morning classes,

night classes, distance education, and open education types in Turkiye is 8.240.997. Out of this number, 3.241.071 is morning classes, 560.223 is night classes, 80.669 is distance education, and 4.359.034 is open education. The total number of students studying an associate degree, bachelor's degree, master's degree, and a doctorate in morning classes, night classes, distance education, and open education types in Istanbul is 1.288.707. Out of this number, 746.907 is morning classes, 55.224 is night classes, 21.545 is distance education, and 465.031 is open education. Considering the criteria selected as the sample within the scope of the research, it was decided to form the research population of 1.604 students out of a total of 802,131 students in morning and night classes at universities in Istanbul, with a ratio of two per thousand. After the sample selection of the study was clarified, the research question and the questionnaire form that constituted the backbone of an empirical study needed to be clarified.

In this study, the following research question was set out to determine the methods by which distance education applications are carried out in universities in Turkiye and to determine to what extent university students, who are in the most critical part of this process, benefit from these applications and obtain efficiency.

Research question: "How much do university students benefit from distance education applications created by the pandemic process and what is the level of efficiency?"

In this framework, a questionnaire form was created to obtain quantitative data and to evaluate the analysis process on a meaningful whole. The questionnaire to be applied was structured on the extent to which university students benefited from distance education applications, the problems they encountered, and the efficiency they achieved. Thus, in accordance with the purpose of the study, it was possible to make meaningful, valid, and reliable determinations about the level of efficiency achieved in the distance education process.

The questionnaire form, which was created within the scope of the study and applied to students through face-to-face interviews, contains two parts. In the first part, demographic factors such as gender, age, type of education, and educational status were examined. In the second part, 57 propositions including the statements about the level of efficienty received by the students during the distance education process were included. The propositions were divided into groups to be consistent within themselves and 6 different scales were created. "Efficiency, Educator-Student Relationship, Social Life, Distance Education, Individual Attitude and Behavior, and finally Technical Processes". While preparing the questionnaire, the second part was coded as "1. Strongly Disagree, 2. Disagree, 3. Undecided, 4. Agree, 5. Totally Agree" based on a five-point Likert type scale. The data obtained were analyzed under the purpose of the study, evaluated in the findings section, and discussed in the conclusion section.

FINDINGS

Findings and Evaluation of Study

Frequency Analysis of Demographic Variables

The distribution of the data collected within the scope of the research by gender is seen in Table 1:

Table 1. Frequency analysis results by gender

Value	Frequency	Percentage
Women	763	47.6
Men	841	52.4
Total	1604	100.0

While 47.6% (n=763) of 1604 people participating in the study were female, 52.4% (n=841) were male. The fact that the gender distribution ratio of the participants is close to each other is important in terms of examining the results from a more scientific perspective. Within the scope of the research, the sample was created in the same way, because the gender distribution in Turkiye is half. Although the sample was created in the same way, there was a small deviation in the application phase in a way that would not cause any problems in terms of validity and reliability, depending on the pandemic conditions.

Table 2. Frequency analysis results by different age groups

Value	Frequency	Percentage
18-24	1420	88.5
25-34	174	10.8
35-44	9	0.6
45-54	1	0.1
Total	1604	100.0

As could be observed in Table 2, 88.5% (n=1420) of the participants are in the age rance of 18-24, 10.8% (n=174) are in the 25-34, 0.6% (n=142) =9 are in the 35-44, and 0.1% (n=1) are in the 45-54. The fact that a significant majority of the participants are in between the ages of 18-24 could be considered normal when the general average age to receive education at the bachelor's degree is evaluated. However, the fact that there are 9 people in the 35-44 age range and 1 person in the 45-54 age range in the sample group of 1604 participants poses difficulties when it comes to obtaining a meaningful result for these age ranges.

Table 3. Frequency analysis results by education type

Value	Frequency	Percentage
Morning classes	1490	92.9
Night classes	114	7.1
Total	1604	100.0

As can be seen in Table 3, 92.9% (n=1490) of the participants are in morning classes and 7.1% (n=114) are in night classes. It can be considered as a result in a way that almost exactly complies with the detailed statistical study determined while creating the sample of the research.

