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Studies on "Distance Education During COVID-19": A Content Analysis*

"COVID-19 Dönemi Uzaktan Eğitim" Konulu Çalışmalar: Bir İçerik Analizi

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Abstract

The aim of this study was to analyze the studies on distance education in the COVID-19 period. Qualitative research type was adopted in the study and document analysis method was used.100 articles published in the relevant field were analyzed by the content analysis method within the scope of the study. The trends of the relevant studies in terms of their demographic characteristics, methods, sample characteristics, aims, findings, keywords, and tools used in distance education were analyzed. According to the findings obtained from the study, the majority of the articles consisted of those conducted in Turkey, Indonesia, and the United States. The most frequently used sample type in articles was students, followed by teachers. Students, primarily from higher education institutions, participated in most of the studies. The vast majority of the studies were carried out with participants at the Faculty of Education. Qualitative research was used most frequently in the articles, followed by quantitative research. In addition, statistical analysis, content analysis, and descriptive analysis were also widely preferred. Evaluation of the distance education process, due diligence, determination of the opinions and challenges, the effectiveness of distance education and suggestions regarding distance education stood out in the distribution based on the purpose. The most common positive findings were; positive attitude, flexibility, benefit, entertainment, promotion of technology, while the most common negative findings were technical infrastructure problems, communication problems, accessibility problems, adaptational problems, financial problems and psychological problems.

Keywords: Content Analysis, COVID-19, Distance Education, Effects of Covid-19, Pandemic

Öz

Bu çalışmanın amacı COVID-19 dönemi uzaktan eğitim konusu üzerine yapılan çalışmalarının analiz edilmesidir. Çalışmada nitel araştırma türü benimsenmiştir ve doküman incelemesi yöntemi kullanılmıştır. Çalışma kapsamında ilgili alandaki 100 makale içerik analizi tekniği ile analiz edilmiştir. İlgili çalışmaların demografik özellikleri, yöntemleri, örneklem özellikleri, örneklem sayıları, amaçları, bulguları, elde edilen sonuçlar, çalışmalarda yer alan anahtar kelimeleri ve uzaktan eğitimde kullanılan araçlar açısından eğilimleri analiz edilmiştir. Araştırmadan elde edilen bulgulara göre makalelerin çoğunluğunu Türkiye, Endonezya ve Amerika Birleşik Devletleri'nde gerçekleştirilmiştir. Makalelerde en sık kullanılan örneklem türü öğrencilerdir ve bu sırayı öğretmenler takip etmektedir. En çok üniversite düzeyi öğrencilerle çalışılmıştır. Yükseköğretim düzeyinde yapılan çalışmaların büyük çoğunluğu Eğitim Fakültesi'ndeki katılımcılarla gerçekleştirilmiştir. Makalelerde daha çok nitel araştırma yöntemi kullanılmış olup bu sırayı nicel araştırma yöntemi takip etmiştir. Ayrıca istatistiksel analiz, içerik analizi ve betimsel analiz de yaygın olarak tercih edilmiştir. Ayrıca amaca göre yapılan dağılımda uzaktan eğitim sürecinin değerlendirilmesi, durum tespiti, uzaktan eğitime dair görüş ve zorlukların belirlenmesi, uzaktan eğitimin etkililiği ve uzaktan eğitime ilişkin önerilerin araştırılması ön plana çıkmıştır. İlgili makalelerde en sık rastlanan olumlu bulgular; olumlu tutum, esneklik, fayda, eğlence, teknolojinin teşvik edilmesi iken en çok rastlanan olumsuz bulgular ise teknik altyapı sorunları, iletişim problemleri, erişim problemleri, adaptasyon problemleri, finansal problemler ve psikolojik sorunlardır.

Anahtar Kelimeler: *COVID-19, Covid-19'un etkileri, İçerik Analizi, Uzaktan Eğitim, Pandemi*

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INTRODUCTION

The COVID-19 pandemic, which first emerged in China and then spread across the world, negatively affected many aspects of life due to hindering life globally. One of these negatively affected areas is education (Toquero, 2020). Therefore, countries have decided to make important changes regarding the conduct of educational activities during the pandemic (Wojtowicz et al., 2020). Thus, 185 countries suspended face-to-face education and sought alternative education methods within the scope of these changes (Dong et al., 2020; Aydın and Erol, 2021). In this context, distance education has been adopted by some countries as an alternative to face-to-face education.

Distance education has emerged and become widespread as an effective option as a result of the advancement of today's technology when face-to-face education is not sufficient or possible (Kutlu and Titrek, 2021). Distance education is an education model that allows the teacher and the learner to be separate from each other, and this is generally conducted through a technological tool (Keegan, 1994). Keegan used the following six components to define distance education. "These components are; the separation of teachers and students, the influence of an educational institution, the use of technical media, two-way communication, seminar opportunities, and participation in the industrial form of education" (Keegan, 1980, p.21, as cited in Johnson, 2021).

