Journal of Social Sciences of Mus Alparslan University

anemon

Derginin ana sayfası: http://dergipark.gov.tr/anemon

Araştırma Makalesi ● Research Article

COVID-19 Pandemi Dönemi, Uzaktan Eğitim ve Diğer Konular: Bir Değerlendirme

Putting Things in Perspective: The COVID-19 Pandemic Period, Distance Education and Beyond

Pınar Ayyıldız[*], Adem Yılmaz[**]

Öz: Bu araştırmada, pandemi sürecindeki uzaktan eğitim faaliyetlerine ve COVID-19'a farklı bir bakış açısı ile yaklaşılması amaçlanmıştır. Alanyazında bulunan birçok çalışmanın tek bir veri toplama aracı ya da sınırlı sayıda veri ile hazırlandığı görülmektedir. Bu kapsamda veri çeşitlemesi yapılarak farklı bir bakış açısı getirilmesi düşünülmüştür. Araştırmada temel karma yöntem desenlerinden birleştirme (çeşitleme) deseni kullanılmıştır. Araştırmaya Türkiye'de bir devlet üniversitesinin eğitim fakültesinde 2020- 2021 akademik yılında öğrenim gören 9 farklı bölümde ve 4 farklı sınıf düzeyinde bulunan 865 öğretmen adayı katılmıştır. Bu araştırma, Kastamonu Üniversitesi Etik Kurulu'nun 25.03.2021 tarih ve 1 numaralı toplantısında alınan 96 sayılı kararı ile etik kurul iznine sahiptir. Araştırmada veri toplama aracı olarak metafor uygulaması, kelime ilişkilendirme testi, yarı yapılandırılmış görüşme ve araştırmacılar tarafından hazırlanan 20 soruluk bir ölçek kullanılmıştır. Elde edilen veriler betimsel, içerik ve çıkarımsal istatistik yöntemleri kullanılarak analiz edilmiştir. Araştırma sonucunda 7 farklı kategori ve toplam 153 farklı metafor saptanmıştır. Kelime ilişkilendirme testi sonucunda 6 ana kavram ve toplam 46 alt kavram oluşmuştur. Yarı yapılandırılmış görüşme ve ölçek sonuçları öğretmen adaylarının teknik altyapı, ölçme-değerlendirme ve uzaktan eğitim sürecine yönelik tutumlarının düşük olduğunu ve memnuniyet oranlarının beklentilerinin altında çıktığını göstermektedir.

Anahtar Kelimeler: COVID-19, Uzaktan Eğitim, Öğretmen Adayları, Karma Yöntem

Abstract: This research aims to approach distance education activities and to COVID-19 from a different perspective during the pandemic process. It is seen that many studies in the literature were prepared with a single data collection tool or a limited number of data. In this context, it was thought to bring a different perspective by making data diversification. This research has the ethics committee document issued number 1, dated 25.03.2021, with decision number 96 obtained from the Ethical Board of Kastamonu University. In the research process, one of the basic mixed-method designs, combining (diversification) pattern was used. 865 teachers candidates from 9 different departments and 4 different grade levels, studying in the education faculty of a state university in Turkey in the 2020-2021 academic year, participated in the research. In the research, metaphor application, a word association test, a semi-structured interview and a 20-question scale prepared by the researchers were used as data collection tools. The obtained data were analyzed using descriptive, content and inferential statistical methods. As a result of the research, 7 different categories and a total of 153 different metaphors were found out. As a result of the word association test, 6 main concepts and a total of 46 sub-concepts formed. The semi-structured interview and scale results demonstrate that the attitudes of the teacher candidates towards the technical infrastructure,

[*] Dr. Öğr. Üyesi, Ankara Medipol Üniversitesi, İktisadi, İdari ve Sosyal Bilimler Fakültesi, Yönetim Bilişim Sistemleri, ORCID: 0000-0002-2644-7981, pinar.ayyildiz@ankaramedipol.edu.tr

[**] Dr. Öğr. Üyesi, Kastamonu Üniversitesi, Eğitim Fakültesi, Eğitim Bilimleri Bölümü
ORCID: 0000-0002-1424-8934, yilmazadem@kastamonu.edu.tr (Sorumlu Yazar)

Received/Geliş: 31 May/Mayıs 2021 **Düzeltme/Revised form:** 25 September/Ekim 2021
Accepted/Kabul: 03 October/Ekim 2021 **Published/Yayın:** 25 December/Aralık 2021

e-ISSN: 2149-4622. http://dx.doi.org/10.18506/anemon.946037

measurement-evaluation, and distance education process are low and that their satisfaction rates are below their expectations.

Keywords: COVID-19, Distance Education, Teacher Candidates, Mixed-Method.

1. Introduction

1.1. Framing the Issue

"That's historical,' he said. It ought to go on record somewhere, oughtn't it? Is anybody writing any kind of history about these times?" (Shute, 1957, p.73). With the Covid-19 pandemic, the years 2020 and 2021 seem to have been hard times through which the terms apocalyptic and post-apocalyptic have been revisited and redefined by those who have been kept in their houses feeling stuck (Demirbilek, 2021) and worried. It is not surprising at all that, individuals have started to think that-, with all the other already-apparent 'signs' like the climate change and continuing wars, the end of the world is probably approaching (Gök & Kara, 2021).

1.2. Links to Education

Verily, the pandemic has affected all domains of life enclosing education. On account of the fear of worse outcomes, schools and universities were closed in a majority of countries in March 2020; howbeit, instruction, that is to say, formal teaching and learning related activities were struggled to be maintained online (Atik, 2020) for all levels. The Covid-19 pandemic caused by microorganisms ostensibly having organic basis actually has more cavernous roots encompassing matters of further digitization of educational institutions and hence the widening digital gap, well-being of the parties, social justice, and equity. For higher education, for example, it is argued with a neo-liberal reading that *"suddenly the utopian visions of digitally mediated education, from small online courses to Massive Open Online Courses (MOOCs), are again within the Overton Window, a discursive terrain finding reinvigorated promise to 'save us'—the first time from austerity funding models, the second time from a pandemic*" (Burns, 2020, p.247). Taking all these into account, it would be fair to put stress on the situation with universities as higher education organizations during the pandemic and in so doing enquiring into the perceptions of the key actors: students, on the courses delivered online and on the pandemic period would be a meaningful act to able to see the case with the help of a wider and deeper dissection. Along the same line, to date scholarly work has been produced, though following diversified paths, addressing the discovery of postulations belonging to the immediate sides such as university students.

1.3. Review of Literature

In the literature one group of the qualitative studies designed and conducted so far targetting to learn about the situation with the pandemic for individuals comes on the scene as metaphor research (e.g., Cantürk & Cantürk, 2021; Salih-Mohamed, 2021; Sarıer & Uysal, 2021). In these studies, the salient attributes of the pandemic period, to exemplify, the digital divide, technology use, and communication seemingly have a place in the metaphors produced by the participants (Bozkurt, 2020). Whereas Görgülü-Arı & Arslan (2020) announced in their study that the participant-produced metaphors are linked to the social constituents of the pandemic period like social environments, İmer-Çetin et al. (2021) documented nature-related themes such as natural elements in their research. Another cluster of qualitatively oriented studies in the literature is the word association tests. To cite some of these, the work of Çakın & Külekçi-Akyavuz (2020), Genç et al., (2020), Kaçan & Gelen (2020), Karakuş & Yanpar-Yelken, (2020) and Şen & Kızılcalıoğlu (2020) through which these researchers propounded words and word groups associated with the pandemic period, and also with the predominant components of the pandemic can herein be enlisted. Aside from the mentioned studies another array of qualitative research seems to center on interviews with the participants. As an illustration, Altınpulluk (2021) and Balaman & Hanbay-Tiryaki (2021) in their research collected participant views, who were amongst the essential agents of the whole education process, on the topics under discussion as well as on issues like lecturer capabilities during distance education and those that are germane to instructor experiences and conceptualizations respectively. Apart from the metaphor studies, the word association tests and the

research implementing interviews, there exist quantitative others with differing findings that point to a variety of results in the literature. Gökbulut (2021), for instance, verified in their study that the overall tendency of higher education students to distance education is at a moderate level and they regard technology literacy as crucial. Furthermore, Keskin & Özer-Kaya (2020) brought to light in their study carried out with university students that alternative online environments back up education and that timely feedback affects learner motivation positively. Yıldız et al. (2021) pondered in their research the upcoming: learner attitudes to the use of online education environments during the Covid-19 pandemic through the use of a scale apropos of what is connoted to be assessed. Yolcu (2020) in their study with participating teacher candidates shared insights into the distance/online education operations. Nguyen and Catalan (2020) underscored in their study that individuals are exposed to a large amount of false and disinformation during the COVID-19 process, and this situation is reflected negatively on the distance education process. Puig et al. (2021) emphasize that individuals' critical thinking skills are indeed essential in terms of evaluating the COVID-19 process and that this situation is related to the level of education. Tyrrell & Calinger (2020) stated that problem-based learning lessons integrated with socioscientific issues positively affect students' perspectives. Ageitos and Puig (2021), on the other hand, examined how students made their decisions about getting vaccinated in their study using case studies. As a result of the research, they underlined that the thoughts of the students about the vaccination process, distance education and pandemic conditions are related and that misinformation affected this process negatively. Alfitriyani et al. (2021) examined how biotechnology applications integrated into the online education process affect students' views on socioscientific issues and distance education. The results of the application accentuated that the students had positive views on distance education and this situation indirectly impacted their perspectives on socioscientific issues. Burnard et al. (2021) highlighted that providing an interdisciplinary education instead of that of a single discipline in the distance education process positively affected the success of students in the field of science and art. Shariare et al. (2020) practiced drug use and changes in the COVID-19 process. As a result of the research, it was emphasized that the students did not want to use drugs and did not think of being a candidate in this process. Roser et al. (2020) examined the statistical results prepared during the pandemic process. In this direction, they indicated that the students intensely criticized the distance education and exam system, frequently objected to the existence of the COVID-19 process, and expressed their opinion in the following way: this process should be terminated as soon as possible. Lee et al. (2020) determined that the anxiety levels of students and their families boosted during the pandemic period and during the distance education process, that people needed psychological support more, and that the COVID-19 virus was seen as a permanent fear factor. Hua and Shaw (2020) interlineated that information pollution and misinformation increased during the pandemic process and that people had more psychological and mental difficulties on account of of this negative information. In addition, it has been pointed out that this 'information pollution' negatively affects students' views on distance education.