Table 4. Frequency analysis results by education status

Value	Frequency	Percentage
Foundation degree students	193	12.0
Bachelor's degree students	1107	69.0
Master's degree students	219	13.7
Doctoral degree students	85	5.3
Total	1604	100.0

As shown in Table 4, 12% (n=193) of the students participatng in the survey are foundational degree students, 69% (n=1107) are bachelor's, 13.7% (n=219) are master's and 5.3% (n=85) are doctoral students. In the same way, it could be evaluated as a result in a way that almost exactly complies with the detailed statistical study determined while creating the sample of the research.

Table 5. Frequency analysis results by working status

Value	Frequency	Percentage
Yes	1306	81.4
No	298	18.6
Total	1604	100.0

According to the findings, it is seen that 81.4% (n=1306) of the participants are working and 18.6% (n=298) of them are not working. The fact that more than 80% of the participants are students and working at the

same time is quite remarkable. It is possible to say that this result is intriguing in the context of examining how the pandemic period affects the working situation of the student.

Reliability Analysis

In the study, Cronbach's Alpha value was calculated to determine the reliability of the questionnaire created with the "Likert Type Scale". Reliability is expressed as the fact that the findings/results of the scale or tests used to determine the phenomenon regarding the conceptual structure. On the other hand, it expresses the results that reveal a relationship when it is performed with the measurement tool on different samples and with different sample masses taken from the same or similar population (Sencan, 2005, p. 8). Cronbach's Alpha coefficient is frequently used in the Likert-type scale and is accepted as an indicator of the internal consistency of the propositions. Cronbach's Alpha coefficient aims to reveal the results regarding the homogeneous structure of these propositions (Yildiz & Uzunsakal, 2018, p. 19). Although there are different classifications for the interpretation of the Cronbach's Alpha coefficient when the literature is searched, the following classification is generally accepted (Ozdamar, 2002, as cited in Kilic, 2016, p. 47-48):

$0.81<a<1.00$; the scale is highly reliable.

$0.61<a<0.80$; the scale has medium reliability.

$0.41<a<0.60$; the scale has low reliability.

$0.00<a<0.40$; scale is unreliable.

In light of the above information, the Cronbach's Alpha 'reliability' values of the questionnaire prepared for the study resulted as follows:

Table 6. Reliability analysis results

Value	Frequency	Percentage
Efficiency	0.686	16
Educator-Student Relationship	0.236	4
Social Life	0.185	4
Distance Learning	0.443	6
Individual Attitude and Behavior	0.571	24
Technical Processes	0.415	3
Total	0.811	57

Considering the reliability analysis of the research, as indicated in Table 6, Cronbach's Alpha value of the "Efficiency" variable is 0.686 and it has a reliable value. When the remaining five variables are analyzed alone, they do not give a highly reliable result because Cronbach's Alpha values are lower than 0.60. However, the main value to consider is the value of all the variables. In this context, when the total reliability value of the variables are analyzed, it is seen that Cronbach's Alpha value is 0.811, and it is concluded that a "highly reliable" result is obtained.

Other Analysis Related to the Research

Independent sample t-test results of the study

In order to see whether the chance factor is effective in the analysis results of the research, some standard differences were used. In this context, the 5% level (P=0.05) was considered the limit. Looking at the results obtained, it has been discussed by commenting on whether there was a significant difference according to whether the P value was less than or greater than 0.05 (Spiegelhalter, 2010). That is, if the P value is less than 0.05, there is a significant difference, which reduces the probability of such differences being by chance below 1/20. As a result, it is concluded that the difference is statistically significant.

Table 7 below, contains the results of the Independent Sample T-Test, which was conducted to determine whether the efficiency achieved in the distance education process during the pandemic period created a significant difference according to gendeer.

Table 7. Independent Sample T-Test results of efficiency obtained in distance education in terms of participants' gender

Expression	Gender	N	AO	Sig.	P
Efficiency	Women	763	3.22	0.049	**0.112**
	Men	841	3.26		**0.111**

When the results were examined, it was observed that there was no statistically significant difference since the P value was greater than 0.05 (P=0.112 and P=0.111). For this reason, the efficiency of the education-teaching process during the pandemic period does not differ in terms of male students or female students. Gender difference does not affect the efficiency of the education given during the pandemic period.

