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| Research Article / Araştırma Makalesi |

Opinions of the Teachers on the Compensation of Learning Loss Caused by Covid-19 Outbreak

Covid-19 Salgını ile Ortaya Çıkan Öğrenme Kayıplarının Telafisine İlişkin Öğretmen Görüşleri

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Abstract

Purpose: With the Covid-19 pandemic that has affected the whole world, face-to-face education has been suspended at all levels in many countries for a long time. During this period, education and training continued with various distance education activities. However, learning losses faced by the students could not be prevented. In this study, it is aimed to reveal teachers' opinions about learning losses and the measures that can be taken regarding this.

Design/Methodology/Approach: In the research, a case study from qualitative research designs was used. The sample of the study was determined with the maximum diversity sampling method, one of the purposeful sampling methods, and 50 teachers from different branches working at various levels participated in the study. The semi-structured interview form developed by the researchers was used as a data collection tool. Content analysis method was used to analyze the data.

Findings: The findings show that the teachers participating in the study stated that they experienced learning loss after the emicdemic. According to teachers' opinions, the courses with the most learning loss were Turkish, mathematics, science, physics, chemistry and English, while the courses with less learning loss were listed as social studies, biology, geography, history, music and art. Finally, teachers stated that learning losses could be compensated with various suggestions such as increasing reading activities, increasing parents' opinions, repeating the current year. This situation shows that teachers are aware of learning losses and they have various solution suggestions for them.

Öz

Çalışmanın amacı: Tüm dünyayı etkisi altına alan Covid-19 salgını ile birlikte uzun süreli olarak pek çok ülkede tüm kademelerde yüz yüze eğitime ara verilmiştir. Yüz yüze eğitimin yapılamadığı bu süreçte eğitim-öğretim çeşitli uzaktan eğitim faaliyetleri ile sürdürülmüştür. Ancak, gerek uzaktan eğitim faaliyetlerine katılımı gösteren çalışmalardaki oranının azlığı gerekse öğretmenlerin uzaktan eğitim sürecine ilişkin görüşlerini ele alan çalışmalar öğrenme kayıpları yaşadığını göstermektedir. Bu çalışmada, öğretmenlerin, öğrenme kayıpları ve buna ilişkin alınabilecek önlemler hakkındaki görüşlerini ortaya çıkarmak amaçlanmaktadır. Araştırmada, nitel araştırma desenlerinden durum çalışması kullanılmıştır.

Materyal ve Yöntem: Araştırmanın örneklemi, amaçlı örnekleme yöntemlerinden maksimum çeşitlilik örnekleme yöntemi ile belirlenmiş ve çeşitli seviyelerde çalışan farklı branştaki 50 öğretmen araştırmaya katılmıştır. Araştırmacılar tarafından geliştirilen yarı yapılandırılmış görüşme formu, veri toplama aracı olarak kullanılmıştır. Verilerin analizinde içerik analizi yönteminden faydalanılmıştır.

Bulgular: Elde edilen bulgular, araştırmaya katılan öğretmenlerin salgın sürecinde öğrencilerin öğrenme kaybı yaşadığını ifade ettiklerini göstermektedir. Yine, öğretmen görüşlerine göre en çok öğrenme kaybının yaşandığı dersler Türkçe, matematik, fen bilimleri, fizik, kimya ve İngilizce iken, öğrenme kaybının daha az yaşandığı dersler sosyal bilgiler, biyoloji, coğrafya, tarih, müzik ve resim olarak sıralanmıştır. Son olarak öğretmenler, okuma etkinliklerinin artırılması, öğretmen-veli görüşmelerinin artırılması, mevcut senenin tekrar edilmesi gibi çeşitli önerilerle öğrenme kayıplarının telafi edilebileceğini belirtmişlerdir. Bu durum öğretmenlerin öğrenme kayıplarının farkında olduklarını ve bunlara yönelik çeşitli çözüm önerilerine sahip olduklarını göstermektedir.

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INTRODUCTION

Defined as a "global pandemic" by the World Health Organization, the Covid-19 outbreak has created an "emergency situation" for the whole world. Therefore, the education carried out during this pandemic process, which confined the whole world to its home, is included in the scope of "education in emergencies". After extraordinary situations such as conflict, war, natural disaster, children's right to education must be preserved. As a matter of fact, it is possible to define the intensive efforts of countries to continue education as a new version of "education in emergencies" in case of interruption of the face-to-face education process in times of such disasters (Emin, 2020). With the Covid-19 outbreak, face-to-face education situation of students has come to a standstill at almost all education levels. Schools were closed in 180 countries as of April 24, 2020, with many countries announcing extensions of closures until the end of April or May. In some countries, it has been decided to maintain schools at various levels with distance learning for the remainder of the year.

Distance education can be sustained through synchronous and non-synchronous methods such as radio, television, social media tools, digital platforms and applications, depending on the technological capacities of countries, teachers' ability to use technology, and students' digital technologies and internet connection. In many countries, in order to carry out distance education more efficiently, opportunities such as distribution of computers and tablets, free of charge from the internet or providing additional internet packages, increasing bandwidth, and supporting families in the education of children have been provided (Çelik, 2020). During the period when schools were closed, countries turned to distance education to compensate for the time lost in education services. In addition to online courses held within the scope of distance education, some countries have put various resources and materials on their websites and offered more products to students. Some countries, such as Spain, have required teachers to create online content and teach online courses. With the closure of schools, Singapore first provided training to teachers on providing online classes and then included students in the distance education system. While China, which has a strong internet infrastructure and technological tools, successfully maintains distance education, countries such as Vietnam and Mongolia, which have limited internet access, mobile phones or televisions, have difficulty in reaching all students equally. In Lebanon, on the other hand, distance education is carried out with continuous assignments to students and support from their parents. In addition, many countries face difficulties in ensuring that education services are equally accessible to workers/students with disabilities (http://pubdocs.worldbank.org/en/450881585235950757/COVID19-Education-Sector-Guidance-Note-March26.pdf). This situation shows that although educational activities are tried to be continued through distance education, countries cannot provide equal opportunities to all their students and not all students included in the education system can continue their learning.