Taking all these into consideration it was planned to linger on the Covid-19 pandemic conducting a mixed method study, in particular, on the subjects like the ongoing distance education and on some chief 'trademarks' of the pandemic period through the critical views of candidate teachers, who are still students yet who are to be 'on the stage' soon. Resultantly, it is believed that the spotted gap of the mixed-method research in the literature can be paid attention to by gathering, collating, synthesizing, and reporting back the views of the participants. The main problem of this research can be worded as: *What are the opinions of the teacher candidates about the distance education activities carried out during the COVID-19 pandemic process?* Within the scope of the research, answers were sought for specific sub-problems and in relation to the participants *viz.* teacher candidates' views, and more specifically speaking, the following were intended to be found out within the very structure of the present study:

- How are their perceptions in the form of metaphors of distance education?
- What are the opinions of the teacher candidates based on the word association test covering the concepts of *COVID-19, pandemic, distance education, measurement-evaluation, technical infrastructure, and vaccination*?

- What themes and subcategories do their responses to semi-structured open-ended questions constitute?
- What are their views obtained through the scale implementation?
- Is there a significant difference between the participants' views on demographic variables?

2. Method

In the research process, one of the basic mixed method designs i.e., combining (diversification) patterns was adopted. Qualitative and quantitative applications are carried out separately in the aforementioned design as its name suggests (Acar, 2017). The rationale behind selecting this design is to be able to combine the results of qualitative and quantitative data from different angles in an optimal fashion that paves the way for evaluating the results and findings as effectively as possible. In this vein, both larger data sets are obtained, and a fair number of different perspectives are included (Acar, 2017). In fact, when the relevant literature is examined, it is observed that results based on only quantitative data are often insufficient in establishing healthy cause-effect relationships (Plano-Clark & Creswell, 2015). To that end, qualitative data were included in the process and diversification was achieved so as to ensure the validity and reliability of the study and also with a view to basing the cause-effect relationships on a more solidified basis.

2.1. The Study Group

The study group, namely, the participants of the research consists of 865 teacher candidates studying in different departments of an education faculty of a state university in Turkey. Whilst determining the study group, the appropriate sampling method was resorted to, which is said to provide plentiful advantages to scholars in numerous aspects to enhance the overall construction of their research (Canbazoğlu-Bilici, 2019; Fraenkel et al., 2011). That said, care was taken also to ensure the participation of teacher candidates from almost all departments in order to be able to provide a broader perspective. It is noteworthy here that solely volunteering people participated in the study. All participants were asked to fill in the informed consent form and it was clearly mentioned that they could leave the study at any stage in this process. The qualitative and quantitative applications of the research were conducted with the same participants. Descriptive features for the study group are presented in Table 1.

Table 1. Descriptive Features for the Study Group

Variables	**Sub-Variables**	***f***	**%**
Gender	Female	538	62.20
	Male	327	37.80
Department	Science Education	137	15.84
	Pre-School	130	15.03
	Elementary	122	14.10
	Social Sciences	116	13.41
	Mathematics	102	11.80
	Turkish	79	9.14
	Art	72	8.32
	Music	63	7.28
	Computer Education and Educational Technology (CEIT)	44	5.08
Grade Level	1st Grade	342	39.54
	2nd Grade	217	25.08
	3rd Grade	165	19.08
	4th Grade	141	16.30
	Total	**865**	**100**

When Table 1, which presents descriptive features, is examined, it is witnessed that 62.20% (n=538) of the participants are female and 37.80% (n=327) are male participants. When examined at departmental level, preservice teachers from science education 15.84% (n=137), pre-school 15.03% (n=130), elementary 14.10% (n=122), social sciences 13.41% (n=116), mathematics 11.80% (n=102) Turkish, 9.14% (n=79), art 8.32% (n=72), and the music department 7.28% (n=63), and CEIT

department 5.08% (n=44) were observed to participate. Finally, considering the grade level, 1st grade 39.54% (n=342), 2nd grade 25.08% (n=217), 3rd grade 19.08% (n=165) and 4th grade 16.30% (n=141) teacher candidates seemed to have participated in the current study.

2.2. Data Collection Tools

Qualitative and quantitative data collection tools were referred to together in the research process. When the quantitative data collection tool of the research is examined, a 20-question scale was executed, which was initially structured by the researchers, shared with field experts, then refined by the researchers in light of the comments of the field experts. To put it another way, the final version of this scale was referred to as the quantitative data collection tool. The said scale consists of 2 parts. In the first part, the demographic characteristics pertaining to the participants are attempted to be searched for. In the second part, there are 20 questions directed to help participants reflect their views on distance education during the COVID-19 pandemic process. The scale used in the research was developed in a 5-point Likert type and consists of four dimensions (Distance Education and COVID-19, Faculty Members, Measurement-Evaluation and Technical Infrastructure). The lowest score that can be received from the scale is 20 and the highest score is 100. The rating of the scale is as follows: *"I do not agree at all, disagree, undecided, agree, and completely agree*".

For the qualitative data collection, three different data collection instruments, which were reframed upon collecting expert input, were resorted to for the study. The metaphor application was the first of the data collection tools in question. In this setting, a sentence in this form: *"Distance education is like …./similar to….. because……"* was given to the teacher candidates and they were asked to fill in the blanks in this sentence appropriately.

Second, a word association test was applied. In this context, pre-service teachers were asked to write at least 5 different words for each of these concepts: *COVID-19, pandemic, distance education, measurement and evaluation, technical infrastructure, and vaccination*. In the selection of the aforementioned concepts, full attention has been paid to concentrating on the most frequently encountered issues in distance education and again on one of the most relevant notions of the overall pandemic process, that is, vaccination.

Lastly, three semi-structured open-ended questions were posed to participating teacher candidates. The responses obtained in this regard were transcribed meticulously and divided into themes and later into subcategories by the researchers.

2.3. Data Collection Process

The research data were collected through internet-based online applications due to the ongoing pandemic period. In this context, *Google Forms* and *Google Classroom* applications were preferred. The participants were assured to get ready to efficiently use both applications and were provided with the necessary explanations for all the data collection tools. In the research process, firstly, qualitative applications were completed. Then, quantitative application was accomplished as the last application. Research data were collected over a period of one month, that is to say, around 30 days.

2.4. Data Analysis

The data obtained during the research process were subjected to both qualitative and quantitative data analysis. Thereupon, descriptive, content, and inferential statistics applications were made use of. While deciding on these analyses, the literature was examined thoroughly. It was observed that the results of metaphor, interview and word association tests were subjected to descriptive and content analysis (e.g., Patton, 2014; Uyanık, 2016; Yılmaz & Yanarateş, 2020). It was determined then that the survey and scale applications to be subjected to inferential statistics (Kurnaz & Bayraktar, 2012).

In qualitative data analysis, the descriptive and content analysis results were presented using frequency and percentage tables. Direct quotations as well as *in vivo* codes are also included as appropriate. While analyzing the word association test, teacher candidates were asked to come up with a sentence for the given keywords. Afterwards, with the help of the results obtained, concept networks were drawn. According to the answers given by the teacher candidates, the most repeated words were

250. For this reason, 4 different breakpoints have been created as 250-200, 200-150, 150-100, 100-50. The answers given by the teacher candidates were coded as P1, P2, P3 and so on.

The quantitative data obtained within the scope of the research were subjected to inferential statistics. In this wise, firstly, the data was cleaned from extreme values. The normal distribution of the data, which was made suitable for analysis, was then scrutinized. The kurtosis and skewness coefficients were inspected, and all the results were found to be in the range of -1 to +1. The data was also subjected to the Kolmogorov-Smirnov test and it was confirmed that the results showed a normal distribution since p=.26>.05 (Can, 2016). The homogeneity of the application data was analyzed with the *Levene test* and it was accepted that the variances were homogeneous since p=.17>.05 (Büyüköztürk, 2010). These results show that application data can be analyzed with parametric tests. Independent samples t-test was used for variables with two categories and ANOVA test was utilized for variables with three or more categories. In addition, Tukey's multiple comparison test was used because of the significant difference between the groups in the ANOVA test and the large number of groups. These analyses were carried out using IBM SPSS 24.0 program.