Many advantages of distance education have been mentioned in the relevant literature. According to Mirkholikovna (2020), distance education is an excellent tool to help to reach students in geographically remote areas who cannot easily access educational services or who want to explore opportunities not offered by their schools. In addition, O'Lawrence (2005) stated that the online distance education environment contributed greatly to the educational needs of the 21st century by promoting the acceptance of the concept of knowledge as a vital element in social development and economic growth. De Oliveira et al. (2018) asserted in a related study that distance education is advantageous in terms of its flexibility and effectiveness. Katane et al. (2015) determined the advantages that distance education has from the perspective of teachers and students and according to the study, distance education was considered beneficial by the students and teachers for a number of reasons. These positive thoughts are as follows: 1) Distance education is convenient for students suffering from health problems. 2) It is regarded as an important advantage that students can receive this education from any place they want. 3) It is also possible to combine hobbies and working life thanks to remote education. 4) Various online platforms and technological tools can be accessed through distance education. Distance education is thought to be beneficial for the following qualities: its economical feature in terms of time and cost, the ability of students to obtain the information they need on the Internet, the ability to be free by eliminating school pressure, and the development of self-education skills (Ketane et al., 2015).

Distance education has some disadvantages and limitations as well as its advantages. Some of these limitations are as follows: 1) Distance education is not suitable or sufficient for all courses. 2) It is not sufficient for face-to-face interaction and communication. 3) Instant feedback and corrections cannot be made. 4) The lesson planning of individuals who have difficulties in individual studies may be limited. 5) Communication problems may easily occur in crowded classrooms. 6) The infrastructure and technical services may require financial resources to create a remote learning environment (Başaran et al., 2020, cited in Dinçer, 2016). Furthermore, many studies have drawn attention to many limitations as well as the contributions of the distance education process which has become a current issue and has been applied at all levels in many countries during the COVID-19 pandemic. Karakaya et al. (2020) examined the views of Biology teachers on distance education during the COVID-19. As a result, participating teachers stated that distance education increased the use of technology, cooperation, empathy, and positive thinking about lessons, but there were problems arising from the lack of technological infrastructure and knowledge. Davis et al. (2021), on the other hand, stated that students experienced burnout during the distance education process during the COVID-19 period and that the parents also faced some mental problems in this process, and the researchers discussed the psychological problems brought about by the distance education during this process. Mikušková et al. (2020) conducted a study to determine the perspectives of Slovak teachers about distance education during COVID-19. As a result of the research, it was determined that as the negative emotions of Slovak teachers increased during the pandemic period, their positive emotions decreased. Besides these findings, it was also concluded that distance education was closely related to emotion and personality. Thus, teachers wanted to make some radical changes in their teaching plans after the pandemic period. Kutlu and Titrek (2021) investigated postgraduate students' views on distance education in the COVID-19 process. The study results revealed that students

experienced problems with internet accessibility and had difficulty understanding the system offered by their universities.

As the COVID-19 pandemic is an emerging issue that affects the entire world, current studies focus on this area. In addition, due to the limitation of face-to-face education in this process, distance education activities have gained more importance and become essential (Al Lily et al., 2020). Therefore, it is believed that the studies on distance education during COVID-19 are contributing and informative in terms of the relevant field and the education process. These studies; present various results, findings, and solution suggestions about distance education. The efficiency level, limitations, and views on distance education carried out during the pandemic have been investigated within the scope of the studies. The data obtained from these studies and the general understanding of the trends in this area may enable a better evaluation of the distance education process in this pandemic. It may also shed light on the educators and field experts. Therefore, this study aimed to examine the studies on distance education in the COVID-19 period in terms of various variables (demographic characteristics, findings and results, study type, and quality of distance education activities) using content analysis. It has been stated that literature reviews are significant in terms of providing ideas and information about what innovations or basic trends are in the relevant field, what types of studies are conducted, what designs and analyses are used, what findings and results are found (Boote & Beile, 2005). In addition, since the distance education process during the pandemic is a new situation, it is intended to contribute to the relevant literature.

METHOD

Study Design

In this study, qualitative research type was determined and document analysis method was used. This study was conducted to examine and evaluate the studies on distance education in the COVID-19 pandemic. Answers were sought to the following questions regarding the content of the studies:

1. What is the distribution of the demographic characteristics of the studies?
2. What is the distribution of the sample characteristics of the studies?
3. What are the methods used in the studies?
4. What are the objectives of the studies?
5. What are the findings and results of the studies?
6. What are the main keywords of the studies?
7. According to the studies, what are the most frequently used tools in distance education?

The content analysis method was used to examine the studies on "Distance education during the COVID-19 pandemic" and to answer these questions. Content analysis is defined as a systematic, repeatable technique created to reduce many textual words to fewer content categories based on certain coding rules (Weber, 1990). Content analysis is also useful for analyzing trends and patterns in data (Stemler, 2000).

The studies analyzed in this research were accessed from the address "https://scholar.google.com". 100 articles were obtained by scanning the keywords "distance education during COVID-19", "distance education during the pandemic", "remote education during COVID-19", "remote education during the pandemic".