Despite serious concerns, schools were gradually opened in many countries at the end of the spring semester. With the new academic year, many more countries are expected to open schools. Various policy proposal documents have been prepared, examining issues such as reopening schools, how the timing should be made, conditions for opening schools, and how education should be continued. Due to the many negative situations caused by the closure of schools, organizations such as UNESCO, UNICEF, World Bank, INEE strongly recommend opening schools and starting face-to-face education when a safe environment is established. Turkey, on the other hand, has declared that online education will start on August 31st with its new decision, and schools will be opened gradually and diluted on September 21 (Çelik, 2020). Although the long-term closure of schools is necessary in the fight against Covid-19, it has led to the fact that students' education, which extends from three months to almost a year, is carried out only online.

Long-term school closures experienced during the pandemic period directly affect the learning losses of students. In studies conducted in the USA, it has been observed that the knowledge and skills gained decrease and a certain learning loss is experienced during long-term holidays such as summer vacation. In these studies, it has been observed that there is a significant difference between the losses of students supported by their families and disadvantaged students who are not supported by their families (Reimers & Schleicher, 2020). The New Mexico Legislative Finance Committee (2020) stated in its research that due to the closure of schools and less time spent on education than usual, the losses to be faced next year may be much more than the normal summer learning loss.

From this point of view, when the concept of "learning loss" is examined, definitions are seen in different ways but with similar meanings. Thu Huong and Na Jatturas (2020) have defined "learning loss" as any loss of specific or general knowledge and skills or reversals in academic progress, usually due to extended gaps or discontinuities in a student's education. Learning loss is understood not as a reduction in existing knowledge or skills, but as the difference between an existing reality and some ideal or at least normal condition (Lorié, 2020). This is mostly due to interrupted formal education.

The effect of school closure on student outcomes appears as learning loss. It is an expected fact that the learning levels that emerged during the Covid-19 crisis and the absence of traditional education will not match the learning levels that emerged during face-to-face education. It took time for countries, students, teachers, parents and other stakeholders in the education system to adapt and get used to distance education. Many international reports have emphasized that schools face the difficulty of integrating communication and information technologies into the classroom (OECD, 2020). In fact, potential learning loss resulting from these causes is determined by two simultaneous factors.

The first concerns how much students learn at the time of school closure and the efficiency of educational continuity. This discussion is necessary to guide the research agenda, shape the future of education, and capitalize on the crisis situation. Second,

the number of students continuing to learn at the time of school closure represents the share of students participating in education continuity solutions. Distance education solutions present a different problem as they are often associated with attendance difficulties and higher absenteeism. According to the French Minister of Education, between 5 and 8% of French students were not reached by their teachers two weeks after the schools were closed (LesEchos, 2020).

With the closure of schools and the ensuing summer vacation, students' loss of learning will increase, leaving students behind by three months to a year. Researchers from the Northwest Evaluation Association (NWEA) (2020) stated that many students, especially from low-income families, lost their reading and math skills (Kuhfeld & Tarasawa, 2020). McKinsey Company (2020) has emphasized that students will experience additional learning losses of three to 14 months if school reopening is delayed until January 2021. There are also researchers who state the opposite of these views. According to Hattie (2020), the impact of school closures on students' learning should not be overly focused. He stated that the length of the school year had only minor effects on students' academic achievement outcomes. As an example, he showed that the Christchurch earthquakes of 2011, which caused extended school closures, did not harm students' performance in end-of-year school examinations. Because the teachers focused on what needs to be learned later and made the necessary make-up training.

However, disruptions in educational activities after the closure of schools will have a lasting impact on students. It can take a very long time as very carefully crafted recovery plans are required to make up for lost learning. To assist students in such a challenging and demanding situation, authorities should initiate interventions or reform actions aimed at facilitating compensation for lost learning when schools reopen. For this, schools and universities can research students' needs and design some make-up courses (Tiruneh 2020). Dorn, Hancocok, Sarakatsannis, and Viruleg (2020) stated that determining how much education students lose due to school closures varies significantly according to access to distance education, quality of distance education, home support and degree of participation. Dorn et al. (2020), who divided high school students into three in their study, stated that the students in the first group continue to distance education with an average quality, and that these students continue their education, but it is slower than the education they receive at school. They stated that the students in the second group received lower quality distance education than the students in the first group and that these students generally experienced stagnation in their grade levels. In the third group, there were students who were not involved in distance education at all. It was observed that these students experienced a serious learning loss, forgot basic information and tended to drop out of high school.

Continuity of education is one of the most important factors that affect students' learning and ensure the permanence of learning. With the Covid-19 pandemic, it has disrupted the rhythm of the compulsory midterm education given to face-to-face education. Although this has been tried to be corrected and maintained with distance education activities, the expected efficiency from distance education has not been fully achieved due to technical problems, families' inability to manage the process well, and it takes time for students to get used to distance education. It is highly likely that students will have difficulty remembering their learning and previous achievements until March of the 2019-2020 academic year, in other words, they will experience learning losses. They are unlikely to compensate for these losses only with distance education. This will negatively affect students and the quality of teaching in the long run. There will be difficulties in achieving the targeted learning outcomes. For this reason, the possible results to be obtained from this study will shed light on how to compensate for learning losses. In this direction, the aim of the study is to reveal the opinions of teachers about the learning losses and solutions that students have experienced due to the lack of face-to-face education, which was interrupted due to the Covid-19 pandemic. For this purpose, answers to the following questions were sought:

1-What are the teachers' views on learning losses that may occur with the compulsory break given to face-to-face education?

2-What do the teachers suggest to compensate for the learning losses?