2.5. Reliability and Validity Measures

Throughout the research, in other words, from the planning stages till the evaluation and interpretation of the data, the researchers tried to adduce the accumulated knowledge within the field. The literature and any development belonging to the pandemic period were checked and when producing both qualitative and quantitative data collection tools, field experts were frequently consulted to warrant the content and appearance validity. As a matter of fact, the expert opinions were confirmed in a cyclic manner; to illustrate, the pilot applications were partially realized and presented to the experts again. In brief, all of the data collection tools were finalized in line with the feedback received in a constant manner. For the validity and reliability measures for qualitative applications, a coding and classification guide was exploited to make sure the validity and reliability in the metaphor practice, word association test, and while categorizing open-ended questions into themes and sub-categories. In addition to this, the foregoing data were coded separately by both researchers and at the end the inter-rater agreement was determined to be 86% (Miles & Huberman, 1994). For the transparency and reliability of the research process, direct quotations are included from time to time and the opportunity to explore the raw data is presented. For the qualitative applications of the research process, expert opinion was consulted intensively, and these opinions were taken into account at every stage.

Cronbach's Alpha reliability coefficient of the scale developed by the researchers was found as .876. When the reliability coefficients for the sub-dimensions of the scale were studied, it was determined that the distance education and COVID-19 factor had the value of .798, the faculty members factor .826, the measurement-evaluation factor .871 and the technical infrastructure factor .802. The reliability coefficient is expected to be .70 and above in studies conducted in the field of social sciences (McMillan & Schumacher, 2009). At this point, it can comfortably be said that the scale in question is reliable. Addedly, the research data were presented in a descriptive way and objectively to substantiate descriptive and interpretative validity, and direct quotations were exerted purposefully. As for generalizability and external validity, the results obtained were compared with the results in the literature in a broad perspective, and care was taken to present them in a consistent manner.

The scale used in the research consists of four sub-dimensions (Distance Education and COVID-19, Faculty Members, Measurement-Evaluation and Technical Infrastructure) and 20 questions. First of all, it was examined whether the scale data showed normal distribution or not. As a result of the normal distribution of the results obtained, an item pool of 36 questions was first created. Content Validity Rate and Content Validity Index values were calculated using the Lawshe (1975) technique. Based on this, the Content Validity Index for the overall scale was found to be 92%. The lowest Content Validity Rate was determined as 77% and the highest as 96%. The questions were reduced to 30 in accordance with the expert opinion through language checks as well as combining similar questions.

Afterwards, the scale was subjected to exploratory and confirmatory factor analysis, respectively. As a result of the exploratory factor analysis, it was found out that the Kaiser-Mayer-Olkin (KMO) value was significant at the level of .857 and p<.05. 7 questions with a negative value of .30 and below were

eliminated thence the scale was prepared with 23 questions. The item factor loads of the scale vary between .442 and .865. The explained total variance rate of the scale was 59.6%. Although these results are supported by the literature, it is desired that this is 40% and above in multi-factor structures (Çokluk et al., 2014). After the exploratory factor analysis, confirmatory factor analysis was performed in order to be able to ensure the construct validity of the scale in question. As a result of the analysis made through the LISREL 9.2 program, 3 questions were excluded because the item factor load was very low and negative. In its eventual state, the scale was prepared in the wat that it consisted of 4 dimensions and 20 questions.

When the confirmatory factor analysis results of the scale were examined; X^2/Sd value is 1.97, *p* significance value is .001, RMSEA value is .02, NFI value is .94, NNFI value is .97, CFI value is .95, RMR value is .04, SRMR value is .03, AGFI value is .88, GFI value is .90 and the CN value was found to be 302.18. It can be uttered that the said goodness-of-fit index values are acceptable and at the perfect fit level (Erkuş, 2012). Considering the proofs of validity and reliability, it can be proclaimed that the scale is at a usable level.

2.6. Ethical Statement and Compliance with Rules

During the research process, the necessary information was given to all the volunteering participants and their consent was obtained through informed consent forms. The entire research process was performed by adhering to ethical rules and academic conventions. Besides, the approval of the ethics committee of the university where the study took place was obtained with the decision made by the relevant University Board. This research has the ethics committee document issued number 1, dated 25.03.2021, with decision number 96 obtained from the Ethical Board of Kastamonu University.

3. Findings

There are 4 different sub-problem situations in the research process. First off, an answer to the question *"How are teacher candidates' perceptions of distance education in the form of metaphors?"* was sought. In Table 2, categories of metaphor views of teacher candidates for distance education are presented.

Table 2. Metaphor Categories for "Distance Education"

	Categories	**Sample Metaphors**	***f***	**%**
1	A Useful Element	Life facilitator, alternative to education	42	27.45
2	Everyday Life	Shopping, carotid artery, breath, to buy fuel	27	17.65
3	Living Area	Living room, friends' environment, people who intervene in our lives even if we don't want them to, as water	24	15.68
4	Insufficiency	Broken game handle, power failure, inaccessible void of space	21	13.72
5	Attitude and Behavior	Being unhappy, to make timeless surprises, be patient, be sick	14	9.15
6	Obligation	Be obliged to, unwillingly eaten cold food, television with a single channel	13	8.50
7	Social Environment	Internet cafe, friends' environment, fast food	12	7.85
		Total	**153**	**100**

When Table 2 is examined, it is understood that 153 different metaphors have been created. The metaphors for distance education are collected in 7 sub-categories. According to Table 2, these categories involve a useful element (n=42), everyday life (n=27), living area (n=24), insufficiency (n=21), attitude and behavior (n=14), obligation (n=13), and social environment (n=12) in seriatim. The metaphors created are presented in detail in Table 3 within the scheme of subcategories.

Table 3. Categories and Generated Metaphors

Categories	Metaphors
Useful Element	Life facilitator, alternative to education, book, plaster, doctor, a loyal friend, respiration, guardian angel, caring mother, comrade, flashlight, inspiration, the last train, auto car, comfortable seat, compass, energy drink, arterial, antidote, smart robot, painkiller, candle light, guide, guiding, qualified education, Swiss army knife, doping, backup battery, never-ending money, antibiotic, bridge, unlimited tokens, double road, generator, first-aid kit, lifeguard, vitamin, lottery ticket, spare tyre, friend, organ, emergency exit
Everyday Life	Shopping, surfing on the internet, carotid artery, breath, to buy fuel, sun, wind, playing in the snow, soil, desert, to smoke, overshadow, winter coat, bread, network line, trouble, analog clock, alarm clock, relatives' visit, cartel, family atmosphere, depression, dirty goods, bad friend, youth, virus, volcano
Living Area	Living room, friends' environment, people who intervene in our lives even if we don't want them to, as water, oxygen, school, barren land, shelter, hostel for the homeless, rain, public transportation vehicle, movie theater, a windless ship, home office, set alarm, heartbroken life, stone age, guide, homeless hostel, shack, paradise, living in a palace, living in a garbage dump, battlefield
Insufficiency	Broken game handle, power failure, inaccessible void of space, to be dehydrated at sea, disease, an empty box, injustice, a belated technology, a patient whose heart has stopped, homesickness, radiation, unproductive soil, idle shovel, car with a broken wheel, bleeding wound, natural disasters, develop cancer, dead battery, wingless bird, building with weak foundations, paralyzed patient
Attitude and Behavior	Being unhappy, to make timeless surprises, be patient, be sick, longing, wearing a mask, playing football without the ball, eating chips, survive, being accountable to the commander, to gossip, suddenly being angry, have Alzheimer's, getting used to living with stress
Obligation	Be obliged to, unwillingly eaten cold food, television with a single channel, to be captive, living in prison, military service, despair, the beloved who abandoned, loneliness, fish out of water, senile, credit debt, court order
Social Environment	Internet cafe, friends' environment, fast food, watching Youtube, virtual classroom, video rooms, planetarium, bourgeois class, ignorance, virtual museum tour, watching a theater show, life alone on a desert island

The metaphor categories and metaphors produced are presented in Table 2 and Table 3. It is common knowledge that direct quotations can intensify the reliability and validity of metaphor studies. For this purpose, two direct quotation examples are reported below to mirror point-of-views that are pertinent to each sub-category.

Distance Education as a Useful Element

P1:"Distance education is like a band-aid. Because like a band-aid closing a bleeding wound, distance education closes our education gaps in these difficult conditions."

P12:"Distance education is like an emergency exit. Because emergency exit doors save us from fire or a negative situation at an unexpected time. The COVID-19 pandemic came at a time when people never expected it. Thanks to distance education, our education was not interrupted, and it saved us from a worse situation."

Distance Education as Everyday Life

P23:"Distance education is like surfing the internet. Because you can access all kinds of education sources and content from where you are comfortably."

P35:"Distance education is like fuel. Because whenever you need fuel, you get it. Distance education provides us with such a convenience. Whenever we want, we can log in to the system and attend our lesson."

Distance Education as a Living Area

P62:"Distance education is like a movie theater. Because there are lecturers speaking whom we watch continuously during distance education."