Study Sample

The study sample consists of 100 studies on "Distance Education in the COVID-19 period" scanned in the "Google Scholar" search engine during 2020 and 2021. These studies were accessed from the address "https://scholar.google.com". All the studies that have been investigated were articles.

Data Collection and Analysis

The content analysis method was used to analyze and evaluate the data. The content analysis is an analysis technique that aims to intensify the phenomenon and to reach a comprehensive definition, and as a result of the analysis, concepts or categories that define the phenomenon are created (Elo & Kyngäs, 2008). In addition, the content analysis offers the researcher the opportunity to analyze the data by developing an impressionistic, instinctive and interpretive approach (Hsieh & Shannon, 2005).

The answers to the questions asked to investigate the relevant studies were expressed descriptively (frequency-percentage) and the necessary codes and categories were created within the scope of the research.

Validity and Reliability

Before the steps were taken, the validity and reliability of the study were analyzed. The data collection tool was redeveloped in line with an additional expert review, and in the last case, the final decision **indicated** that the study was valid due to its suitability for the purpose of the study (Çifçi & Ersoy, 2019), and the data obtained were related to the case focused in the study (Kahyaoğlu, 2016). It is also important to determine the reliability of the codes and categories in data analysis (Miles & Huberman, 2015). The formula developed by Miles and Huberman (Reliability = consensus /consensus + disagreement X 100) was used to determine the reliability of the data. In this context, the similarity percentage of the codes and categories created by two researchers who are experts in the field of education was calculated. The reliability coefficient that emerged as a result of the code-category comparison was found as %91.

FINDINGS

Analysis findings obtained from the articles on "Distance Education during COVID-19" were included in this section. The frequency-percentage values of the findings and the necessary code and categories were shown in tables.

Table 1: Distribution of Articles Based on the Year of Publication

Year	**f**	**%**
2020	67	67
2021	33	33
Total	100	100

Table 1 shows the distribution of the articles based on the year of publication. It can be seen that 67% of the articles were published in 2020. On the other hand, 37% of the articles were published in 2021.

Table 2: Distribution of of Articles Based on Database

Database	**f**	**%**
Dergipark	27	27
Eric	24	24
Researchgate	14	14
Elsevier	10	10
Springer	2	2
Taylor & Francis	2	2
Sagepub	2	2
Other	19	19
Total	100	100

Table 2 shows the distribution of the articles by the database. According to Table 2, the majority of the articles (%27) were published in Dergipark. 24 articles (24%) were indexed in Eric. This was followed by Researchgate (14%). In addition, 10 articles (10%) were published in Elsevier. 2 articles (2%) were published each in Springer, Taylor & Francis, and Sagepub. 19 articles (19%) were published in other databases.

Table 3: Distribution of of Articles Based on Countries

Country	**f**	**%**
Turkey	42	42
Indonesia	11	11
The USA	10	10
India	5	5
Poland	4	4
China	3	3

Italy	3	3
Germany	2	2
United Arab Emirates	2	2
Jordan	2	2
The Philippines	2	2
Other	14	14
Total	100	100

In table 3, the majority (42%) of the studies were conducted in Turkey. This order was followed by Indonesia with 11 articles (11%). Also, the USA ranked third with 10 articles (10%). The number of studies conducted in India was 5 (5%) and the number of studies conducted in Poland was 4 (4%). According to these findings; the number of studies originating from Germany, United Arab Emirates, Jordan, and the Philippines was only 2 (2%). The number of studies in the other category was 14 (14%).

Table 4: Distribution of Articles Based on Sample Characteristics

Sample Type	**f**	**%**
Student	46	45.54
Teacher	24	23.76
Faculty member	14	13.86
Parent	10	9.90
School administrator	3	2.97
Specialist	2	1.98
Education agency	1	1
Survey data	1	1
Total	101	100
Sample grade	**f**	**%**
Preschool	6	5.88
Elementary school	18	17.64
Middle school	20	19.60
High school	11	10.78
University	44	43.13
Post graduation	3	2.94
Total	102	100
Sample size	**f**	**%**
1-10	7	7.36
11-50	32	33.68
51-100	12	12.63
101-500	32	33.68
501-1000	5	5.26
1001-5000	6	6.31
5001-250000	1	1.05
Total	95	100

The distribution of the sample characteristics participating in the study was analyzed in line with the second problem of the research. In this context, the distribution of the study samples in terms of type, level, and size was shown in Table 4 with frequency and percentage values. According to Table 4, the majority of the samples (45.54%) who participated in the studies consisted of students. This was followed by teachers (23.76%). The number of the sample consisting of faculty members was 14(13.86%), and the number of parents was 10 (9.9%). Considering the sample levels, it can be understood that the majority of the studies (43.13%) were carried out with participants within the university. The second rank was secondary schools participants (19.60%). The elementary school ranked third with 18 participants (17.64%). The sample consisting of graduate-level was only 2.94%. When the distribution based on the

sample size was examined, the sample intervals of 11-50 and 101-500 were the most preferred intervals (33.68%). This was followed by the interval of 51-100 (12.63%).