METHOD/MATERIALS

Case study, one of the qualitative research designs, was used in the research. The case study stands out as a research design in which more complex structures and concepts are explained through a single case (Rivera & Tracy, 2012). The case study is a research method used to understand, describe and describe the causes, causes and consequences of this situation in cases where the researcher's control is not over the variables (Leymun, Odabaşı &Yurdakul, 2017). In this study, learning losses caused by the Covid-19 pandemic, which continues to threaten the whole world, and what can be compensated for it will be discussed. For this reason, it was designed as a case study.

Study Group

The study group of the research was determined by the maximum diversity sampling, one of the purposive sampling methods. The maximum diversity method aims to discover and define the main themes that cover a large number of differences related to the event or phenomenon under investigation (Neuman, 2014). While sampling the maximum diversity, the factors that will enable to obtain the most information about the investigated phenomenon should be determined (Neuman & Robson, 2014). In the research, the opinions of teachers from various branches were needed on what the learning losses that may occur due to the compulsory break in face-to-face education could be and how they could be compensated. In order to provide the necessary data,

the maximum diversity sampling method was used, and 50 teachers from various branches working in different education levels were included in the research. Data on participating teachers are given in the table below (Table 1):

Table 1. Data on the participants

Participants	Code	Gender	Branch	Years of Work	School Type
Teacher1	T1	Female	Pre-school teacher	8	Pre-school
Teacher2	T2	Female	Pre-school teacher	10	Pre-school
Teacher3	T3	Female	Pre-school teacher	5	Pre-school
Teacher4	T4	Female	Pre-school teacher	7	Pre-school
Teacher5	T5	Female	Pre-school teacher	6	Pre-school
Teacher6	T6	Female	Pre-school teacher	4	Pre-school
Teacher7	T7	Male	Class teacher	10	Primary school
Teacher8	T8	Male	Class teacher	15	Primary school
Teacher9	T9	Male	Class teacher	7	Primary school
Teacher10	T10	Female	English teacher	6	Primary school
Teacher11	T11	Female	English teacher	12	Primary school
Teacher12	T12	Female	Class teacher	15	Primary school
Teacher13	T13	Male	Class teacher	19	Primary school
Teacher14	T14	Female	Class teacher	13	Primary school
Teacher15	T15	Female	Class teacher	14	Primary school
Teacher16	T16	Male	Science teacher	8	Secondary school
Teacher17	T17	Male	Maths teacher	15	Secondary school
Teacher18	T18	Female	Maths teacher	8	Secondary school
Teacher19	T19	Female	Turkish teacher	6	Secondary school
Teacher20	T20	Male	Turkish teacher	4	Secondary school
Teacher21	T21	Male	English teacher	7	Secondary school
Teacher22	T22	Female	ICT teacher	10	Secondary school
Teacher23	T23	Female	Art teacher	4	Secondary school
Teacher24	T24	Female	Social Sciences teacher	18	Secondary school
Teacher25	T25	Female	Social Sciences teacher	8	Secondary school
Teacher26	T26	Male	İngilizce	11	Secondary school
Teacher27	T27	Female	English teacher	17	Secondary school
Teacher28	T28	Male	Social Sciences teacher	9	Secondary school
Teacher29	T29	Female	Religion teacher	7	Secondary school
Teacher30	T30	Female	Religion teacher	2	Secondary school
Teacher31	T31	Male	Science teacher	4	Secondary school
Teacher32	T32	Female	Guide teacher	6	Secondary school
Teacher33	T33	Male	Guide teacher	2	Secondary school
Teacher34	T34	Female	Physical Education teacher	9	Secondary school
Teacher35	T35	Male	Metal Technology teacher	6	High school
Teacher36	T36	Male	English teacher	14	High school
Teacher37	T37	Male	Literature teacher	17	High school
Teacher38	T38	Male	Maths teacher	9	High school
Teacher39	T39	Male	English teacher	13	High school
Teacher40	T40	Female	German teacher	5	High school
Teacher41	T41	Female	Biology teacher	18	High school
Teacher42	T42	Female	Maths teacher	20	High school
Teacher43	T43	Female	Health teacher	7	High school
Teacher44	T44	Female	English teacher	17	High school
Teacher45	T45	Female	Chemistry teacher	23	High school
Teacher46	T46	Male	Physics teacher	19	High school
Teacher47	T47	Female	Geograpy teacher	20	High school
Teacher48	T48	Female	Religion teacher	11	High school
Teacher49	T49	Male	Philosopy teacher	14	High school
Teacher50	T50	Male	Music teacher	7	High school

As seen in Table 1, 30 female (60%) and 20 (40%) male teachers participated in the study. 6 (12%) of the teachers participating in the research are in independent kindergartens affiliated to the Ministry of National Education; 9 (18%) were in primary school; 19 (38%) work in secondary school and 16 (32%) work in high school. When we look at the branches of teachers again; preschool, classroom, English, science, mathematics, Turkish, Information Technologies, visual arts, social studies, religious culture and ethics, guidance, metal technologies, literature, German, biology, secondary education mathematics, health services, chemistry, physics,

It is seen that teachers from geography, philosophy and music branches are included in the study. The working time of teachers in the profession varies between 4 and 20.

Data Collection Tools

The research data were collected online with the "Semi-Structured Interview Form" prepared by the researchers. In the creation of the form, primarily related topics and researches such as learning losses due to Covid-19, compensation for learning losses were scanned, and the concepts that would form the basis of the study and the codes in which these concepts would be included were determined. Then, categories that will provide in-depth data for the relevant codes were determined, and a large number of open-ended questions were created regarding these categories. Necessary examinations were made by a field expert from Afyon Kocatepe University to examine the relationship between the codes and categories in the form and the questions, in other words, to ensure content validity. Necessary corrections were made by 1 Literature Teacher in order to ensure the structural validity of the questions and to check their suitability in terms of language expression. After these reviews, "What should be done to reduce learning losses caused by the Covid-19 pandemic?" With the question "What kind of measures do you plan to take to compensate for the learning losses caused by the Covid-19 pandemic?" It was found that it was appropriate to combine the questions and necessary corrections were made in line with the suggestions. As a result of the preliminary application made with six teachers from various branches, necessary changes were made and the interview form was given its final form. The codes, categories and questions regarding the interview forms are given in the table below (Table 2).