Table 8. One-Way Anova Test results of obtained efficiency in terms of age ranges of participants

Groups	N	AO	SS	F	P
18-24	1420	3.23	0.538		
25-34	174	3.27	0.539		
35-44	9	3.66	0.367	2.197	**0.087**
45-54	1	2.88	-		
55 and above	0	-	-		
Total	1604	3.24	0.538		

The One-Way Anova (One-Way Analysis of Variance) test, which is one of the parametric tests, was also used to analyze the data in the study. This test was used to assess whether there was a significant difference between more than two independent groups of the tested variable. In this context, when the results were examined, it was observed that there was no significant difference between the age ranges and the efficiency achieved by the participants in distance education during the pandemic period since the P value was greater than 0.05 (P=0.087). Therefore, it is concluded that the efficiency achieved by the participants in distance education during the pandemic period does not make a significant difference in terms of age ranges.

Table 9. Independent Sample T-Test results of obtained efficiency in terms of participants' types of teaching

Expression	Education Type	N	AO	Sig.	P
Efficiency	Morning Classes	1490	3.23	0.232	**0.014**
	Night Classes	114	3.37		**0.056**

According to the results of the analysis, it was observed that there was a statistically significant difference since the P value was less than 0.05 (P=0.014 and P=0.056). For this reason, the efficiency achieved by the participants in distance education during the pandemic period shows a significant difference in terms of learning types. The fact that students studying at primary education and night classes levels applied/arranged processes such as social life, working status, and time management according to the type of education may have led to this result. The specified 0.05 criterion can be tolerated up to 0.059. In other words, it would not be wrong to interpret that there is a significant difference even if the result reached up to 0.059 (Guris & Astar, 2019).

Table 10. One-Way Anova Test results of obtained efficiency in terms of participants' educational status

Groups	N	AO	SS	F	P
Foundation degree students	193	3.32	0.618		
Bachelor's degree students	1107	3.21	0.514		
Master's degree students	219	3.34	0.568	5.610	**0.001**
Doctoral degree students	85	3.20	0.524		
Total	1604	3.24	0.538		

According to the results, it was observed that there was a significant difference between the efficiency of the participants in distance education during the pandemic period and their educational status since the P value was less than 0.05 (P=0.001). The difference between which groups is shown in Table 11 below:

Table 11. Tukey Test results of obtained efficiency in terms of educational status of participants

Groups		Difference in Averages	P
	Bachelor's degree	0.109*	0.045
Associate degree	Master's degree	-0.208	0.954
	Doctoral degree	0.118	0.000
	Associate degree	-0.109*	0.045
Bachelor's degree	Master's degree	-0.137*	0.003
	Doctoral degree	0.009	0.999
	Associate degree	0.028	0.954
Master's degree	Bachelor's degree	0.137*	0.003
	Doctoral degree	0.145	0.146
	Associate degree	-0.118	0.329
Doctoral degree	Bachelor's degree	0.009	0.999
	Master's degree	-0.145	0.146

The data was analyzed, for "Associate Degree" distance education in the condition of their efficiency in the period of the pandemic, with participants in the "Bachelor" education level of respondents pandemic period, and there is a significant difference between distance education in their efficiency. Similarly, a conclusion has been reached that there was a significant difference between the participants at the "Bachelor's" education level and the participants at the "Master's" education level. Based on this finding, it is seen that the efficiency of the participants in distance education during the pandemic period differs depending on the level of education level in terms of their educational status.

Table 12. *Independent Sample T-Test results of obtained efficiency in terms of participants' working status*

Expression	**Working Status**	**N**	**AO**	**Sig.**	**P**
Efficiency	Yes	1306	3.23	0.588	**0.081**
	No	298	3.29		**0.081**

According to the results, it was observed that there was no statistically significant difference since the P value was greater than 0.05 (P=0.081). During the pandemic period, there have been significant changes in people's working patterns and methods. The result obtained may not have been associated with distance education by the participants when the effects of the pandemic period were evaluated.

Regression analysis results of the study

Regression analysis attempts to relate variation in a response variable to one or more explanatory variables, and in regression analysis, the statistical significance of the explanatory variable is tested using the mean square. This estimate is used to calculate the standard error of the effect of each explanatory variable (Galway, 2006, p. IX). In other words, this analysis is used to measure the effectiveness of the value of one variable on the value of another variable. The variable to be predicted is called the dependent variable. The variable used to estimate the value of the other variable is called the independent variable. Within the scope of the study, the effect of distance education, on student efficiency was examined. Table 13 below shows the results of the regression analysis to measure this effect:

Table 13. The effect of distance education process on efficiency

Model Summary[b]				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	**0.624[a]**	**0.389**	0.388	0.420
a: Estimators: (Constant), Distance Education Process				
b: The Dependent Variable: Efficiency				

ANOVA[a]					
Model	Sum of Squares	df	Square Average	F	Sig.
1 Regression	180.159	1	180.159	1019.085	**0.000[b]**
Leftovers	283.209	1602	0.177		
Total	463.368	1603			
a: The Dependent Variable: Efficiency					
b: Estimators: (Constant), Distance Education Process					

Coefficients					
Model	Non-Standardized Coefficients		Standardized Coefficients	T	P
	B	Standard Error	Beta		
1 (Constant)	1.714	0.049	0.624	35.065	**0.000**
Distance Education Process	**0.497**	0.016		31.923	**0.000**
a: The Dependent Variable: Efficiency					

When the results in Table 13 are examined, it is seen that the P-value contained in the data in the model, which predicts that the distance education process has an impact on efficiency, is statistically significant since it is less than 0.05 (P=0.000). From the results obtained, the coefficient of determination of the model belonging to the efficiency variable of the distance education process is (R^2=0.389) and the distance education process explains approximately 39% of the efficiency. In addition, as can be seen in the table, it was determined that the distance education process variable had a positive effect on the efficiency variable. Thus, every 1 unit increase in the distance education process increases the efficiency by 0.497 units. Based on these results, it is seen that the distance education process has a significant effect on efficiency.

Table 14. The effect of the educator-student relationship on efficiency

Model Summaryb				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	**0.433**[a]	**0.187**	0.187	0.485
a: Estimators: (Constant), Educator-Student Relationship				
b: The Dependent Variable: Efficiency				

ANOVAa					
Model	Sum of Squares	Df	Square Average	F	Sig.
1 Regression	86.679	1	86.679	368.634	**0.000**[b]
Leftovers	376.688	1602	0.235		
Total	463.368	1603			
a: The Dependent Variable: Efficiency					
b: Estimators: (Constant), Educator-Student Relationship					

Coefficients					
Model	Non-Standardized Coefficients		Standardized Coefficients	T	P
	B	Standard Error	Beta		
1 (Constant)	2.241	0.053	0.433	42.003	**0.000**
Educator-Student Relationship	**0.318**	0.017		19.200	**0.000**
a: The Dependent Variable: Efficiency					

According to the data, the P-value contained in the data in the model, which predicts that the educator-student relationship has an impact on efficiency, is statistically significant because it is less than 0.05 (P=0.000). From the results obtained, the coefficient of certainty of the model belonging to the efficiency variable of the educator-student relationship is (R^2=0.187), and the educator-student relationship explains approximately 19% of the efficiency. In addition, as seen in the table, it was determined that the educator-student relationship variable had a positive effect on the efficiency variable. Thus, every 1 unit increase in the educator-student relationship increases the efficiency by 0.318 units. Based on these results, it is seen that the educator-student relationship has a significant effect on efficiency.

Table 15. The effect of social life on efficiency

Model Summary[b]				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	**0.019**[a]	**0.000**	0.000	0.538
a: Estimators: (Constant), Social Life				
b: The Dependent Variable: Efficiency				

ANOVA[a]					
Model	Sum of Squares	Df	Square Average	F	Sig.
1 Regression	0.167	1	0.167	0.576	**0.448**[b]
Leftovers	463.201	1602	0.289		
Total	463.368	1603			
a: The Dependent Variable: Efficiency					
b: Estimators: (Constant), Social Life					

Coefficients					
Model	Non-Standardized Coefficients		Standardized Coefficients	T	P
	B	Standard Error	Beta		
1 (Constant)	3.281	0.058	-0.019	56.799	**0.000**
Social Life	**-0.013**	0.018		-0.759	**0.448**
a: The Dependent Variable: Efficiency					

When the results are examined, it is seen that the P-value contained in the data in the model, which predicts that social life affects efficiency, is not statistically significant due to the fact that it is greater than 0.05 (P=0.448). From the results obtained, the coefficient of certainty of the model belonging to the efficiency variable of social life is (R^2=0.000) and thus social life does not explain efficiency. In this context, it is seen that social life does not have a significant effect on efficiency.