Table 5: Distribution of of Articles Based on Department/Faculty

Department/Faculty	**f**	**%**
Education	18	38.29
Engineering	4	8.51
Fine Arts	3	6.38
Management	2	4.25
Chemistry	2	4.25
Dentistry	2	4.25
Sports Science	1	2.12
Natural Sciences	1	2.12
Health Sciences	1	2.12
Architecture	1	2.12
Psychology	1	2.12
Medical School	1	2.12
Foreign Languages	1	2.12
Not specified	9	19.14
Total	47	100

According to Table 5, the majority of the studies (38.29%) were carried out in the Faculty of Education. The number of studies carried out in the Engineering department was 4 (8.51%), and the number of studies carried out in the department of Fine Arts was 3 (6.38%). Additionally, the number of studies carried out in the departments of Management, Chemistry and Dentistry was limited to 2 (4.25%); the number of studies carried out in the departments of Sports, Natural Sciences, Health Sciences, Architecture, Psychology, Medicine and Foreign Languages was only 1 (2.12%). However, the faculty/department names were not specified in 9 studies (19.14%).

Table 6: Distribution of Articles Based on Research Method

Method	**f**	**%**
Qualitative	55	55
Quantitative	36	36
Mixed	9	9
Total	100	100

The distribution of the methods used in the studies was analyzed in line with the third problem of the research. In this context, the distribution of the studies by research method was shown in Table 6 with frequency and percentage values. According to Table 6, the qualitative research method was preferred in the majority of studies (55%). The number of quantitative studies was 36 (36%) and 9 (9%) studies used a mixed research method.

Table 7: Distribution of Articles Based on the Analysis Method and Data Collection Tool

Analysis Method	**f**	**%**
Statistical analysis	41	39.05
Content analysis	23	21.90
Descriptive analysis	18	17.14
Document analysis	8	7.61
Thematic analysis	8	7.61
Literature review	4	3.80
Inductive method analysis	2	1.90
Coding analysis	1	0.95
Total	105	100

Data Collection Tool	**f**	**%**
Questionnaire	34	33
Semi-structed interview form	31	30.10
Scale	11	10.67
Document	8	7.76
Open-ended question form	8	7.76
Open-ended survey	7	6.79
Semi-structured observation form	2	1.94
Structured interview form	2	1.94
Total	103	100

The distribution of the studies based on the analysis and data collection tools was shown in Table 7. According to the data in Table 7, statistical analysis was the most preferred type of analysis (39.05%) in studies. The second most (21.90%) preferred type of analysis was content analysis. This was followed by descriptive analysis (17.14%). When the distribution based on the data collection tools was analyzed, it can be seen that the most preferred data collection tool (33%) was the questionnaire. The second most used data collection tool was the semi-structured interview form (30.10%). Scale usage (10.67%) was in the third rank. The frequency of the semi-structured observation form (1.94%) and the structured interview form (1.94%) was quite limited.

Table 8: Distribution of Articles Based on Their Aims

Category	**Code**	**f**	**%**
Due diligence	Opinion determination	18	17.31
	Identifying challenges	5	4.81
	Identifying experiences	4	3.84
	Attitude determination	4	3.84
	Determining satisfaction	2	1.92
	Determining pros and cons	2	1.92
	Determining the suggestions on implementation	2	1.92
	Determining the perception of benefit	2	1.92
	Acquisition and requirement determination	1	0.96
	Determining the perception of self-efficacy	1	0.96
	Determining the coping strategies	1	0.96
	Revealing perspectives	1	0.96
	Determination of readiness	1	0.96
	Determining the learning strategies	1	0.96
	Determination of motivation	1	0.96
	Determination of anxiety level	1	0.96
Investigation	Investigation of perception	6	5.77
	Examining the effectiveness of distance education	3	2.88
	Examining the the effect of motivation	3	2.88
	Investigation of perspective	2	1.92
	Investigation of emotional state	1	0.96
	Examining digital literacy	1	0.96
	Investigation of inequality	1	0.96
	Investigation of the effect of pandemic	1	0.96
	Examining the solution offers	1	0.96
	Examining the preferences	1	0.96
	Examining the distance education systems	1	0.96
	Examining the suitability of the curriculum	1	0.96
	Investigation of using Zoom	1	0.96
Evaluation and suggestion	Evaluation of the distance education proces	17	16.34
	Evaluation of distance learning	4	3.84
	Evaluation of distance education experiences	2	1.92

	Evaluation of the activities of distance education	2	1.92
	Evaluation of teachers	2	1.92
	Evaluation of students	1	0.96
	Evaluation of parents	1	0.96
	Evaluation of parental mental health	1	0.96
	Evaluation of distance education tools	1	0.96
	Evaluation of methods in distance education	1	0.96
	Evaluation of digital comic books	1	0.96
	Making suggestions for distance education	1	0.96
Total		104	100