Table 2. Formation of interview questions

Code	Category	Interview Questions
Learning Loss	Learning Loss Before Covid-19 Pandemic	What did the concept of "learning loss" mean to you before the Covid-19 pandemic started?
	Learning Loss After Covid-19 Pandemic	What does the concept of "learning loss" mean to you after the Covid-19 outbreak started?
Courses	Courses with Most Learning Loss	Which course or courses do you think experienced the most learning loss?
	Courses with Least Learning Loss	In your opinion, what are the courses or courses in which learning loss occurs the least?
Compensation	Measures	What measures should be taken to compensate for the learning losses that students have experienced during the COVID-19 pandemic? What steps should be taken?

Data Collection

After the data collection tool to be used in the study was prepared, six teachers were interviewed and the interview form was finalized. Pilot interviews were conducted face to face by taking necessary health precautions. These interviews lasted between 8-10 minutes and the data were recorded in written form. After the pilot interviews, the candidates who could participate in the interview were determined and it was confirmed whether they would participate or not. Interview forms were sent to the participants who will take part in the research voluntarily via Google Forms and their answers were obtained in writing. The data collection process lasted between 4-6 days.

Data Analysis

Content analysis method was used to analyze the data obtained in the research. Since content analysis is an inductive analysis type, it focuses on the origins of the investigated phenomenon or event. Through coding, the concepts underlying the data and the relationships between these concepts are revealed. In qualitative research, the researcher is in an effort to discover the themes related to the problem based on the descriptive and detailed data he has collected, to transform the data he has obtained into meaningful and systematic structures, that is, to form a theory based on these data or to verify a theory. In the absence of a theory that can form a basis for the event or phenomenon examined, inductive analysis, that is, content analysis based on coding, is required (Baltacı, 2017). In this direction, firstly codes and categories were determined in the research, and appropriate themes were obtained and arranged from the data obtained. Then these themes were defined and interpreted. However, before the data analysis, the participants were coded as T1, T2, T3... and ethical factors were taken into account in sharing the views of the participants. Frequencies were determined according to the repetition frequency of the coded expressions of the participants. In addition, in order to facilitate the clarity of the questions in the codes and categories, sample expressions from the participants' views are included.

Reliability and Validity

Validity in qualitative research is the degree to which the researcher solves the problem in an unbiased manner as possible. In this case, the degree to which the data obtained reflects the actual situation is important. Considering the research problem as a whole or concentrating on all the features of the case studied are important validity criteria (Denzin & Lincoln, 2008). In this study,

it has been tried to ensure validity by including direct quotations from the views of the participants in order to reveal this impartiality and to deal with the research problem as a whole.

In an acceptable qualitative research, the researcher is expected to have a certain degree of consistency in both the data collection processes and the analysis, interpretation, work and operations of the data, and explain in detail how this consistency is achieved. It is also important for the researcher to critically question the qualitative research process and to have a good command of the process in order to minimize possible mistakes. How the controls in the study were made should be reported in detail and clearly in the research method section (Shenton, 2004). In order to ensure this consistency in the research, how the data collection tool was developed and how the data were collected and analyzed were written in stages. In addition, more than one researcher was involved in the research, trying to gain a different perspective on the research.

FINDINGS

Due to the Covid-19 pandemic, which the whole world is struggling with, face-to-face education has been suspended for a long time in our country, as in many countries. However, with the closure of schools, distance education activities started in a short time, and it was tried to prevent students from moving away from learning environments. Although distance education activities were suspended with the summer vacation, distance education activities started again with the start of the new academic year on 31 August. Students, teachers, administrators, parents and all other stakeholders experienced this process for the first time, and it was undoubtedly the students who were most affected. They could not control their learning processes well due to many reasons such as the psychological processes that emerged due to the pandemic, being away from face-to-face education for a long time, and not having sufficient technological opportunities, and they faced learning losses. In this context, in this study, it is aimed to reveal the learning losses faced by the students and the suggestions of the teachers regarding this. Findings related to the codes and categories determined for this purpose are given below in line with the research sub-problems. The first sub-problem of the research, "What are the teachers' views on learning losses that may occur with the compulsory break given to face-to-face education?" Findings related to the question are given in Table 3:

Table 3. Views of Teachers on the Concept of Learning Loss Before and After the Covid-19 Pandemic

Code	Category	Theme	Participant Code	Frequency
Learning Loss	Learning Loss Before Covid-19 Pandemic	The concept of "Learning Loss" has changed	T1,T2,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16,T17,T18, T19,T20,T21,T22,T23,T24,T25,T26,T27,T28,T29,T30,T31,T32,T33,T 34,T35,T36,T37,T38,T39,T40,T42,T43,T44,T45,T46,T47,T48, T49,T50	f(50)
		The concept of "Learning Loss" has not changed	-	-
		There was a "Learning Loss" after the Covid-19 Outbreak	T1,T2,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14, T15,T16,T17,T18,T19,T20,T21,T22,T23,T24,T25,T26, T27,T28,T29,T30,T31,T32,T33,T34,T35,T36,T37,T38, T39,T40,T42,T43,T44,T45,T46,T47,T48, T49,T50	f(50)
		There was no "Learning Loss" after the Covid-19 Outbreak	-	

In Table 3, there is a frequency table with opinions on the concept of "learning loss" before and after the Covid-19 outbreak. In the data obtained from the teachers, the frequently repeated concept of "learning loss" gained a different meaning after the pandemic and "learning loss" was experienced by the majority of the students after the pandemic. Sample expressions taken from the opinions of teachers regarding this issue are given below.