Table 16. The effect of individual attitudes and behaviors of students on efficiency in distance education process

Model Summary[b]				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	**0.621**[a]	**0.386**	0.385	0.422
a: Estimators: (Constant), Individual Attitude and Behavior				
b: The Dependent Variable: Efficiency				

ANOVA[a]					
Model	Sum of Squares	Df	Square Average	F	Sig.
1 Regression	178.674	1	178.674	1005.419	**0.000**[b]
Leftovers	384.693	1602	0.178		
Total	463.368	1603			
a: The Dependent Variable: Efficiency					
b: Estimators: (Constant), Individual Attitude and Behavior					

Coefficients					
Model	Non-Standardized Coefficients		Standardized Coefficients	T	p
	B	Standard Error	Beta		
1 (Constant)	0.781	0.078	0.621	9.981	**0.000**
Individual Attitude and Behavior	**0.802**	0.025		31.708	**0.000**
a: The Dependent Variable: Efficiency					

When the results are examined, it is seen that the P-value in the data in the model, which predicts that the individual attitudes and behaviors of the students in the distance education process affect efficiency, is statistically significant since the P value is less than 0.05 (P=0.000). According to the results obtained, the coefficient of determination of the model belonging to the efficiency variable of individual attitudes and behaviors of students in the distance education process is (R^2=0.386). In addition, as can be seen in the table, as can be derived from the data in the table, the individual attitudes and behaviors of the students in the distance education process had a positive effect on the efficiency variable. Thus, every 1 unit increase in the individual attitudes and behaviors of the students in the distance education process increases the efficiency by 0.802 units. Based on these results, it is seen that the individual attitudes and behaviors of the students in the distance education process have a significant effect on efficiency.

Table 17. The effect of technical processes encountered by students in the distance education process on efficiency

Model Summary[b]				
Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	**0.421[a]**	**0.177**	0.177	0.488
a: Estimators: (Constant), Technical Processes				
b: The Dependent Variable: Efficiency				

ANOVA[a]					
Model	Sum of Squares	Df	Square Average	F	Sig.
1 Regression	82.067	1	82.067	344.797	**0.001[b]**
Leftovers	381.301	1602	0.238		
Total	468.368	1603			
a: The Dependent Variable: Efficiency					
b: Estimators: (Constant), Technical Processes					

Coefficients					
Model	Non-Standardized Coefficients		Standardized Coefficients	T	p
	B	Standard Error	Beta		
1 (Constant)	2.486	0.042	0.421	58.780	**0.000**
Technical Processes	**0.249**	0.013		18.569	**0.000**
a: The Dependent Variable: Efficiency					

According to the results of the analysis, it is statistically significant since the P-value in the data in the model, which predicts that the technical processes that students encounter during the distance education process affect efficiency, is less than 0.05 (P=0.000). From the results obtained, the coefficient of certainty of the model belonging to the efficiency variable of the technical processes encountered by the students in the distance education process is (R^2=0.177). In addition, as can be seen in the table, that the variable of technical processes encountered by students in the distance education process has a positive effect on the efficiency variable. Thus, every 1 unit increase in the technical processes faced by students in the distance education process increases efficiency by 0.249 units. Based on these results, it is seen that the technical processes faced by students in the distance education process have a significant effect on efficiency. It can also be said that the technical problems/inadequacies that may be encountered in computational and hardware structures such as the Internet, computers, audio and video systems may have harmed the efficiency level of distance education. In addition, the problems that may be encountered with the education systems of universities may increase the effect of this negative situation. If the aforementioned negativities are the opposite, it can be thought that the distance education process can be more productive and have a more instructive effect on the students.

DISCUSSIONS AND CONCLUSION

It is undeniable that education is the main actor as the only way out of all the destruction, despair, wounds, and falls created by the pandemic period. In this context, this study examined the three semester period that has passed since the beginning of the pandemiv period in higher education institutions in Turkiye, and where this process was positioned in terms of efficiency. Firstly, this study aimed to provide comprehensive preliminary research, in-depth reviews of the literature to reveal a methodology with strengthened validity and reliability, and to obtain data from the field. Then, after the analysis of the research findings being completed, creating new perspectives would be evaluated in way allowing a different ground to be established. Finally, suggestions would be made for the process.