The distribution of related studies based on their aims was analyzed within the scope of the fourth problem of the research. The distribution of the studies based on their aims was given in Table 8 with frequency and percentage values. In Table 8, the distribution of the studies based on their aims consists of 3 categories. These categories are; "due diligence", "investigation", "evaluation and suggestion". In the category of "due diligence", the aim of "opinion determination" (17%) had the highest rate. The aim with the second-highest rate (4.81%) in this category was "identifying challenges". The frequency values of the aims of "determining attitudes" and "identifying experience" were 4 (3.84%). In addition, the frequency values of the aims of "determining the attitude", "satisfaction", "pros and cons", "suggestions on implementation" and "perception of benefit" were 2 (1.92%). The frequencies of other codes in this category were limited to 1 (0.96%). The aim with the highest rate in the category of the "investigation" was "determining the perception of distance education" (5.77%). The aims that make up the codes with the second-highest rate (2.88%) in this category were "examining the effectiveness of distance education" and "its effect on motivation". The frequency of the aim called "the investigation of perspective" was 2 (1.92%). The rate of other codes in this category was limited to 0.96%. The aim with the highest rate (16.34%) in the category of "evaluation and suggestion" was "the evaluation of the distance education process". The aim with the second-highest rate (3.84%) was "the evaluation of distance learning". The frequencies of the aims of "evaluating the distance education experience", "activities", and "teacher" were only 2 (1.92%) and the frequency of other codes in this category was limited to 1 (0.96%).

Table 9: Distribution of Articles Based on the Findings and Results

Category	**Code**	**f**	**%**
Due diligence	The importance of teachers' demographic qualities	2	0.71
	The increasing importance of digital education	2	0.71
	The importance of readiness	1	0.35
	The change in perceived self-regulation	1	0.35
	The change in the perception of benefit	1	0.35
	The efficiency of social media	1	0.35
	The impact of teaching method on attitude	1	0.35
	Supportiveness of hybrid education	1	0.35
	The importance of socio-economic status	1	0.35
	The impact of interaction on motivation	1	0.35
	Teacher motivation	1	0.35
	Student level barrier	1	0.35
Positive impact	Positive attitude	13	4.67
	Flexibility	11	3.95
	Benefit	7	2.51
	Entertainment	6	2.15
	Promoting technology usage	6	2.15
	Accessibility	5	1.79
	Increase in collaboration	5	1.79
	Increase in achievement	4	1.43
	Cost-effectiveness	4	1.43
	The technology integration in education	4	1.43

	Self-control	3	1.08
	Opportunity for individualized education	3	1.08
	Increase in empathy	2	0.71
	Adequate level of communication	2	0.71
	The ease of management	2	0.71
	Content-rich instruction	2	0.71
	Continuity	2	0.71
	Providing parent support	1	0.36
	Contribution to resilience	1	0.36
	Promoting cognitive skills	1	0.36
Negative impact	Technical infrastructure problems	17	6.11
	Psychological problems	15	5.40
	Communication problems	10	3.60
	Negative emotional states	8	2.88
	Lack of digital knowledge and skills	8	2.88
	Inefficacy of distance education	8	2.88
	Challenges in face-to-face interaction	7	2.51
	Adaptation problems	6	2.15
	Accessibility problems	6	2.15
	Financial problems	6	2.15
	Negative attitude and motivation	6	2.15
	The problem of teaching practical courses	5	1.79
	Difficulty of understanding the system	4	1.43
	The problem of following the schedule	4	1.43
	Material shortage	3	1.08
	Learning problems	3	1.08
	Planning problems	3	1.08
	Concentration problems	3	1.08
	Doubts about achievement	3	1.08
	Inequality of opportunity	2	0.71
	Lack of qualified teachers	2	0.71
	Lack of content on some topics	2	0.71
	Challenges in assessment and evaluation	2	0.71
	Parental indifference	2	0.71
	Lack of motivation	2	0.71
	Increased parental burden	2	0.71
	Cyber security threats	2	0.71
	The problem of empathy	1	0.36
	The problem of collaboration	1	0.36
	Screen addiction	1	0.36
	Less use of online platforms	1	0.36
	Lack of self-regulation skills	1	0.36
	Poor awareness	1	0.36
	Over assignment	1	0.36
	Bad quality of sleep	1	0.36
Suggestion	Activating the motivators	5	5.79
	Improvement of technological infrastructure	3	1.08
	Providing technical support	3	1.08
	Addressing the digital information gap	2	0.71
	E-material development	2	0.71
	Raising parental awareness	2	0.71
	Providing free internet access and device support	2	0.71
	Strengthening cooperation	2	0.71
	Strengthening communication	2	0.71
	Revision of teaching methods	2	0.71

	Integration of digital learning into the curriculum	2	0.71
	Continuous updating of the infrastructure	1	0.36
	The need for fundamental reform	1	0.36
	The development of online assessment tools	1	0.36
	Parental education	1	0.36
Total		278	100