P27:"Distance education is similar to home-office. Because we can do anything for and about our education at home. We don't need to go to school or put in any extra effort for that"

Distance Education as Insufficiency

P102:"Distance education is like being without water at sea. Because although there is water everywhere in the sea, the water of the sea is salty and you cannot drink it. Everywhere during the course of distance education is full of class materials and video content. However, this situation doesn't help us much."

P79:"The basis of distance education is similar to a weak foundation of a building. Although the building seems to be standing still, it feels as if the slightest intervention would make it collapse."

Distance Education as Attitude and Behavior

P96:"Distance education is like being sick. Because illness often makes up a process, we do not want to be engaged in yet must endure. This is exactly the case in distance education. We are now waiting for this to pass and everything to get better."

P175:"Distance education is like survival. Because even though life brings us many negative things, we still have to go through these and continue living."

Distance Education as an Obligation

P86:"It is like a cold meal eaten without having the least appetite. Because people often eat a cold meal as they have to and since they have no other choice. We now have to receive our education in this way due to the COVID-19 outbreak."

P144:"Distance education is like watching television which has a single channel. Because there is no alternative in such a television but an only channel, you have to watch the same channel. At the moment, the students have to participate in their lectures as if they were watching a television presenting no alternatives but one channel."

Distance Education as a Social Environment

P169:"Distance education is like playing a game in an internet cafe. Because we play games by turning on our cameras over the same network in the internet cafe. There is a similar situation now. We all enter the same virtual classroom as if we were playing a game and we study together."

P202:"Distance education is like living alone on a desert island. Because I always attend the classes feeling alone when using the computer. Although there are many other people in the virtual classroom, our cameras and voices are usually turned off and I feel like I live alone on a desert island."

The second sub-problem of the study is in the form of *"What are the opinions of the teacher candidates based on the word association test covering the concepts of COVID-19, pandemic, distance education, assessment-evaluation, technical infrastructure, and vaccination?"* In this context, word association test results were categorized using 4 different breakpoints and concept networks were created accordingly. Concept networks formed are demonstrated in Figure 1, Figure 2, Figure 3, and Figure 4.

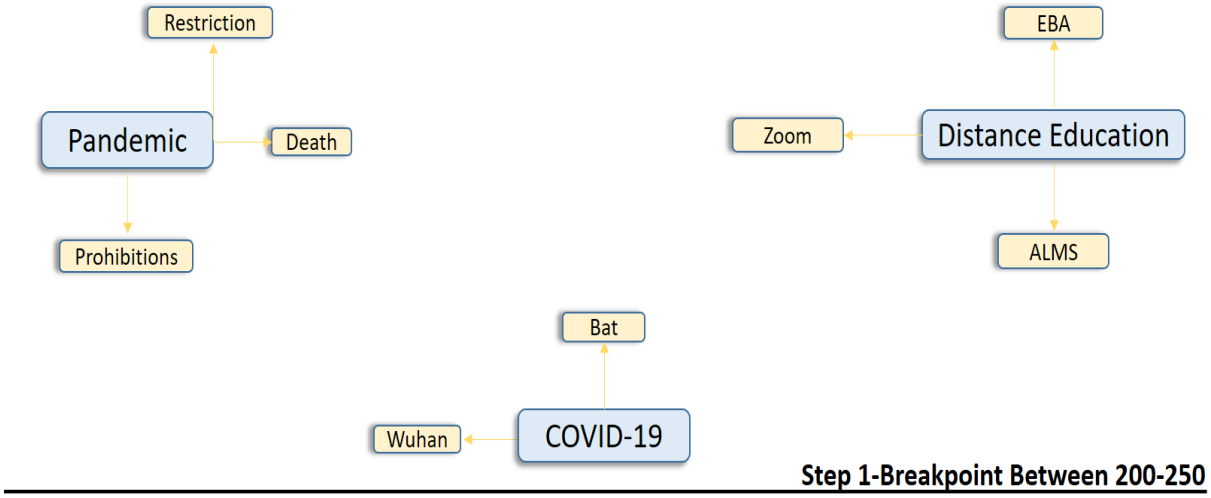

Figure 1. Word Groups with a Breakpoints Between 200-250

When Figure 1 is dwelled upon, it is discovered that there are three different word groups (pandemic, COVID-19, distance education) and 8 different words with a breakpoint between 200-250. The pandemic category is associated with 3 different word groups (restriction, death, prohibitions). Distance education category is associated with 3 different word groups (zoom, EBA, ALMS). The COVID-19 category is associated with 2 different word groups (Wuhan, bat).

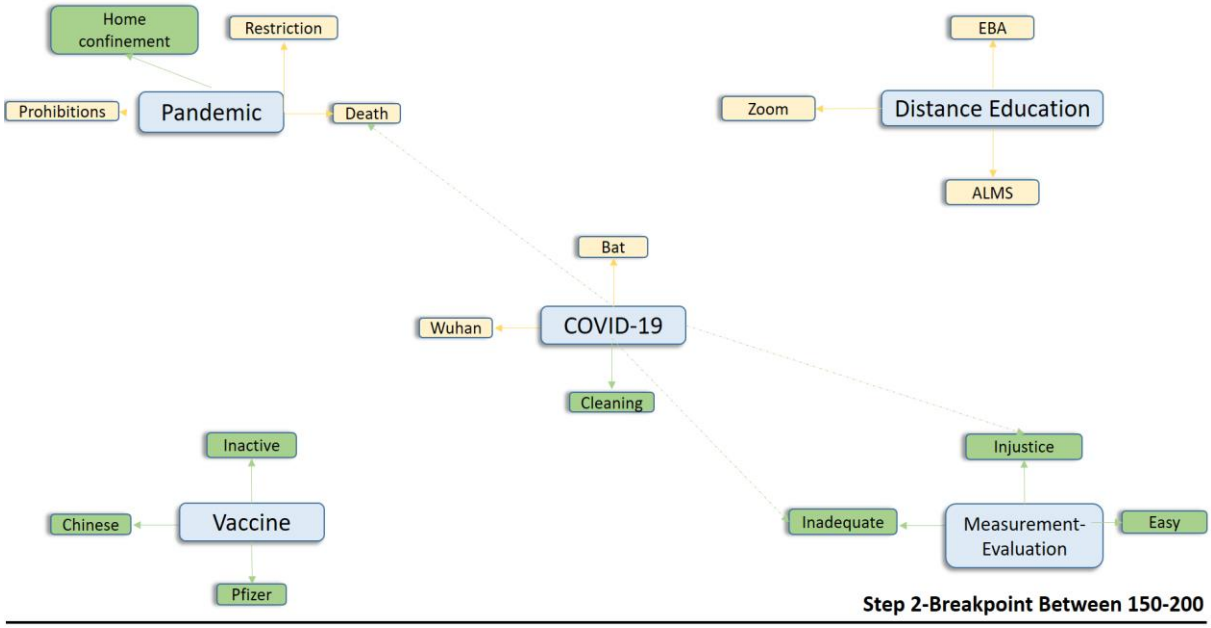

Figure 2. Word Groups with a Breakpoints Between 150-200

It is discerned through Figure 2 that there are five different word groups (pandemic, COVID-19, distance education, vaccination, measurement-evaluation) and 16 different words with a breakpoint between 150-200. The pandemic category is associated with 4 different word groups (Home confinement, restriction, death, prohibitions). Distance education category is associated with 3 different word groups (zoom, EBA, ALMS). The COVID-19 category is associated with 3 different word groups (Wuhan, bat, cleaning). The vaccine category is associated with 3 different word groups (Chinese, Pfizer, inactive). The measurement-evaluation category was associated with 3 different word groups (injustice, easy, inadequate).

