


Disaster Education in Primary School: A Qualitative Research Based on Teachers' Opinions

Görkem Avcı, Assist. Prof. Dr., Bartın University, gorkem.avci.35@gmail.com

 0000-0002-4489-1613

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Abstract

This study aims to reveal the opinions of classroom teachers on disaster education in primary school. The study was conducted within the scope of phenomenology, one of the qualitative research methods, with 22 classroom teachers working in different regions of Turkey in 2020-2021 academic year. The study data was collected with the semi-structured interview method, and the collected data was analysed through content analysis. As a result of the study, it was determined that classroom teachers have knowledge and awareness about the concept of disaster, that disaster education is an urgent necessity for Turkey, and that disaster education is indispensable for preparing for disasters. In addition, it was stated that disaster education should be given through doing-living experiences and that these should be applied and made permanent. It has been determined that technology-supported disaster education provided using different teaching methods-techniques should not be limited to classrooms and be benefited from other environments. As a result, it was demonstrated that it is necessary to benefit from the power of education on the way to "Turkey Ready for Disasters" and "Education Year for Disasters" and that disaster education in primary school should be operative, permanent, concrete, doing-living, outdoor and technology supported.

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INTRODUCTION

Disaster is defined as the consequence of the inability to reduce the possible negative effects of events and vulnerability to hazards (Dey & Singh, 2006). In a more comprehensive definition, a disaster is the whole of nature, technology or human-induced events that cause losses in many different aspects of society, stop, or disrupt life and human activities and that the society affected by is insufficient in coping with (Disaster and Emergency Management Authority [AFAD], 2014). An increasing number of people are being affected by the effects of disasters worldwide (Codreanu et al., 2014). Disasters, which are the reflections of natural or human-induced events that cause conflicts, material-life losses, physical destruction, and economic problems, are global events that undoubtedly concern every society and country (Royagan, 2019). Although the importance placed on natural or human-induced disasters varies depending on a country's economic and political circumstances, disaster preparedness has become critical for many countries (Kitagawa, 2015). Many countries educate their populations for disasters to contribute to national security and mitigate potential damage and loss of life, although they make these preparations differently (Adiyoso & Kanegae, 2012; Chadderton, 2015; How et al., 2020). The lack of awareness of disasters is the most effective factor in the inadequacy of today's conditions against disasters and numerous losses of lives and property (Şengün & Küçükşen, 2019). The individuals correctly educated against disasters can prevent the consequences that risk their lives and many others. Undoubtedly, disaster preparedness is a priority in all parts of the world. Therefore, education against disasters to increase awareness is of vital importance for people and countries (Tsai et al., 2020).

An increasing number of people are being affected by disasters worldwide (Codreanu et al., 2014), and interest in disaster education has recently increased (Mangione et al., 2013; Torani et al., 2019). The term disaster education is derived from school safety in the current multi-hazard framework. As can be understood from this, disaster preparedness also includes school safety, a very important matter (Kitawaga, 2015). Regardless of what it is named, the preparedness of society, especially the youth and even students against disasters, is important (Irawan et al., 2018). Disasters, which strike regardless of race, gender, age and location (Adiyoso & Kanegae, 2012), are increasing worldwide. Today, disaster education is accepted as the only effective way to prevent disasters or reduce their effects in acquiring knowledge and transforming this achievement into action with technological progress (Torani et al., 2019). Disaster education is an important educational process that helps people learn what to do before, during and after a disaster or emergency, it provides a prevention and recovery process against many disasters (Duffy, 2018). Minimising the losses that occur in disasters is only possible with the awareness and education of society about disasters (Sever & Değirmenci, 2019). Undoubtedly, disaster education is gaining importance due to the increasing variety and visibility of disasters on both local and global scales.