Teacher Opinion 1:

" I work in a kindergarten affiliated to the National Education. When the pandemic happened, I was dealing with the 4 year old group. As of February, all of my students knew the numbers 1-20. I sent them continuous events until June. Last time, at the beginning of July, I made short chats by video calling each of them and gave them 5-6-? I asked questions like what's going on. Maybe 7-8 of my students thought, couldn't answer, gave wrong answer. This situation made me very sad. The loss of learning experienced after the summer term in the past years was experienced this year before the end of the academic year...." (T4)

Teacher Opinion 2:

" I definitely think that the content and meaning of the concept of learning loss has changed compared to the pre-pandemic period. This year, I was teaching in the second grade of primary school. The activities that I sent to the students via EBA were sent back to me by their families after the students were completed. But there were too many mistakes in the students' activities. I had to constantly call and fix it. Students used to forget the little things when they came back from the weekend or from longer

vacations. However, I have not come across so many students. I think that after the pandemic, the learning losses will be more and the recovery will take longer. " (T12)

Teacher Opinion 1:

"I was taking science classes in a secondary school until the pandemic started and schools were interrupted, and I was also giving DYK courses to students. After the secondary education entrance exam, I learned that my students, whom I expected to complete in science, made 1-3 mistakes even though the questions were at their level. This definitely shows that these students are experiencing learning loss." (T27)

Teacher Opinion 2:

" I am taking German lessons at a high school in the city center of Afyon. German is already a subject in which students are quite prejudiced and confuse it with English. The number of students attending classes in distance education was very small. Interested students generally attended. Even those students had forgotten what many words and especially the articles we use frequently were. Moreover, when I reminded them, it was as if they had heard it for the first time. For this reason, I think that there has been a definite and serious loss of learning after the pandemic." (T40)

Another category related to the first sub-problem of the study was the lessons in which learning loss was experienced the most and the least. The frequency table obtained from the opinions of teachers regarding this issue is given below (Table 4).

Table 4: Teachers' Views on the Lessons with the Most and Least Learning Loss

Code	Category	Theme	Participant Code	Frequency
Courses	Courses with Most Learning Loss	Turkish	T2,T5,T6,T7,T8,T9,T12,T13,T14,T15,T18,T20,T22,T24,T25,T27,T28, T32,T33,T34,T37,T47,T48,T49	f(24)
		Mathematics	T1,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16,T17,T18,T22,T23,T26,T27,T28,T29,T31,T32,T33,T35,T37,T38,T41,T42,T45,T46	f(33)
		Science	T3,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16,T17,T18,T20,T21,T22,T23,T24,T25,T26,T27,T31,T32,T33,T35,T41,T45,T46,T49	f(29)
		Physics	T16,T17,T18,T22,T27,T31,T35,T36,T37,T38,T39,T40,T4,T42,T43,T44,T45,T46,T47,T48,T49,T50	f(22)
		Chemistry	T16,T17,T18,T22,T27,T31,T35,T36,T37,T38,T39,T40,T4,T42,T43,T44,T45,T46,T47,T48,T49,T50	f(22)
		English	T7,T8,T10,T11,T12,T14,T17,T21,T22,T26,T36,T39,T44	f(13)
	Courses with Least Learning Loss	Social Sciences	T18,T19,T20,T23,T24,T28	f(6)
		Biology	T41,T43,T45,T46	f(4)
		Geography	T37,T41,T47,T49	f(4)
		History	T35,T47,T48	f(3)
		Music	T2,T3,T50	f(3)
		Art	T4,T5	f(2)

Table 4 shows the courses where learning loss is experienced or can be experienced the most, and the courses where learning loss is experienced or can be experienced the most, according to teachers' views. Majority of the teachers have high learning losses in courses such as Turkish (f=24), mathematics (f=33), science (f=29), physics (f=22), chemistry (f=22), English (f=13). while expressing that; They emphasized that learning losses were less in courses such as social studies (f=6), biology (f=4), geography (f=4), history (f=3), music (f=3) and painting (f=2). Sample expressions taken from teachers' opinions are below:

Teacher Opinion 1:

" I think that learning loss occurs mostly in basic courses such as Turkish and mathematics. I think parents did not make students read too many books during this period, and in this respect, they will have problems especially in understanding what they read. In addition, mathematics is not a subject that is often repeated even in normal time. That's why I think they mostly forgot this lesson. I don't think there is much learning loss in courses such as Social Studies, music and painting. So, of course, there have been losses, but I think it would be easier to compensate." (T18)

Teacher Opinion 2:

" I think the most learning loss was in the numeracy-oriented courses such as Turkish, mathematics, science, physics, and chemistry. Students already had difficulties in understanding these lessons. Although there were live lessons on both EBA TV and EBA, it was definitely not enough. These lessons were difficult to understand, even face to face." (T27)

The second sub-problem of the research, "What do teachers suggest for compensation for learning losses?" The frequency table of the question is given in Table 5.

Table 5: Teachers' Views on Compensation for Learning Loss

Code	Category	Theme	Participant Code	Frequency
Compensation	Measures	Intensive reading programs	T1,T2,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16,T19, T20,T25,T26,T27,T28,T30,T32,T33,T34,T35,T43,T44,T 45,T46,T47,T48,T49	f(31)
		Must be repeated in the current year	T7,T8,T9,T12,T14,T16,T17,T18,T19,T20,T24,T25,T26, T27,T28,T29,T30,T33,T35,T37,T38,T42,T45,T46,T47,T 48,T49	f(27)
		Fun, math games played everywhere (home, school, garden)	T1,T2,T3,T4,T7,T8,T9,T12,T13,T14,T15,T16,T17,T18,T 22,T27,T31,T38,T42	f(19)
		STEM activities	T4,T5,T8,T13,T27,T34,T41,T45,T46	f(9)
		Out-of-school learning areas should be visited more frequently (museum, nature trips)	T1,T2,T3,T4,T5,T6,T8,T12,T13,T14,T15,T17,T19,T20,T 23,T24,T25,T28,T40,T47	f(20)
		Orientation to creative writing activities	T8,T9,T14,T15,T19,T26,T37,T49	f(8)
		Much stronger parent communication	T3,T4,T5,T6,T7,T8,T9,T12,T13,T14,T16,T17,T27,T29,T 35,T38,T39,T43,T45,T48,T49,T50	f(22)
		Helmet course hours should be temporarily increased instead of elective courses	T7,T8,T9,T12,T13,T14,T15,T17,T18,T19,T20,T21,T22, T24,T26,T30,T32,T33,T41,T42,T43,T44,T46,T47,T48,T 49	f(26)