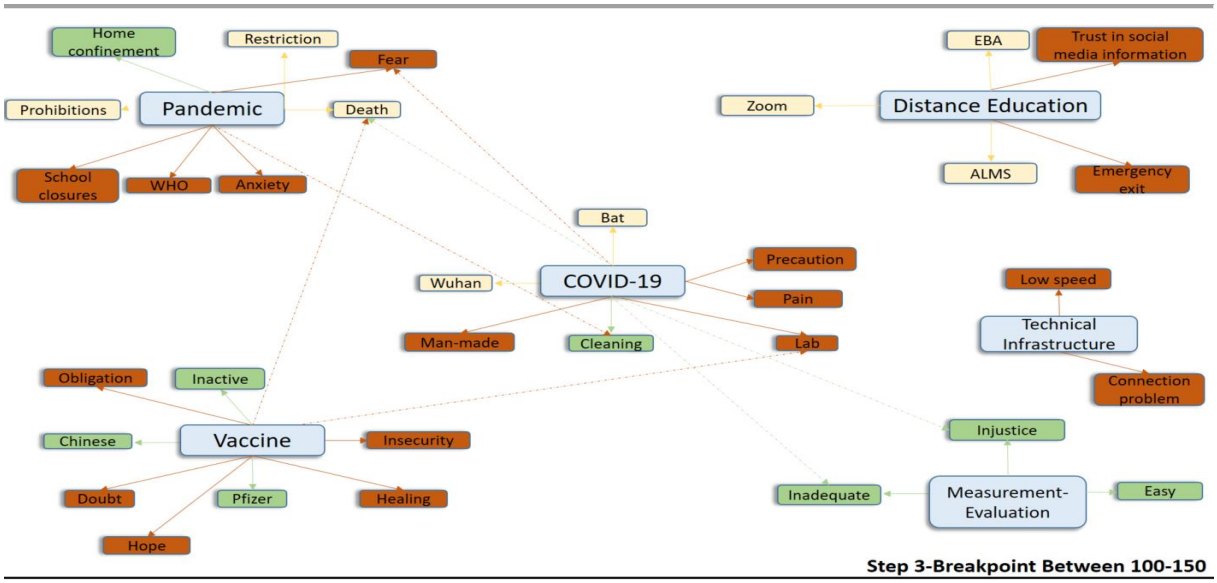

Figure 3. Word Groups with a Breakpoints Between 100-150

Inspecting Figure 3, it is recognized that there are six different word groups (pandemic, COVID-19, distance education, vaccination, measurement-evaluation, technical infrastructure) and 33 different words with a breakpoint between 100-150. The pandemic category is associated with 8 different word groups (Home confinement, restriction, fear, death, anxiety, WHO, school closures, prohibitions). Distance education category is associated with 5 different word groups (zoom, EBA, trust in social media information, emergency exit, ALMS). The COVID-19 category is associated with 7 different word groups (Wuhan, bat, precaution, pain, lab, cleaning, man-made). The vaccine category is associated with 8 different word groups (insecurity, healing, Pfizer, hope, doubt, Chinese, obligation, inactive). The measurement-evaluation category was associated with 3 different word groups (injustice, easy, inadequate). The technical infrastructure category was associated with 2 different word groups (low speed, connection problem).

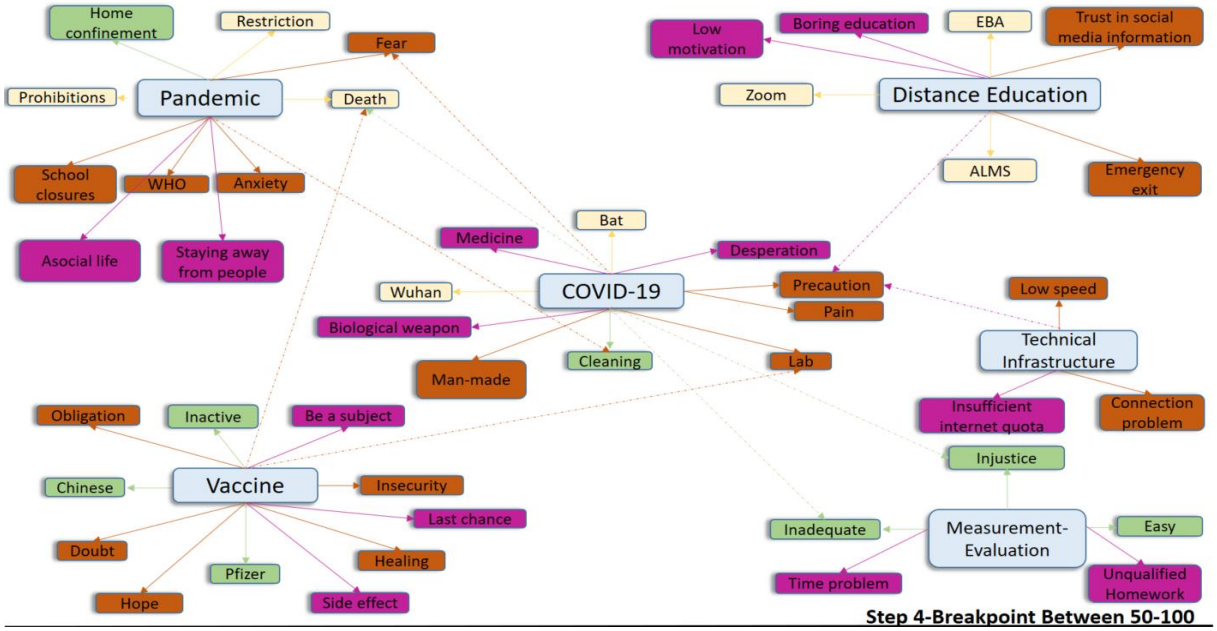

Figure 4. Word Groups with a Breakpoints Between 50-100

Figure 4, on the other hand, displays six different word groups (pandemic, COVID-19, distance education, vaccination, measurement-evaluation, technical infrastructure) and 46 different words with breakpoints between 50 and 100. The pandemic category is associated with 10 different word groups (Home confinement, restriction, fear, death, anxiety, WHO, school closures, prohibitions, asocial life,

staying away from people). Distance education category is associated with 7 different word groups (zoom, EBA, trust in social media information, emergency exit, ALMS, low motivation, boring education). The COVID-19 category is associated with 10 different word groups (Wuhan, bat, precaution, pain, lab, cleaning, man-made, medicine, desperation, biological weapon). The vaccine category is associated with 11 different word groups (insecurity, healing, Pfizer, hope, doubt, Chinese, obligation, inactive, be a subject, last chance, side effect). The measurement-evaluation category was associated with 5 different word groups (injustice, easy, inadequate, time problem, unqualified homework). The technical infrastructure category was associated with 3 different word groups (low speed, connection problem, insufficient internet quota).

The third sub-problem case of the study is in the form of *"What themes and subcategories do the responses of teacher candidates to semi-structured open-ended questions constitute?"* In this contexture, first, the obtained opinions of the teacher candidates were coded separately by both researchers and divided into themes and sub-categories. Table 4 presents the findings for the interview questions.

Table 4. Themes and Categories for the Responses to the Interview Questions

Ques.	Themes	Categories	*f*
What are the Advantages of the Distance Education Process?	In relation to Students' Work	Gaining technology and computer literacy	43
		Opportunity to access education from anywhere without time and place limitations	29
		Ease of attending classes for people with disabilities	21
		Easy to watch lessons and make up for losses	16
	In Relation to Lecturers' Work	Creating an alternative classroom environment	37
		Evaluating technological opportunities	26
		Using simulation and hologram applications	14
		Skill of using out-of-school learning environments	9
		Ability to use innovative applications	5
What are the Disadvantages of the Distance Education Process?	In relation to Students' Work	Loss of motivation and interest	63
		Inability to adapt to the learning environment	52
		Insufficient interaction and boring atmosphere of the lesson	41
		A feeling of loneliness and emptiness	33
		Psychological support is inadequate	20
		Due to having more than one person in the family receiving education at the same time causing insufficiency in equipment	18
		Not getting timely feedback	11
		Diminishing school culture and reduced sense of belonging	9
	In Relation to Lecturers' Work	Challenges in online learning environment design	49
		Inadequate technology literacy	34
		Alternative content development problems	30
		Classroom management problems	22
		Discipline issues and lack of control	16
		Insufficient lesson time	7
How Do You Think An Ideal Distance Education Process Should Be?	Measurement-Evaluation	Cheating and vulnerability	75
		Not enough time	59
		Measuring performance with a single type of tool	42
		Using product and process evaluation together	16
	Technical Infrastructure	Equal right of access	96
		Convenient interactive software	75
		Accessible technical support	67
		Use of current technology	52
		Free access	43
		Easy to use interface	29
		Hardware support (tablets and alike)	17
		Safe and quality infrastructure	8
	Faculty Members	Ability to use individual and group activities together	23
		Ability to actively use information technologies and innovative applications	17
		Allowing enough time for student feedback	12

Table 4 outlines the opinions of the teacher candidates on the advantages and disadvantages of the distance education process and how an ideal distance education environment should be. Advantages and disadvantages are themed for student's work and instructor-related work. The ideal distance education environment is divided into themes as respects measurement-evaluation, technical infrastructure, and faculty members. It was spotted that, the category with the highest frequency was "equal right of access", whereas the category with the lowest frequency was "the ability to use innovative applications". In Table 5, findings of the scale application and independent samples t-test and ANOVA test results as concerns categorical variables are exhibited.