The distribution of the findings and results of the articles was analyzed within the scope of the fifth problem of the research. The distribution based on the findings and results was shown in Table 9 with frequency and percentage values. In Table 9, 4 categories (due diligence, positive impact, negative impact, suggestion) were created based on the research findings. The frequency of the codes named "the importance of teachers' demographic qualities" and "the increasing importance of digital education" in the "due diligence" category was 2 (0.71%) and the frequency of the other codes in this category was only 1 (0.35%). The aim with the highest rate (4.67%) in the "positive impact" category was "positive attitude" towards distance education. Flexibility (3.65%) ranked second in this category. Participants stated that distance education in the COVID-19 period was flexible in terms of time and space. The frequency of finding that distance education was beneficial in the COVID-19 period was 7 (2.51%), and the frequency of findings that distance education was interesting and encouraging **for** the use of technology was 6 (2.15%). The frequency of findings that distance education facilitated accessibility and increased collaboration was 5 (1.79%). The finding with the highest rate (6.11%) in the negative impact category was "technical infrastructure problems", and the finding with the second highest rate (5.40%), in this category was the "psychological problems experienced" in COVID-19 pandemic. "Communication problems" related to this process (3.60%) took the third place. Negative emotional states, lack of digital knowledge and skills, and inefficacy of distance education (2.88%), and face-to-face interaction problems (2.51%) were also included in this category. Other findings had lower rates and were generally related to the lack of preparation, planning, and awareness of the process. The finding with the highest rate (5.79%) in the suggestion category was activating the motivators for students and teachers. The suggestion for providing technical support (1.08%) ranked second. The frequency of suggestions for "addressing the digital information gap", "e-material development", "raising parental awareness", "providing free internet access and device support", "strengthening cooperation", "strengthening communication", "revision of teaching methods", "integration of digital learning into the curriculum" was 2 (0.71%), and the frequency of other suggestions in the category was only 1 (0.36%).

Table 10: Distribution of Articles Based on Their Keywords

Category	**Code**	**f**	**%**
Terms on the pandemic or health issues	COVID-19	69	20.05
	Pandemic	24	6.97
	Coronavirus	18	5.23
	Lockdown	3	0.87
	Stress	1	0.29
	Mental health	1	0.29
	Anxiety	1	0.29
Terms on the formal education	Distance education	43	12.50
	Distance learning	16	4.65
	Online education	15	4.36
	Online learning	14	4.07
	Teacher	9	2.62
	Student	9	2.62
	Parent	7	2.03
	E-learning	7	2.03
	Higher education	6	1.74
	Technology use	5	1.45
	Emergency remote education	5	1.45
	Online teaching-learning process	4	1.16
	EBA (Educational Informatics Network)	4	1.16

	Remote learning	3	0.87
	Online teaching	3	0.87
	Primary school	3	0.87
	Synchronous education	3	0.87
	Preschool	2	0.58
	Science education	2	0.58
	University students	2	0.58
	Pedagogy	2	0.58
	Learning barriers	2	0.58
	Young children	2	0.58
	Flipped learning	1	0.29
	Blended learning	1	0.29
	Online courses	1	0.29
	School closing	1	0.29
	Rural students	1	0.29
	Applied course	1	0.29
	Curriculum	1	0.29
	Inclusive education	1	0.29
	Web-based learning	1	0.29
	Digital materials	1	0.29
	Digital platforms	1	0.29
	Student with special needs	1	0.29
	Face to face education	1	0.29
Other	Perception	5	1.45
	Attitude	4	1.16
	View	4	1.16
	Motivation	4	1.16
	Satisfaction	3	0.87
	Challenges	3	0.87
	Coping	3	0.87
	Self-efficacy	2	0.58
	Benefits	2	0.58
	Strategies	2	0.58
	Zoom meeting	2	0.58
	Readiness	2	0.58
	Belief	1	0.29
	Emotion	1	0.29
	Boredom	1	0.29
	Experience	1	0.29
	Sustainability	1	0.29
	Uncertainty	1	0.29
	Psycho-social environment	1	0.29
	Telegram	1	0.29
	Communication	1	0.29
	Impact	1	0.29
Total		344	100

The distribution of the main keywords of the related articles was analyzed within the scope of the sixth problem of the research. Related keywords, categories and codes were created and their frequency and percentage values were shown in Table 10. In Table 10, the keywords of the studies were analyzed in 3 categories (Terms on the pandemic or health issues, Terms on the formal education, Other). The most used keyword in the category of terms on the pandemic or health issues was "COVID-19" (20.05%), the second most used keyword was "Pandemic" (6.97%), and the third most used keyword in this category was "Coronavirus" (5.23%). The usage frequency of the keyword "Lockdown" was 3 (0.87%) and the usage frequency of the keywords "mental health", "stress" and "anxiety" was only 1

(0.29%). In the category named "terms on the formal education"; the keyword with the highest rate (12.5%), was "distance education", the keyword with the second-highest rate (4.65%) was "distance learning", the keyword with the third-highest rate (4.36%) was "online education" and the keyword with the fourth-highest rate (4.07%) was "online learning". The usage frequency of the keywords "teacher" and "student" was 9 (2.62%), and the usage frequency of the keywords "parent" and "e-learning" was 7 (2.03%). In the category named "other", the most used keyword was "perception" (12.5%), the second most used keywords (1.16%) were "attitude", "view" and "motivation". The keywords with the third-highest rate (0.87%) in this category were "satisfaction", "challenge" and "coping".