Table 5 shows the frequency table of teachers' opinions on the compensation of learning losses. The themes obtained from the suggestions given by the teachers were "intensive book reading programs (f=31), current year repetition (f=27), fun math games played everywhere (f=19), STEM activities (f=9), out-of-school learning. visiting their fields (f=20), creative writing activities (f=8), strong parent interaction (f=22), increasing the hours of helmet lessons instead of elective courses (f=26). Sample expressions obtained from teachers' opinions are given below.

Teacher Opinion 1:

"I think this is the most important point. Rather than which course, will the teachers overcome these losses alone or will they be eliminated with the help of some decisions taken by the ministry. I think reading activities should be organized in schools first. Teachers, parents, school administration should encourage students and make them read a lot. Because now the current exams are more about reading comprehension. Together, we should make math fun. Instead of focusing only on the four operations, we should develop their mathematical thinking directed towards mathematical games. When students love mathematics, they will already become more interested and it will be easier to make up for losses." (T27)

Teacher Opinion 2:

" I think learning losses will be a big problem for years to come. Of course, health cannot be compensated, education is compensated somehow. However, the compensation of education should be done in a controlled and programmed way. For example, focus should be on STEM activities. It should be ensured that students produce in accordance with all grade levels within a program. In schools, investments should be made for these activities, necessary materials should be purchased and offered to students. In addition, it should be ensured that students can continue these activities as an out-of-school activity, not as a necessity..." (T41)

Teacher Opinion 3:

" I think it is a situation that can create a problem if the necessary precautions are not taken all over the world. In order to compensate for the learning losses, I think that some grade levels can be repeated for a year. Maybe teachers or schools may have problems, but for a year, both teachers and schools can try to find solutions. In addition, strong parent communication should be ensured. It should be ensured that the time they spend at home is more qualified by constantly communicating." (T49)

Teacher Opinion 4:

" I think you should not worry too much about the compensation of education. There is no compensation for health, but compensation for education can be completed in a short time with good planning. The first thing to do is to take a break from elective courses for one or two years. Instead of elective courses, the course hours of basic courses such as Turkish and mathematics can be increased. A portion of these course hours can be devoted to compensation for losses, and a portion is reserved for new

subjects. Students do not lose much when they do not attend the elective courses for 1-2 years, the subjects that are considered very necessary in these courses can be included in the basic courses or these elective courses can be continued with distance education." (T33)

DISCUSSION

Learning losses, which mean the disappearance of the gains gained by the students in the learning environments in which they are involved in the education-teaching process, appeared in the literature as "summer learning loss", but after the pandemic, it started to be considered in a broader framework as "learning loss". While the Covid-19 pandemic has affected many areas from health to economy in the long run, it has undoubtedly affected education and all stakeholders of education deeply. In this direction, in this study, it is aimed to reveal the opinions of the teachers about the learning losses of the students and the compensation of these losses.

In the study, first of all, teachers' views on the concept of "learning loss" and whether there is a learning loss after the pandemic were discussed. The results obtained from the teachers' opinions show that all of the teachers participating in the study stated that the concept of "learning loss" has changed and that the students have experienced learning loss after the pandemic. Teachers and students switched to online distance learning shortly after schools took a break from face-to-face teaching in March. Distance education continued until the start of the summer vacation period and resumed with the end of the summer vacation. The feedback that teachers received from their students during this period shows that students experience learning loss and this situation is greater than the "summer learning loss" encountered in the past years. This situation shows that although education and training activities are tried to be continued with distance education, learning losses cannot be prevented.

Another factor discussed in the study is which courses have the most and least learning loss. While the majority of the teachers participating in the research stated that learning loss was higher in Turkish, mathematics, science, physics, chemistry and English lessons; They stated that learning loss is less in courses such as social studies, biology, geography, history, music and painting. This shows that teachers think that numeracy-based learning losses are more especially in basic courses and in general. Teachers stated that learning losses are less in verbal-oriented and skill-requiring courses. Hill and Loeb (2020) stated in their study that especially mathematics experts in the United States underline the learning losses that may occur after the pandemic. Robson (2020) emphasized that after the pandemic, students regressed most in reading skills. The fact that students were away from face-to-face education for a long time caused them to regress in some skills they acquired during the school process. The end of face-to-face education in March and the following summer vacation period further reinforced this decline.

At the last stage of the research, it was aimed to reveal the suggestions of teachers for the compensation of learning losses. The majority of the teachers in different branches working at various levels who participated in the research stated that intensive book reading programs should be put into practice with the start of face-to-face education. The changing world and constantly developing technology require students to constantly question. This situation develops their critical, analytical and creative thinking skills. Undoubtedly, the most basic element that contributes to the development of these skills is reading. However, changing educational paradigms have led to the emergence of new generation questions that require questioning and multidimensional thinking in central exams. It is emphasized by many educators that the students who win in these systems are generally the students who read a lot. Kim and White (2011) conducted an experimental study showing that the learning losses experienced by students, especially during the summer vacation, were reduced by making them read the books given to them. In these studies, it is seen that they emphasize that it is not the only solution to prevent summer learning losses, but that students keep their reading comprehension skills constantly fresh.