Table 5. Findings Regarding the Scale Application

Variable	**Sub-Variable**	***Independent Samples T-Test***				
		$\bar{X}$	*SD*	*T*	*p*	*Diff.*
Gender	Female	2.25	.64	-1.41	.158	-
	Male	2.32	.70			
Getting ill with COVID-19 Disease	Yes	2.29	.67	.215	.830	-
	No	2.27	.66			

		One-Way ANOVA			
	Sum of Squares		*F*	*p*	*Diff.*
Use of Social Media	Between Groups	32.286	19.416	.000	✔
	Within Groups	357.512			
	Total	389.797			
Distance Education Environment	Between Groups	9.952	3.746	.001	✔
	Within Groups	379.846			
	Total	389.797			

	Scale Questions	$\bar{X}$	***SD***
1	The distance education process adequately met my educational needs.	2.12	.975
2	I am satisfied with the measures taken and the education services provided during the pandemic process.	2.26	1.03
3	I think there is no difference between distance education and face-to-face education.	2.24	1.22
4	I think distance education does not affect my academic development negatively.	1.25	.556
5	I think equality of opportunity is provided in the distance education process.	1.50	.795
6	I think faculty members use information technologies sufficiently in their classes.	2.07	1.06
7	I think the course content is not boring.	1.22	.517
8	I think the faculty members deliver classes having completed enough preparation.	1.29	.592
9	I think faculty members ensure some variety in their lessons.	1.88	1.01
10	I think the faculty members assured there is the necessary understanding and access to facilities during the pandemic process.	1.94	1.02
11	I think there is sufficient technical infrastructure for distance education in our country.	2.19	1.08
12	I think all students have equal opportunities regarding technical opportunities.	2.62	1.15
13	I think there is high level of interaction in distance education systems.	2.23	1.22
14	I do not think that technical difficulties were experienced much during the pandemic.	2.15	1.19
15	I think equitable and fair assessment and evaluation is done in distance education.	2.32	1.23
16	I think technological applications enrich measurement and evaluation processes.	2.61	1.13
17	I think there is no difference between face-to-face education and distance education as to measurement and evaluation.	2.90	1.31
18	I think the measurement and evaluation processes are carried out in a healthy way.	2.77	1.25
19	During the pandemic process, I wish grades were awarded not only to exams but to all instructional activities throughout.	3.64	1.59
20	I think all students and faculty should be vaccinated and education should be face to face again.	3.75	1.67

Diff: Difference, *SD*: Std. Deviation, **p*<.05

When Table 5 is scrutinized, one can ascertain that the opinions of teacher candidates are not significant according to gender [$t_{(863)}$=-1.41, *p*=.158>.05] or the condition of having caught the COVID-

19 disease [$t_{(863)}$=.215, p=.830>.05]. That being said, there is a significant difference in terms of social media use [$F_{(4\text{-}860)}$=19.416, p=.000*<.05] and distance education environment [$F_{(4\text{-}860)}$=3.746, p=.001*<.05] variable. The average of the opinions of the teacher candidates of the scale questions was between M=1.22 (SD=.517) and M=3.75 (SD=1.67). As a consequence of the Tukey test, it was seen that the use of social media was not significant at the grade level, but it created a significant difference at the department level. The said difference was in favor of science, pre-school and mathematics teacher candidates. Similarly, the distance education environment variable was found to be insignificant at the grade level and significant at the department level. The significant difference was in favor of mathematics, science and Turkish teacher candidates.

4. Discussion and Conclusion

In this study, which aspires to delve into the distance education activities during the COVID-19 pandemic period with a different perspective, expressly, a combining (diversification) pattern-one of the mixed method patterns-was used. Qualitative and quantitative data were collected separately during the research process and then collated within the framework of meaning integrity. Therefrom, firstly, metaphor practice was implemented with the participant pre-service teachers.

Through the metaphor application, it was unearthed that 7 different categories and 153 different metaphors were created. Metaphor categories are entitled as *a useful element, everyday life, a living area, insufficiency, attitude and behavior, obligation and a social environment*. The category in which the highest number of metaphors is created is *a useful element* category. There are many reasons for this category to be preferred that intensively. The rather sudden entering of COVID-19 into our lives affected all of us negatively and this is valid for countless areas from health to transportation, economy and education (Gök & Kara, 2021). Thanks to distance education, when education was interrupted in many countries of the world, the congruent processes started to be resumed online (Atik, 2020). At this point, the benefit and potential gains of distance education for the shareholders is an undeniable fact (Angoletto & Queiroz, 2020). The least number of metaphors gathered under the *social environment* category. With the pandemic period, people were stuck in their homes and began to feel unsociable (Demirbilek, 2021). It may be interpreted as normal for teacher candidates to produce few metaphors grouped under this subject. Many metaphor studies on COVID-19 and distance education have hitherto been completed (e.g., Cantürk & Cantürk, 2021). When the literature is further perused, Salih-Mohamed (2021), for instance, appeared to have explained the COVID-19 process with the metaphor of war. The related study, which is a social analysis, pinpointed that social distance, cleaning, and wearing masks are all parts of the behavioral outcome of this process. Added to that, Sarıer & Uysal (2021) divided the metaphor categories detected in their research under headings such as an information source, guide, struggle against difficulties, manager and leader, attitude and behavior. With regard to these examples, these attitude and behavior metaphors resemble and support the results of this research as well as those unfold in the literature. Bozkurt (2020) categorized the metaphors in their study on the processes belonging to the pandemic as useful, education, flexibility, fun, technology, interaction, necessity, insufficiency, communication, and digital divide. Useful, insufficiency, and obligation categories bear similarities with the results of our study. Görgülü-Arı & Arslan (2020) revealed the metaphor category of distancing from the social environment in their study and similar results apparently were reached with the social environment category of in this study. İmer-Çetin et al. (2021) used the category of natural events and natural elements in their study. This is also similar to the categories of everyday life and living area of this research. In sum, it can be made clear that the findings of this study are mostly parallel to the results of other scholars' metaphor studies and thus supportive of the literature.

The second set of application of the research is the word association test. As a result of that test, first, words with a breakpoint between 200-250 were identified. At this stage, it was found that *pandemic, distance education, and COVID-19* word groups were the most preferred by the participants and these word groups were composed of *restriction, death, prohibition, bat, Wuhan, Zoom, Educational Information Network of Turkey (EIN/EBA), Advancity Learning Management System (ALMS)*. In the second step, words with a breakpoint between 150-200 were determined. Unlike the first stage, it is conceived that *vaccine* and *measurement-evaluation* word groups were also picked up. Furthermore, it has been realized that the words *home confinement, cleaning, Chinese, inactive, Pfizer, inadequate,*

injustice, and easy were frequently preferred. In the third step, words with a breakpoint of 100-150 were classified. In addition to the word groups existing in the first two stages, the technical infrastructure group was also added to the word groups. The words *fear, school closures, WHO, anxiety, obligation, doubt, hope, insecurity, healing, man-made, lab, pain, desperation, trust in social media information, emergency exit, low speed, and connection problems* are novel sorts of words that emerged in the third phase. In the fourth and the last stage, words with a breakpoint of 50-100 were deduced. At this stage, a new word group was not formed and words like *asocial life, staying away from people, being a test subject, last chance, side effects, medicine, biological weapon, desperation, low motivation, boring lessons, insufficient internet quota, time problem, and inappropriate homework* were annexed to the existing word pool. These word groups (Çakın & Külekçi-Akyavuz, 2020; Genç et al., 2020) and subwords have been declared in several studies in the literature (e.g., ETF, 2020; Kaçan & Gelen, 2020; Karakuş & Yanpar-Yelken, 2020; Şen & Kızılcalıoğlu, 2020) and hence similar results appear to have been attained.

The third application put into operation within the boundaries of the research is the semi-structured interview. In this respect, three different interview questions were asked to the teacher candidates. The opinions of the teacher candidates about the advantages of distance education were evaluated in two categories. When the advantages for students were investigated, *"gaining technology and computer literacy"* came to the fore, and "*the alternative course environment development"* category forged ahead for instructors. Gökbulut (2021) enunciated in their study that the general tendency of university students towards distance education is at a moderate level and that they attach importance to technology literacy. Keskin & Özer-Kaya (2020) underlined that alternative distance learning environments support the teaching and learning processes and that timely feedback positively influences students' motivation. The opinions of the teacher candidates about the disadvantages of distance education were also investigated in two categories. When the disadvantages for students were inquired into, *"motivation and loss of interest"* manifested itself, and the category of difficulties in "*online learning environment design*" for instructors materialized. Yolcu (2020) highlighted in their study that motivation loss is oftentimes experienced all along the *modus operandi* of distance education processes and this situation that is pertinent to the *practicum* exerts a negative influence on the education practicum.

Molotsi (2020) pinpointed that during the distance education process, learners cannot get enough education and their motivation is lost. Avcı & Akdeniz (2021) pronounced that there are often issues with online learning environment design and that students have adaptation problems and affect-bound difficulties during the exercise. Besides, Al Lily et al. (2020) underpinned that staying at home during the pandemic negatively affects the anxiety, worry and stress levels of individuals. These results are comparable with the findings of the research and support the literature. Last but not the least, the question *How should an ideal distance education process be?* is discussed. In this section, the opinions of the teacher candidates are divided into measurement-evaluation, technical infrastructure, and faculty members categories. In respect of measurement and evaluation, it was disclosed that teacher candidates heavily commented on "cheating and security gap" and "not having enough time" during tests. Hodges et al. (2020) brought out that many different applications were made within the scope of the pandemic and these applications created various problems. In particular, it was asserted that the faculty members could not fully adapt to the process and the desired efficiency could not be achieved in the measurement-evaluation systems.

Vis-à technical infrastructure, the categories of "equal right of access" and "suitable interactive software" arouse. Analyzing the expectations of the teacher candidates from their lecturers, it is figured out that they demand them to be more competent in using interaction patterns, scilicet, individual and group activities simultaneously and to be capable of using information technologies and innovative applications actively. Domenici (2020) affirmed that chemistry education within the scope of distance education has some disadvantages and that all individuals have difficulty in receiving this education equally. It has been accented that the technical infrastructure is insufficient from time to time and that the educators have difficulties in this regard. In addition to these views, Sun et al. (2020) emphasize that it will be effective to frequently organize short-term online meetings, to create presentations and

explanatory materials in order to minimize the disadvantages of distance education. There is a good number of studies in the literature that support these results (e.g., Iwai, 2020; Altınpulluk, 2021; Avcı, 2021; Balaman & Hanbay-Tiryaki, 2021; Baz, 2021; Gürsoy-Ulusoy, 2021; Sezgin, 2021; Yıldız et al., 2021).