Table 11: Distribution of Articles Based on the Tools or Devices Used in Distance Education

Category	**Code**	**f**	**%**
Non-smart devices	TV	7	4.24
	Radio	1	0.60
Digital platforms	EBA (Educational Informatics Network)	11	6.66
	Institutional websites	9	5.45
	Distance education system	6	3.63
	E-mail	3	1.81
	Google classroom	3	1.81
	Virtual reality	3	1.81
	Assessment platforms	2	1.21
	Online training platforms	2	1.21
	Collaborative platforms	1	0.60
	Google scholar	1	0.60
Social networks and applications	Zoom	15	9.09
	Skype	6	3.63
	Whatsapp	6	3.63
	Educational apps	3	1.81
	Youtube	3	1.81
	Telegram	2	1.21
	Podcast	2	1.21
	Google meeting	2	1.21
	Vodcast	1	0.60
	Viber	1	0.60
	Live chat	1	0.60
Distance learning courses	Online courses	34	20.60
	Online classes	25	15.15
	Asynchronous courses	2	1.21
	Synchronous courses	1	0.60
Digital materials	Videos	3	1.81
	Electronic textbooks	2	1.21
	E-portfolio	1	0.60
	Powerpoint slides	1	0.60
	Unknown	5	3.03
Total		165	100

The distribution based on the tools or devices used in distance education was analyzed within the scope of the last question of the research. The distribution of the devices or tools used in distance education was shown in Table 11 with the frequency and percentage values. In Table 11, the tools used in distance education were analyzed in 5 categories (Non-smart devices, Digital platforms, Social networks and applications, Distance learning courses, Digital materials). The most used tool (4.24%) was the television in the category of non-smart devices. The usage frequency of the radio was only 1 (0.60%). In the category of digital platforms, the most used (6.66%) platform was "EBA (Educational Informatics Network)", the second most used (5.45%) platform was "Institutional websites", and the third most used (3.63%) platform was "distance education system". The frequency of use of e-mail, google classroom and virtual reality platforms was 3 (1.81%). Other platforms in this category were relatively less used. The

most used application in the category of social networks and applications was Zoom with a rate of 9.09%. This was followed by Skype and Whatsapp with a rate of 3.63%. Educational apps and Youtube usage frequency was 3 (1.81%). Other applications in this category were not commonly used. In the category of distance learning courses, online courses were the most preferred with a rate of 20.60%. This was followed by online classes with a rate of 15.15%. In some of the studies (1.21%), these courses were expressed as "asynchronous courses" and in some of them (0.60%) as "synchronous courses". In the digital materials category, it was seen that videos (1.81%), electronic books (1.21%), e-portfolio (0.60%), and powerpoint slides (0.60%) were used as class materials. In some of the studies (3.03%), the type of digital material was not specified.

RESULTS AND DISCUSSION

The studies on distance education during the COVID-19 pandemic, which we face as a current and global problem, were investigated in this research. In this context, the demographic characteristics of the relevant studies, the sample characteristics, the analysis and methods, the objectives and findings, the main keywords, and the tools and platforms used in distance education were analyzed by the content analysis method. General trends and findings obtained from the related studies were revealed thanks to the content analysis.

When it comes to the distribution of the demographic features of the examined articles, it is seen that more than half of the studies belong to the year 2020. The main reason is that many countries made the decision of switching to distance education in 2020 (Gross and Opalka, 2020) and therefore the studies were carried out within the year 2020. Karaköse and Demirkol (2021) analyzed the publications made in the field of education during the COVID-19 period and found that the studies were mostly published in July 2020 and the publication frequency decreased relatively after this date.

The articles analyzed in the study were mostly published in Dergipark, ERIC, Researchgate, and Elsevier. However, since the pandemic process is relatively a new issue, it can be predicted that new studies will be published also in many different journals or platforms (Tesar, 2021). Considering the distribution of the analyzed articles based on the countries, it was seen that the articles were mostly conducted in Turkey, Indonesia, and the United States. In the related study carried out by Karaköse and Demirkol (2021), the United States of America was the country that published the most studies on education during the COVID-19 period. Therefore, as a result of both studies, it can be concluded that the United States has more publications on education during the COVID-19 period compared to many other states.

Considering the sample characteristics of the studies, it was determined that the students were the most common samples, and the teachers also highly participated in the studies. In addition, faculty members and parents were also included as study samples in many studies. Jelińska and Paradowski (2021) stated that the groups most affected by the COVID-19 period were students and teachers. For this reason, it is reasonable to investigate the student and teacher groups in the studies on education during COVID-19. It was observed that most of the studies were carried out at the university level, and the study conducted by Karaköse and Demirkol (2021) also corroborates this result. Moreover, the number of studies carried out at secondary and primary school levels is not to be underestimated. The most preferred ranges for sample size were11-50 and 101-500. Qualitative methods are common in the related articles and the fact that qualitative studies are usually conducted with relatively small sample groups led to this conclusion (Hammarberg et al., 2016). Considering the faculties or departments in which the relevant studies were carried out, it was determined that the majority of the studies conducted at the university level were carried out in the faculty of education. Since the studies that were analyzed are limited to distance education in the COVID-19 period, it is presumable that the number of samples affiliated with the education faculty is relatively high.