Today, countries and international organisations emphasise the importance of disaster education (How et al., 2020). In line with this importance, many international studies have been carried out on disaster education (Mızrak, 2018). Although disaster education is a new branch of research in education (Preston, 2012), studies on disaster education have diversified and increased in recent years (Koç, Şeker, Evcı & Doğan, 2020). The examination of the literature has revealed that there have been studies on the concept of Disaster (Cin, 2010; Değirmenci, 2019; Dikmenli & Gafa, 2017; Mönter & Otto, 2018) and types of Disaster (Rosidin & Suyatna, 2017), Disaster education theory (Fuhrmann et al., 2008; Koca, 2020; Mangione et al., 2013; Mızrak, 2018; Şengün & Küçükşen, 2019), Literature Reviews (Johnson et al., 2014; Sözcü, 2020; Torani et al., 2019), Disaster literacy (Sözcü & Aydınöz, 2019), school-based disaster education (Buitink, 2009; Sakurai et al., 2020; Shiwaku, 2011; Thi & Shaw, 2016), society based disaster education (Parajuli, 2020), disaster awareness (Pınar, 2017; Rogayan & Dollete, 2020; Sapsağlam, 2019), disaster experiences (Aksoy, 2013; Tuswadi & Hayashi, 2014; Yeon et al., 2020), education of disaster-related subjects (Gampell et al., 2020; Karataş, 2011; Tsai et al., 2015;

Tsai et al., 2015; Tuswadi & Hayashi, 2014; Yamori, 2009; Zavar & Nelan, 2020), textbook reviews (Tian et al., 2018), attitudes on Disasters and disaster education (Nakano et al., 2020), new approaches (Duffy, 2018; Rivera & Miller, 2008), country-wide disaster education and program reviews (Boon & Pagliano, 2015; Chadderton, 2015; Gwee, Takeuchi, Jet-chau & Shaw, 2011; Kitagawa, 2015; Sharpe & Kelman, 2011; Shiwaku, et al., 2007; Shoji et al., 2020; Tanaka, 2012; Zhu & Zhang, 2020), student perceptions on disasters (Coveleski, 2014), on the effects of disasters on children (Adebäck et al., 2018; Adiyoso & Kanegae, 2012; How et al., 2020; Mudavanhu, 2014; Peek et al., 2017), prospective teacher perspectives (Öcal, 2007) and teacher perspectives (Yusoff, et al., 2019) and teacher opinions (Çelik, 2020; Kırıkkaya & İmalı, 2013; Kırıkkaya, Oğuz-Ünver & Çakın, 2011; Maya & Sarı, 2018; Sarı, 2016; Taş, 2003; Turan & Kartal, 2011).

When the studies on disaster education were evaluated, it was determined that they were focused on students' awareness and knowledge levels on disasters, disaster education programs in schools, how this issue is portrayed in the media, attitudes and perspectives on disasters, education on disasters, planning and intervention for disasters, and student and teacher opinions on disaster education (Koç et al., 2020) and that the number of studies on the importance of disaster education in primary school is limited. As demonstrated by the review of the literature, the studies on disaster education practices in Turkey are quite inadequate. Communication with teachers is a critical factor in our education system, and disaster education needs to achieve its goals and be implemented without problems (Maya & Sarı, 2018). In this context, this study is important in evaluating the current situation in line with the views and experiences of classroom teachers and revealing the deficiencies in a multidimensional way.

It is believed that the disaster preparedness levels of teachers, who are the implementers of education, can be determined with this study and that it is significant as it will allow existing disaster education implementations at the primary school level to be structured in a better manner by determining their deficiencies by obtaining the opinions of teachers. The idea that teachers' level of preparedness for disasters will affect their students' gaining accurate knowledge, awareness, and experience about disasters is thought to be another indicator of the importance of the research (Çelik, 2020). In the scope of the fact that we live in a country of disasters and that classroom teachers are among the most important actors in dealing with this situation, it is critical to reveal their effects and suggestions on our children, who are the most vulnerable members of our society and our future, as well as revealing the deficiencies. Therefore, this study aims to reveal the opinions of classroom teachers on disaster education and disaster education in primary school. Within the framework of this purpose, answers were sought to the following questions:

Research Question 1. What is the knowledge and awareness of classroom teachers about the concept of disaster and disasters?