It is emphasized by many educators that the students who win in these systems are generally the students who read a lot. Kim and White (2011) conducted an experimental study showing that the learning losses experienced by students, especially during the summer vacation, were reduced by making them read the books given to them. In these studies, it is seen that they emphasize that it is not the only solution to prevent summer learning losses, but that students keep their reading comprehension skills constantly fresh. For example, if a student who has passed to the second year of primary school moves to the second year without fully acquiring the first-year achievements, the sophomore achievements will not be appropriate for his level. For this reason, repetition of some grade levels, such as primary school freshman, middle school fifth grade, and high school ninth grade, may be considered. In a study supported by the World Bank Education Group and carried out by Shmis, Sava, Teixeira and Patrinos (2020), it is stated that countries struggling with the Covid-19 pandemic need a learning approach to overcome the gaps and losses they face in education. In the report they prepared, they emphasized that the "Accelerated Learning Program" could be prepared and put into practice for the students, thus preventing the students from losing their classes and not needing to repeat the class. This program consists of three stages: (1) evaluation, (2) planning, and (3) implementation. At each stage, the learning gap will be closed and the students will continue to reach the level they need to reach. Again, each stage will be supported by central authorities and schools, and schools will be able to prepare special actions within their own structure. The main point in this approach is to collect data from students at regular intervals and determine their level. The data obtained will determine how teachers should take steps and it will be a very student-centered approach. Teachers have a great role in the steps to be taken. Teachers will quickly complete the missing topic, taking into account the evaluations about their own lessons, and move on to the

next topic. As can be seen here, two different approaches are encountered in compensating for the losses of the students. Students will either be able to eliminate their learning losses by repeating the grade or they will benefit from the support packages to be prepared.

Some of the teachers stated that fun math games can be used to compensate for the learning losses that occurred after the pandemic. The teachers emphasized that even in the process of continuing face-to-face education, the achievements related to the mathematics lesson were gained by the students with difficulty. They stated that the use of games could be effective in compensating the students' loss of mathematics lessons during this period. Some of the teachers also stated that STEM activities can be used to make up for numeracy-based courses, especially mathematics and science. Alexander, Entwisle, and Olsen (2007) especially emphasized that students who lack various summer experiences tend to lose their previous year's school achievements. When compared to the children of economically stronger families, the learning losses of the children of low-income families are higher as a result of their research. In particular, they stated that STEM activities offer versatile opportunities to preserve and develop basic skills in mathematics and literacy during the summer months. In this case, it can be both an entertaining and educational alternative to compensate for learning losses during the pandemic period.

One of the suggestions that emerged in line with the views of teachers is to move learning environments to non-school environments more and to provide learning by doing and experiencing. Continuing their education in appropriate learning environments in line with the content of the courses can be an opportunity for students of all age groups to compensate for their learning losses. It can be ensured that students experience out-of-school learning areas by taking the pandemic conditions and necessary precautions. Some of the teachers who participated in the research stated that with creative writing activities, learning losses can be compensated in lessons that require students to use languages such as Turkish, Literature and English. Using creative writing activities in such lessons will not only require students to remember and use their vocabulary, but also make them active by enabling them to use the language.

Teachers think that even if face-to-face education is started or postponed, stronger communication should be established with parents than before the pandemic. Although most of the teachers tried to communicate with the parents during the closure of schools and the start of distance education, it was seen that they stated that this was not at the desired level. Parent communication, which is one of the most important pillars of education, was most needed in this period. In this period, the parents took on the follow-up task of the teachers in face-to-face education. For this reason, it can be said that stronger teacher-parent interaction to be established in the upcoming academic years will contribute to the compensation of learning losses. Finally, in the study, it is seen that the majority of the teachers stated that it would be appropriate to temporarily focus on Turkish, mathematics, science or other helmet courses instead of elective courses for 1 or 2 years in the next academic year. In line with the plans to be made, in order to prevent the losses experienced since March, the elective courses in the programs can be integrated into the compulsory courses or postponed for a year.

CONCLUSION AND RECOMMENDATIONS

It is a fact that the Covid-19 pandemic has deeply affected all the education systems of the world. The data obtained from the teachers' opinions in the study show that students experience a great deal of learning loss. As long as there is health, education can be compensated under any condition and necessary measures can be taken for this. In this context, within the scope of the study, teachers made various suggestions regarding the compensation of these learning losses. The participants emphasized that countries should take some measures for the learning gaps and losses caused by the long-term closure of schools. These results obtained from this study can contribute to both the individual compensation efforts of teachers and the measures to be taken by decision makers. Future research can focus on measures specific to courses with the highest learning losses.

Considering the devastating impact of the Covid-19 pandemic all over the world, it is of great importance to respond to the educational needs of students. The information that the students learned during this period when they were away from school began to be forgotten gradually. This situation may be a problem in the education process that students will just start. The fact that students who have been away from schools for almost a year due to the pandemic continue their education process in online classes has not been able to prevent learning losses. Within the scope of this study, teachers observed that students experienced learning loss especially in virtual lessons. In this case, constantly uploading new and intense information to students in virtual classrooms or giving uncontrolled large amounts of homework will not be very effective in terms of students' academic success. These reasons should be dealt with concretely how much learning loss is experienced on the basis of all courses.

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Statements of publication ethics

I/We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

As of 2020, researchers applying are required to upload the Ethics Committee Approval Document. The study was approved by Afyon Kocatepe University Social and Human Sciences Scientific Research and Publication Ethics Committee with the decision number of 12.10.2020 and 2020/164 regarding the "Ethics Committee Approval Document" should be presented here.

REFERENCES

Alexander, K.L., Entwisle, D.R., & Olsen, L.S. (2007). Summer learning and its implications: Insights from the Beginning School Study. *New Directions for Youth Development, 114,* 1-15. doi.org/10.1002/yd.210

Baltacı, A. (2019). Nitel araştırma süreci: Nitel bir araştırma nasıl yapılır?. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 5(*2), 368-388. Doi: 10.31592/aeusbed.598299

Çelik, Z. (2020). Covid-19 salgınının gölgesinde eğitim: Riskler ve öneriler. (Odak Analiz No. 5). *Eğitim-Bir-Sen Stratejik Araştırmalar Merkezi*, 5-47. Doi: 10.13140/RG.2.2.34400.30723

Denzin, N.K., & Lincoln, Y.S. (Eds.). (2008). *The landscape of qualitative research.* Sage Publications, Inc.