When a general evaluation is made in terms of the efficiency obtained by university students from distance education applications, it can be said that it is very difficult to reveal a clear difference such as black and white. It would not be wrong to claim that the existence of a surface covered by mostly gray areas related to the process in question dominates. It is seen that students have a negative idea, especially due to the decrease in the socialization process, the disappearance of mutual interaction, and the feeling of being away from the identity of being a university student. It is observed that, students have a negative idea of being a university

student considering the decrease in the socialization process, the dissapearance of mutual interaction, and the feeling of being from the identity However, it can be seen that they tend to have a positive view in terms of increasing the time they spend for themselves, being able to work in a job outside the university, and bringing the economic parameters to more controllable levels. On the other hand, in this process, some factors enabled students' views on the courses and the efficiency of the courses to reach a more prominent level. These factors can be listed as the methods of controlling the communication processes of academicians, the content of the course, the way the course is taught, the integration of digital factors, and the use of digital resources. For this reason, it is thought that students make evaluations that outweigh the subjective side towards a particular situation through singular examples and experiences, rather than opinions that will enter into a general concept. In addition, it is seen that the thick line between theoretical courses and applied courses has become much more evident in this period. When it is considered in terms of assessment and evaluation methods, it can be said that the idea of 'easy' comes to the fore against the exams and grading system, and therefore the perception of 'passing the course' rather than learning becomes dominant.

It appears that some of the results obtained in the light of the data accessed from the students within the scope of the study will shed light on the future studies, which are listed below:

- Students do not have clear view about whether the lecturer's lesson style is open to mutual interaction in the distance education process.
- The majority of students think that distance education courses are more comfortable compared to face-to-face education.
- The vast majority of students think that they have deficiency in applied courses.
- It is accepted by students that distance education systems are inadequate, ineffective, and create obstacles to practice, especially in practical courses.
- The vast majority of students think that applied courses in distance education are not efficient.
- The opinions of the students about whether they have deficiencies in the theoretical courses or not to have very close ratios to each other. However, students think that they have deficiencies in theoretical courses in the context of the competence of the instructor who gives the course, communication methods and course functioning.
- The majority of students think that it is easy to cheat on exams during the distance education process. That is because the exams were held online, and the necessary precautions could not be taken sufficiently. In addition, the measures taken when it comes to privacy and security were insufficient and this problem could not be avoided. Considering the feedback from students that underlines that cheating is comfortable during the distance education period, it can be said that universities can observe ethical values to a certain extent and cannot prevent cheating.
- The majority of the students think that the trust between the educator and the student is not strengthened during the distance education. In the distance education process, unlike face-to-face education, the social and direct communication between the educator and the student has been interrupted.
- According to the data obtained, the vast majority of students are not interested in completely switching to distance education practice in the ongoing process.
- Students think that course registrations during the distance education process help them prepare for the exam. Moreover, this result was one of the approaches in which the highest rate of positive opinion was expressed among the answers given to all propositions.
- The majority of the students stated that they were undecided about finding the opportunity to put the applied lessons into practice during the distance education process.

In short, this study is long-term and is important in the context of melting many different components together in the same pot. As a result of the study, suggestions for increasing efficiency and creating a more qualified education culture in the distance education process, which can also be considered as the manifest of the study, are given below:

- Institutional investment to strengthen the technical infrastructure, especially to increase the speed of internet data flow
- Creation of a coordinated integration fort he use of different digital platforms instead of the necessity of using a centralized system, based on the fact that the priority is to increase the quality of educational activities.
- Application of the audit and control mechanism with a majoritarian understanding within the framework of ethical values for the course functioning processes
- Consideration of examination methods, grading styles, and course passing criteria together with the function of 'learning' and institutional effort to internalize the responsibility that should come to the fore
- In the context of cooperation between universities, the establishment of universal principles based on knowledge and in which the understanding of 'we' stand out decisively.
- To reveal more clearly that distance education practices are different from face-to-face education methods and to create a comprehensive education program in terms of creating digital content
- Carrying out studies for the institutionalization of ethical principles for both academic and administrative staff and students and creating a more functional and multi-participatory strategy for the establishment of the legal infrastructure
- Developing systems that are more applicable in terms of theoretical courses and applied to courses and that will increase students' awareness of the course
- Revising the course contents in a way that is suitable for mutual interaction in the courses
- Internalization of the requirements and competencies of the digital world will be formed much more efficiently not by creating a culture of the objection, but by spreading the culture of discussion to the grassroots
- Finally, with the awareness of the difficulty of creating the advantages and aura of the social environment created by face-to-face education in distance education, maximum effort should be made towards multidimensional and multi-layered implementation to establish an integrative culture instead of being exclusive

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