Research Question 2. What are the views of teachers on disaster education?

Research Question 3. What are the self-sufficiency views of the classroom teachers on the education of disaster-related subjects?

Research Question 4. What are the opinions of classroom teachers on ideal primary school disaster education?

METHOD

RESEARCH DESIGN

In this study, which aims to reveal the opinions of classroom teachers on disaster education and disaster education in primary school in an in-depth manner, the qualitative research method was employed. Phenomenology was employed as the research design in this study. Since the study aims to

demonstrate the awareness and knowledge levels, self-sufficiency statuses, ideal disaster education suggestions, and teachers' experiences in a detailed manner, the phenomenological approach was adopted. Phenomenology studies are used to make sense of the common experiences of individuals about a concept or phenomenon (Creswell, 2007). The phenomenon in this study is the phenomenon regarding applications of Disaster education at the primary school level. "To describe the essence of a phenomenon by exploring it from the perspective of those who experienced it so as to understand the meaning participants ascribe to that phenomenon" (Therani, et al., 2015: 670). In this study, classroom teachers who have experienced the process personally make up the phenomenon.

STUDY GROUP

The criterion sampling method, one of the purposive sampling methods, was used to determine the interviewed teachers (Palinkas, et al., 2015). Purposeful sampling enables the in-depth study of cases that are considered to possess rich information (Patton, 1990). In order to obtain in-depth and varied information on the subject, it was ensured that the assignment locations (Antalya, Artvin, Bartın, Bingöl, Düzce, Elazığ, Erzincan, İstanbul, İzmir, Kastamonu, Muğla, Muş, Trabzon, Van) of the teachers are faced with different disasters. All participants experienced different types of disasters (Earthquake, Flood, Landslide, Drought, Avalanche, et. al.) at least once and are knowledgeable about the type of disaster they have experienced. In this context, it was attempted to establish a criterion by selecting teachers from seven different regions in Turkey since disasters affect different regions of Turkey differently. Moreover, attention was paid to ensure that teachers had taught four grade levels at least once. Interviews were held with 22 classroom teachers, 12 women and 10 men, in the fall semester of 2020-2021. These teachers are graduates of the classroom teaching undergraduate program and have 5-25 years of professional experience. In addition, while some of the teachers are graduates or continuing their postgraduate education, some of them work as school principals or assistant principals.

DATA COLLECTION

In order to elicit the opinions of classroom teachers on disaster education in primary schools, a semi-structured interview form consisting of open-ended questions was prepared by the researcher. Semi-structured interview questions prepared on the subject were first presented to three field experts, and necessary corrections were made in line with their feedback to give the form its final shape. In addition, a pilot interview was conducted with two teachers who were not in the study group and met the specified sampling criteria to test the comprehensibility and appropriateness of the interview questions. The data obtained from these teachers were not included in the study. After obtaining the necessary permissions, the researcher conducted the interviews online (with audio and video recording). The interview form consists of 12 open-ended questions.

DATA ANALYSIS

The participant opinions and experiences obtained within the scope of the study were analysed by content analysis to obtain in-depth data. Content analysis is a qualitative data analysis method that includes organising, classifying and comparing the obtained findings and reaching theoretical results (Cohen et al., 2007). The teachers' opinions were read in detail, divided into units, and coded using content analysis. Codes close to each other in meaning that had similar features were gathered together to form categories. The answers given by the teachers to the semi-structured interview questions were collected under themes and categories, and the created code was evaluated by calculating the frequency values. Two experts performed the analyses of the interviews at different times. Direct quotations from the answers given by the teachers to the interview questions were presented together with the analyses to increase credibility. In addition, codes such as Participant 1 (P1), Participant 2 (P2), and so forth were used instead of the participants' real names due to ethical concerns.

FINDINGS

In this section, the findings of the research are given under headings according to research questions.

FINDINGS REGARDINGS THE FIRST RESEARCH QUESTION

Participants’ knowledge regarding the concept of disaster is given in Table 1.