Dorn, E., Hancocok, B., Sarakatsannis, J., & Viruleg, E. (2020). *COVID-19 and student learning in the United States: The hurt could last a lifetime.* Erişim adresi: https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-student-learning-in-the-united-states-the-hurt-could-last-a-lifetime

Shmis, T., Sava, A., Teixeira, J.E.N., & Patrinos (2020). Response to covid-19 in Europe and Central Asia. *Europe and Central Asia Education World Bank Group, May 1.* Erişim Adresi: http://pubdocs.worldbank.org/en/862141592835804882/ECA-Education-Response-Note-v9-final.pdf

Emin, M.N. (2020). Koronavirüs salgını ve acil durumda eğitim. *SETA Perspektif, 268*, 1-3. Erişim Adresi: https://setav.org/assets/uploads/2020/04/P268.pdf

Hattie, J. (2020), *Visible Learning Effect Sizes When Schools Are Closed: What Matters and What Does Not*. Erişim Adresi: https://opsoa.org/application/files/2215/8689/0389/Infuences-during-Corona-JH-article.pdf

Hill, H.C., & Loeb, S. (2020). Teachers will need to work together to uncover missed learning. *Education Week Group Online Access, May 2020.* https://www.edweek.org/ew/articles/2020/05/28/how-to-contend-with-pandemic-learning-loss.html

Kim, J.S., & White, T.G. (2011). Solving the Problem of Summer Reading Loss. *Kappan, 92*/7, 64-68. Erişim Adresi: https://scholar.harvard.edu/files/jameskim/files/prof_pub-pdk-white-2011-summer_loss.pdf

LesEchos. (2020). *Coronavirus: Entre 5 et 8 % des élèves» sans continuité pédagogique depuis la fermeture des écoles*. Erişim Adresi: https://www.lesechos.fr/politique-societe/societe/coronavirus-5-et-8-des-eleves-sans-continuite-pedagogique-depuis-la-fermeture-des-ecoles-1190583

Leylum, O.Ş., Odabaşı, H.F., & Kabakçı Yurdakul, I. (2017). Eğitim ortamlarında durum çalışmasının önemi. *Eğitimde Nitel Araştırmalar Dergisi-Journal of Qualitative Research in Education,* 5(3), 369-385. Doi: 10.14689/issn.2148- 2624.1.5c3s16m

Lorié, W. (2020). *Contextualizing COVID-19 "Learning Loss" and "Learning Recovery".* Erişim Adresi: https://www.nciea.org/blog/school-disruption/contextualizing-covid-19-learning-loss-and-learning-recovery

McKinsey & Company. (2020). *COVID-19 and student learning in the United States: The hurt could last a lifetime.* Erişim Adresi: https://www.mckinsey.com/~/media/McKinsey/Industries/Public%20Sector/Our%20Insights/COVID-19%20and%20student%20learning%20in%20the%20United%20States%20The%20hurt%20could%20last%20a%20lifetime/COVID-19-and-student-learning-in-the-United-States-FINAL.pdf

Neuman, W.L., & Robson, K. (2014). *Basics Of Social Research.* Toronto: Pearson Canada.

Neuman, L.W. (2014). *Social Research Methods: Qualitative And Quantitative Approaches*. Essex: Pearson Education Limited.

New Mexico Legislative Financa Committee. (2020). *Learning Loss Due to COVID-19 Pandemic.* Erişim Adresi: https://www.nmlegis.gov/Entity/LFC/Documents/Program_Evaluation_Reports/Spotlight%20-%20Learning%20Loss%20Due%20to%20COVID-19%20Pandemic.pdf

Kuhfeld, M., & Tarasawa, B. (2020). *The COVID-19 slide: What summer learning loss can tell us about the potential impact of school closures on student academic achievement.* NWEA. Erişim Adresi: https://www.nwea.org/content/uploads/2020/05/Collaborative-Brief_Covid19-Slide-APR20.pdf

OECD. (2020). *Education responses to COVID-19: an implementation strategy toolkit.* OECD Publishing, Paris. doi.org/10.1787/81209b82-en

Reimers, F., & A. Schleicher. (2020). *Educational Opportunity during the COVID-19 Pandemic*. https://www.hm.ee/sites/default/files/framework_guide_v1_002_harward.pdf

Rivera, K.D., & Tracy, S.J. (2012). Arresting the American dream: Patrolling the borders of compassion and enforcement. In S. May (Ed.), *Case studies in organizational communication: Ethical perspectives and practices,* 2nd ed. (pp. 271-284). Thousand Oaks, CA: Sage.

Robson, D. (2020). *How Covid-19 is changing the world's children.* Erişim Adresi: https://www.bbc.com/future/article/20200603-how-covid-19-is-changing-the-worlds-children

Shenton, A.K. (2004). Strategies for Ensuring Trustworthiness in Qualitative Research Projects. *Education for Information, 22*, 63-75. https://doi.org/10.3233/EFI-2004-22201

Thu Huong, L., & Na Jatturas, T. (2020*). The covid-19 induced learning loss – what is it and how it can be mitigated?*. Erişim Adresi:https://www.ukfiet.org/2020/the-covid-19-induced-learning-loss-what-is-it-and-how-it-can-be-mitigated/

Tiruneh, D.T. (2020). *COVID-19 school closures may further widen the inequality gaps between the advantaged and the disadvantaged in Ethiopia.* Erişim Adresi: https://www.ukfiet.org/2020/COVID-19-school-closures-may-further-widen-the-inequalitygaps-between-the-advantaged-and-the-disadvantaged-in-ethiopia/

How does COVID19 impact education? (2020, Mart, 25). <http://pubdocs.worldbank.org/en/450881585235950757/COVID19-Education-Sector-Guidance-Note-March26.pdf>