The general trends of the research methods, the analysis methods, and the data collection tools were analyzed to determine the distribution of the methodology. Although the most preferred research method was qualitative research, the number of quantitative studies was also significant. The relatively high number of qualitative studies can be explained by the fact that more detailed data can be collected about the emotions, thoughts, or difficulties experienced by individuals about a current situation (Järvenoja and Järvelä, 2005). Because detailed explanations about a section of social life or a process are included in qualitative research (Babo & Suhonen, 2018). Statistical analysis and content analysis were the most widely used analytical techniques in related articles. Statistical analysis is included in almost all

quantitative and mixed-method studies. Bozkurt et al. (2015) also concluded that statistical analysis was frequently used in the studies on distance education. The common use of content analysis is caused by the abundance of qualitative methods in the articles. Because content analysis is widely used in the analysis and interpretation of qualitative data (Stemler, 2000). Considering the distribution based on the data collection tools used in the articles, it was seen that the questionnaire and semi-structured interview form were the most preferred tools. It was determined that questionnaires and interview forms were frequently used in educational studies (Eğmir et al., 2017; Keser and Özcan, 2011).

Considering the distribution of the related studies based on their objectives, it was seen that the objectives were determined based on due diligence, examination and evaluation. The main trends in terms of the aims of the studies; 1) Determining the opinions, difficulties, experiences and attitudes towards distance education in the COVID-19 period, 2) Examining the perceptions of distance education in the COVID-19 period, the effectiveness of distance education and its effect on motivation, 3) Evaluating the distance education process in the COVID-19 period. According to the findings obtained from the articles, the main findings were about the positive and negative impact of the distance education process, due diligence, and suggestions as to distance education practices. The most commonly observed negative effect among the research findings was the lack of technical infrastructure. The inequality of opportunity among students became more prominent in the distance education process, and some students experienced problems due to the lack of devices or poor internet connectivity (Purta et al., 2020). Furthermore, teachers' lack of digital knowledge was also mentioned as a disadvantage in the articles. Conducting distance education turned into a problematic process due to the lack of necessary knowledge, preparation, and planning, and accordingly, adaptational problems emerged (Rafiq et al.2021). Besides, psychological problems in the distance education process were also among the most common negative effects. In addition to negative moods, some parents and students were diagnosed with mental disorders, depression, stress, anxiety, and burnout (AlAteeq et al., 2020). The lack of face-to-face interactions and communication problems were also commonly observed due to educational distancing. The most common positive effects were positive attitudes and flexibility among the research findings. In related studies, it has been stated that distance education is advantageous due to its flexibility in time and space. While some of the findings of the articles revealed that people developed negative attitudes and opinions, there are also some articles that asserted precisely the opposite. Another positive finding obtained from the studies on distance education during the COVID-19 period was that distance education encouraged individuals to use technology. Ensuring the integration of education and technology was included in the studies as an advantage. In addition, some students expressed positive opinions that distance education was useful and interesting, and it was more economical because of the unnecessity of transportation. However, some findings of the articles showed that distance education was insufficient, it was not interesting but boring, and it was not economical due to some technical costs. Moreover, some studies made some suggestions as well as these findings. The most common suggestions were made regarding the necessity of providing motivating elements, technological infrastructure, and technical support in the process of distance education.

The most common keywords in the related articles were about the pandemic process such as COVID-19, pandemic, Coronavirus, and were related to the educational terms such as distance education, distance learning, online education, and online learningThe variables that have been investigated in the articles such as perception, attitude, view, and motivation were also used as keywords. Finally, it was investigated which tools or platforms were mostly used in distance education. According to the findings, smart devices were mostly preferred. Television was also highly preferred as a non-smart device and it was seen that the use of radio was not common. It was determined that the most widely used digital platforms were EBA, institutional websites, and distance education systems. Many mobile applications or social networking platforms were also used in this process. Zoom, Skype, and Whatsapp were the most used applications. The courses in distance education were most performed via live courses/classes and online platforms. In addition, many digital materials were also included in distance education programs. The most prominent of these materials were the educational videos.

SUGGESTIONS

This study is limited to 100 articles on distance education in the COVID-19 period. The related studies based on content analysis can be carried out by analyzing more studies or trends in the related dissertations can also be analyzed. Studies on the effects of the COVID-19 period on education can be

discussed in detail. In addition, it was seen in the study findings that technical infrastructure and psychological problems were significantly higher than the other issues. Therefore, it is recommended to cooperate with experts in the relevant field and take the necessary steps to solve these problems.

Declaration of Author Contribution
Meryem Meral: Language, Data Analysis, Results, Conclusion (60%)
Sema Altun Yalçın: Introduction, Validity-Reliability, Conclusion (40%)

Declaration of Ethics Comittee
Since the research is based on document review, Ethics committee approval is not required.

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