The last application of the research is the scale. On this basis, at first, gender, COVID-19 disease, social media use, and environment variables in distance education were pored over. Gender or the condition of contracting the virus did not make a significant difference for teacher candidates. That said, social media usage and distance education environment variables caused a significant difference. It can here be featured that particularly the use of social media actively supports students anent the announcements, course content, and online learning environments. Zhou et al. (2020) brought to the fore that students communicate more intensely with each other in distance education and social media environments are effective in this sense. Karalis & Raikou (2020) shared that distance education has a very important place in higher education and this process has become a necessity rather than a temporary issue of one-off nature. Along with it, it can be underscored that distance education environments such as Zoom, ALMS, Google Classroom contribute to product and process evaluation to a great extent and suggest a skeleton for assessment and evaluation (Yılmaz, 2021). When the results of the scales conducted with teacher candidates are checked, one can express with comfort that they are generally not very satisfied with the process, and they indeed have problems with the technical infrastructure together with measurement and evaluation processes (Mulenga & Marbán, 2020). The most intensive item for teacher candidates is the end of the COVID-19 process and the beginning of the face-to-face education processes. Finally, yet importantly, participating teacher candidates hold the belief that there are considerable differences between face-to-face education and distance education (Lee, 2020).

Kagkara (2020) stressed that the importance of psychological support factor should be emphasized in distance education. They say that the pandemic process restricts people in many ways and that these restrictions deteriorate the psychological balance and mood of individuals over time. For this reason, more importance should be given to psychological support in the distance education process. Foti (2020) drew attention to that the COVID-19 period has many positive and negative aspects in the digital age. In particular, they point up that the use of technology by faculty members in the distance education process has improved at a positive level, and the use of technology in learning environments has become more qualified. Perhaps what Burns (2020, p.248) put forward summarizes the lived experiences of the learners throughout the pandemic period for us, videlicet the educators, authorities, and researchers and at the same time implies more humane and fair online pedagogies which *"might involve cultivating an ethos of guidance and support rather than punishment by grading, integrating learning between students to foster personal and intellectual community, or centering empowerment as a key learning outcome".*

5. Limitations and Implications

The research process is limited to university students, more specifically, to student teachers participated in the study, and to COVID-19, distance education, and pandemic issues. With that being said, the scope alongside the subject areas of the research can be expanded. It might also be meaningful- if not wise-to invite instructors, educational administrators, and decision-makers/policy makers to the future studies. Intense criticism and problems are encountered in the field of technical infrastructure and measurement and evaluation. Improvement studies on these specific issues can be planned to propose solutions bearing in mind the stakeholder viewpoints.

Disclosure Statements

1. Contribution rate statement of researchers: First author %50, Second author %50.

2. No potential conflict of interest was reported by the authors.

References

Acar, İ. H. (2017). Temel ve gelişmiş karma yöntem desenleri. M. Sözbilir (Çev. Edt.). *Karma yöntem araştırmalarına giriş* içinde, (s. 35-51). Ankara: Pegem Akademi Yayıncılık.

Ageitos, N., & Puig, B. (2021). Critical thinking to decide what to believe and what to do regarding vaccination in schools. A case study with primary pre-service teachers. *Critical Thinking in Biology and Environmental Education. Facing Challenges in a Post-Truth World*.

Alfitriyani, N., Pursitasari, I. D., & Kurniasih, S. (2021). Biotechnology module based on sociosaintific issues to improve student's critical thinking ability through online learning. *Jurnal Pendidikan Matematika dan IPA, 12*(1), 23-39. http://dx.doi.org/10.26418/jpmipa.v12i1.43179

Al Lily, A. E., Ismail, A. F., Abunasser, F. M., & Alhajhoj Alqahtani, R. H. (2020). Distance education as a response to pandemics: Coronavirus and Arab culture. *Technology in Society, 63*, 1-11. https://doi.org/10.1016/j.techsoc.2020.101317

Altınpulluk, H. (2021). Türkiye'deki öğretim üyelerinin COVID-19 küresel salgın sürecindeki uzaktan eğitim uygulamalarına ilişkin görüşlerinin incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, 41*(1), 53-89.

Angoletto, R., & Queiroz, V. C. (2020). COVID-19 and the challenges in education. *The Centro de Estudos Sociedade e Tecnologia, 5*(2), 1-2. https://www.cest.poli.usp.br/en/boletins/

Atik, A. D. (2020). Fen bilimleri öğretmen adaylarının uzaktan eğitim algısı: Bir metafor analizi. *Uluslararası Eğitim Araştırmacıları Dergisi, 3*(2), 148-170.

Avcı, A. (2021). Pandemia (COVID-19), university students and distance education experience. *HABITUS Journal of Sociology,* (2), 71-83.

Avcı, F., & Akdeniz, E. C. (2021). Koronavirüs (COVID-19) salgını ve uzaktan eğitim sürecinde karşılaşılan sorunlar konusunda öğretmenlerin değerlendirmeleri. *Uluslararası Sosyal Bilimler ve Eğitim Dergisi-USBED, 3*(4), 117-154.

Balaman, F., & Hanbay-Tiryaki, S. (2021). Corona virüs (COVID-19) nedeniyle mecburi yürütülen uzaktan eğitim hakkında öğretmen görüşleri. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 10*(1), 52-84.

Baz, B. (2021). COVID-19 salgını sürecinde öğrencilerin olası öğrenme kayıpları üzerine bir değerlendirme. *Temel Eğitim Dergisi, 3*(1), 6-19. https://doi.org/10.52105/temelegitim.3.1.3

Bozkurt, A. (2020). Koronavirüs (COVID-19) pandemisi sırasında ilköğretim öğrencilerinin uzaktan eğitime yönelik imge ve algıları: Bir metafor analizi. *Uşak Üniversitesi Eğitim Araştırmaları Dergisi, 6*(2), 1-23.

Burnard, P., Colucci-Gray, L., & Sinha, P. (2021). Transdisciplinarity: Letting arts and science teach together. *Curric Perspect, 41,* 113-118. https://doi.org/10.1007/s41297-020-00128-y

Burns, R. (2020). A COVID-19 panacea in digital technologies? Challenges for democracy and higher education. *Dialogues in Human Geography, 10*(2), 246–249.

Büyüköztürk, Ş. (2010). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni SPSS uygulamaları ve yorum* (11. Baskı). Pegem Akademi Yayıncılık.

Can, A. (2016). *SPSS ile bilimsel araştırma sürecinde nicel veri analizi* (4. Baskı). Pegem Akademi Yayıncılık.

Canbazoğlu-Bilici, S. (2019). Örnekleme yöntemleri. H. Özmen ve O. Karamustafaoğlu (Eds.). *Eğitimde araştırma yöntemleri* içinde, (s. 56-78). Pegem Akademi Yayıncılık.

Cantürk, G., & Cantürk, A. (2021). İngilizce öğretmenlerinin COVID-19 küresel salgını sürecinde gerçekleştirdikleri uzaktan eğitim deneyimleriyle ilgili görüşlerinin metaforlar yoluyla

belirlenmesi. *Uluslararası Dil, Eğitim ve Sosyal Bilimlerde Güncel Yaklaşımlar Dergisi (CALESS), 3*(1), 1-38.

Çakın, M., & Külekçi-Akyavuz, E. (2020). The COVID-19 process and its reflection on education: An analysis on teachers' opinions. *International Journal of Social Sciences and Education Research, 6*(2), 165-186.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2014). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları*. Pegem Akademi Yayıncılık.

Demirbilek, N. (2021). Üniversite öğrencilerinin uzaktan öğretime ilişkin metaforik algıları. *E-Uluslararası Eğitim Araştırmaları Dergisi, 12*(1), 1-15. https://doi.org/10.19160/ijer.786303

Domenici, V. (2020). Distance education in chemistry during the epidemic Covid-19. *Substantia*, *4*(1), 961. https://doi.org/10.13128/Substantia-961

Erkuş, A. (2012). *Psikolojide ölçek ve ölçek geliştirme-I: Temel kavramlar ve işlemler* (1.Baskı). Pegem Akademi Yayıncılık.

ETF (2020). *Coping with COVID-19: Mapping education and training responses to the health crisis in ETF partner countries.* ETF Publishing.

Foti, P. (2020). Research in distance learning in Greek kindergarten schools during the crisis of COVID19: Possibilities, dilemmas, limitations. *European Journal of Open Education and E-learning Studies, 5*(1), 1-22. https://doi.org/10.5281/zenodo.3839063

Fraenkel, W., Wallen, N. E., & Hyun, H. H. (2011). *How to design and evaluate research in education* (8th Edition). McGraw-Hill Education.

Genç, S. Z., Engin, G., & Yardım, T. (2020). Pandemi (COVID-19) sürecindeki uzaktan eğitim uygulamalarına ilişkin lisansüstü öğrenci görüşleri. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 41*, 134-158. https://doi.org/10.33418/ataunikkefd.782142

Gök, A., & Kara, A. (2021). Individuals' conceptions of COVID-19 pandemic through metaphor analysis. *Current Psychology,* 1-10. https://doi.org/10.1007/s12144-021-01506-z

Gökbulut, B. (2021). Uzaktan eğitim öğrencilerinin bakış açısıyla uzaktan eğitim ve mobil öğrenme. *Eğitim Teknolojisi Kuram ve Uygulama, 11*(1), 160-177.

Görgülü-Arı, A., & Arslan, K. (2020). Ortaokul öğrencilerinin COVID-19'a yönelik metaforik algıları. *Turkish Studies, 15*(6), 503-524. https://doi.org/10.7827/TurkishStudies.44425

Gürsoy-Ulusoy, Ş. (2021). COVID-19 ve uzaktan eğitim. *Kesit Akademi Dergisi*, *7*(26), 25-37. http://doi.org/10.29228/kesit.49853

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). *The difference between emergency remote teaching and online learning.* https://er.educause.edu/articles/2020/3/the-difference-between-emergencyremote-teaching-and-online-learning

Hua, J., & Shaw, R. (2020). Corona Virus (COVID-19) "Infodemic" and emerging issues through a data lens: the case of China. *International Journal of Environmental Research and Public Health, 17*(7), 2309. https://doi.org/10.3390/ijerph17072309

Iwai, Y. (2020). *Online learning during the Covid-19 pandemic: What do we gain and what do we lose when classrooms go virtual?* https://blogs.scientifi camerican.com/observations/online-learning-during-theCOVID-19-pandemic/

İmer-Çetin, N., Timur, S., & Pehlivan, H. (2021). Fen bilimleri öğretmenlerinin COVID-19 pandemi sürecinde "virüs" kavramına yönelik metaforik algılarının incelenmesi. *International Journal of Eurasia Social Sciences (IJOESS), 12*(43), 47-59. http://doi.org/10.35826/ijoess.2864

Kaçan, A., & Gelen, İ. (2020). Türkiye'deki uzaktan eğitim programlarına bir bakış. *Uluslararası Eğitim Bilim ve Teknoloji Dergisi, 6*(1), 1-21.

Kagkara, D. (2020). *Development of a distance-learning model for psycho-educational support for teachers in non-urban, rural schools regarding to their learning disabled.* Unpublished Ph.D. thesis, Department of Special Education, University of Thessaly, Greece.

Karakuş, İ., & Yanpar-Yelken, T. (2020). Uzaktan eğitim alan üniversite öğrencilerinin sosyal bulunuşluk ile işlemsel uzaklıkları arasındaki ilişkinin incelenmesi. *Kastamonu Eğitim Dergisi, 28*(1),186-201.

Karalis, T., & Raikou, N., (2020). Teaching at the times of COVID-19: Inferences and implications for higher education pedagogy. *International Journal of Academic Research in Business and Social Sciences, 10*(5), 479-493.

Keskin, M., & Özer Kaya, D. (2020). COVID-19 sürecinde öğrencilerin web tabanlı uzaktan eğitime yönelik geri bildirimlerinin değerlendirilmesi. *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi, 5*(2), 59-67.

Kurnaz, M. A., & Bayraktar, G. (2012). Nanoteknoloji tutum ölçeği: Geliştirilmesi, geçerliliği ve güvenilirliği. *Bayburt Eğitim Fakültesi Dergisi, 7*(1), 41-53.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*, 563-575.

Lee, S. A. (2020). Coronavirus anxiety scale: A brief mental health screener for Covid19 related anxiety. *Death Studies, 44*(7), 1-9. http://doi.org/10.1080/07481187. 2020.1748481

Lee, S. A., Mathis, A. A., Jobe, M. C., & Pappalardo, E. A. (2020). Clinically significant fear and anxiety of COVID-19: A psychometric examination of the Coronavirus Anxiety Scale. *Psychiatry Research,* 290, 113112. https://doi.org/10.1016/j.psychres.2020.113112

McMillan, J. H., & Schumacher, S. (2009). *Research in education: Evidence-based inquiry* (7th Edition). Pearson.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd Edition). Sage Publications, Inc.

Molotsi, A. R. (2020). The university staff experience of using a virtual learning environment as a platform for e-learning. *Journal of Educational Technology & Online learning, 3*(2), 133-151.

Mulenga, E. M., & Marbán, J. M. (2020). Is Covid-19 the gateway for digital learning in mathematics education? *Contemporary Educational Technology, 12*(2), 1-11. https://doi.org/10.30935/cedtech/7949

Nguyen, A., & Catalan, D. (2020). Digital mis/disinformation and public engagment with health and science controversies: Fresh perspectives from COVID-19. *Media and Communication, 8*(2), 323–328. https://doi.org/10.17645/mac.v8i2.3352

Patton, M. Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri.* (Çev. M. Bütün ve S. B. Demir, Ed.) Ankara: Pegem Akademi Yayıncılık.

Plano-Clark, V. L., & Creswell, J. W. (2015). *Understanding research: A consumer's guide.* Pearson.

Puig, B., Blanco-Anaya, P., & Pérez-Maceira, J. J. (2021). "Fake news" or Real Science? Critical thinking to assess information on COVID-19. *Frontiers in Education, 6,* 92. https://doi.org/10.3389/feduc.2021.646909

Roser, M., Ritchie, H., Ortiz-Ospina, E., & Hasell, J. (2020). Coronavirus disease (COVID-19)-Statistics and research. *Our World in Data.* https://www.sipotra.it/wpcontent/uploads/2020/03/Coronavirus-DiseaseCOVID19%E2%80% 93- Statistics-and-Research.pdf

Salih-Mohamed, H. A. (2021). A critical analysis of the use of war metaphors in the news discourse of the COVID-19 pandemia. *HABITUS Journal of Sociology,* (2), 33-53.

Sarıer, Y., & Uysal, Ş. (2021). Öğretmen adaylarının COVID-19 pandemi sürecindeki "öğretmen" ve "öğrenci" kavramlarına ilişkin metaforik algıları. *USBAD Uluslararası Sosyal Bilimler Akademi Dergisi Academy, 3*(5), 606-642. https://doi.org/10.47994/ usbad.868350

Sezgin, S. (2021). Acil uzaktan eğitim sürecinin analizi: Öne çıkan kavramlar, sorunlar ve çıkarılan dersler. *Anadolu Üniversitesi Sosyal Bilimler Dergisi, 21*(1), 273-296.

Shariare, M. H., Parvez, M. A. K., Karikas, G. A., & Kazi, M. (2020). The growing complexity of COVID-19 drug and vaccine candidates: Challenges and critical transitions. *Journal of Infection and Public Health, 14*(2), 1-7. https://doi.org/10.1016/j.jiph.2020.12.009

Shute, N. (1957). *On the beach.* New York: W. Morrow. https://www.fadedpage.com/ showbook.php?pid=20131214

Sun, L., Tang, Y., & Zuo, W. (2020). Coronavirus pushes education online. *Nature Materials, 19*(6), 687. https://doi.org/10.1038/s41563-020-0678-8.

Şen, Ö., & Kızılcalıoğlu, G. (2020). COVID-19 pandemi sürecinde üniversite öğrencilerinin ve akademisyenlerin uzaktan öğretime yönelik görüşlerinin belirlenmesi. *International Journal of 3D Printing Technologies and Digital Industry, 4*(3), 239-252. https://doi.org/10.46519/ij3dptdi.830913

Tyrrell, D., & Calinger, M. (2020). Breaking the COVID-19 Ice: Integrating socioscientific issues into problem-based learning lessons in middle school. In *Proceedings of EdMedia + Innovate Learning* (pp. 120-125). Online, The Netherlands: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/ primary/p/217293/.

Uyanık, G. (2016). Öğretmen adaylarının çevre sorunlarına ilişkin bilgi düzeylerinin ve tutumlarının incelenmesi. *Online Fen Eğitimi Dergisi, 1*(1), 30-41.

Yıldız, E. P., Çengel, M., & Alkan, A. (2021). Pandemi sürecinde uzaktan eğitim ortamlarının kullanımına ilişkin tutum ölçeği. *OPUS–Uluslararası Toplum Araştırmaları Dergisi, 17*(33), 132-153. https://doi.org/10.26466/opus.811510

Yılmaz, A. (2021). Fen bilimleri eğitimi kapsamında uzaktan eğitimde kalite standartları ve paydaş görüşleri. *Atatürk Üniversitesi Kazım Karabekir Eğitim Fakültesi Dergisi, 42*, 26-50. https://doi.org/10.33418/atauni kkefd.850063

Yılmaz, A., & Yanarateş, E. (2020). Öğretmen adaylarının "su kirliliği" kavramına yönelik metaforik algılarının veri çeşitlemesi yoluyla belirlenmesi. *Kastamonu Eğitim Dergisi, 28*(3), 1500-1528. https://doi.org/10.24106/kefdergi.722554

Yolcu, H. H. (2020). Koronavirüs (COVID-19) pandemi sürecinde sınıf öğretmeni adaylarının uzaktan eğitim deneyimleri. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 6*(4), 237-250.

Zhou, L., Wu, S., Zhou, M., & Li, F. (2020). 'School's Out, But Class's On', The largest online education in the world today: Taking China's practical exploration during the COVID-19 epidemic prevention and control as an example. *Best Evid Chin Edu, 4*(2), 501-519.