Table 1. *Participants’ Knowledge Regarding the Concept of Disaster*

<i>Themes</i>	<i>Categories</i>
Social Effect	Negative Events (P8, P12, P15, P16, P17, P18, P19)
	Effects on Society and Environment (P8, P10, P13, P15, P17, P18, P22)
	Loss of Property and Life (P1, P7, P8, P16, P19, P21)
	Material Damage (P1, P3, P7, P8, P10, P11)
	Life Disrupting Events (P6, P8, P12, P13)
	Chain-Sequence of Events (P5, P14, P16, P21, P22)
	Bureaucratic Problems (P2)
Psychological (Individual) Effect	Negative Events (P8, P12, P15, P16, P17, P18, P19)
	Material Damage (P1, P3, P7, P8, P10)
	Moral Damage (P1, P2, P3, P6, P7)
	Being Deeply Affected (P2, P4)
Natural Event	Experience (P7, P10)
	Nature-Human Induced (P1, P3, P8, P14, P16, P18, P22)
	Natural events (P7, P14)
	Effects on Living Beings (P12)
	Physical Loss (P11)
	Destructive Effect (P5)

As demonstrated by Table 1, the participants’ perceptions regarding the concept of disaster were collected under three different themes. When the categories in the theme of social impact were examined, it was seen that the participants emphasised the aspect of disasters that disrupt and deeply affect social life. The views of Participant 12, who emphasised the negative aspects of disasters, are given below:

“When we think of disasters, we think of events that negatively affect the lives of people and all other living beings, disrupt their lives, or prevent them from continuing their lives normally.” (P12).

As seen from the quote above, disasters negatively affect social life activities and daily life dynamics that are considered normal. Participants in the loss of life and property category drew attention to how disasters cause losses in both lives and property. To represent the views of the participants in this category, the views of the participant coded P7 are given below:

“I think of material or moral damages that occur as a result of events in nature. We have experienced this here. Disasters damage many individuals and cause losses in both life and property for many people. I haven’t suffered from such disasters, but many in my family have.” (P7).

As emphasised in the quote above, disasters cause human deaths and have negative material and moral effects on the lives of the survivors. Participant 2, who is in the category of bureaucratic problems, drew attention to the fact that the country experienced administrative difficulties due to disasters.

The participant in the psychological effect theme emphasised the personal effects of disasters. Since disasters generally cause loss of life and property, they have traumatic effects on individuals. Participant 6, who is in the category of moral damage, emphasised that disasters wear out people emotionally. However, the participants in the experience category explained the concept of disasters through their prior experiences of earthquakes and expressed their negative effects on their psychology.

Participants in the natural event theme drew attention to the fact that disasters are a reality of natural life. They emphasised that not just humans but all living beings are negatively affected by disasters. On the other hand, despite them being described as natural events, the influence of humans in the increasing number and severity of disasters were emphasised.

Participants’ knowledge regarding the disasters is given in Table 2.

Table 2. *Participants’ Knowledge of Disasters*

<i>Themes</i>	<i>Categories</i>
Natural Disasters	Earthquake (P1, P2, P3, P4, P5, P7, P8, P9, P10, P11, P13, P14, P15, P16, P17, P18, P19, P20, P21)
	Avalanche (P1, P2, P3, P4, P5, P7, P8, P11, P12, P13, P14, P16, P18, P19, P21)
	Flood (P1, P2, P3, P5, P7, P8, P9, P11, P12, P13, P14, P15, P16, P19, P20)
	Tsunami (P2, P3, P7, P8, P11, P12, P13, P14, P16, P17, P18, P20, P22)
	Landslide (P1, P3, P7, P9, P11, P16, P17, P20, P22)
	Tornado (P1, P3, P12, P16, P21, P22)
	Cyclone (P3, P7, P12, P15, P16, P19)
	Erosion (P3, P5, P11, P16, P22)
	Drought (P2, P3, P4, P11, P18)
	Volcanic Eruptions (P3, P12, P16, P22)
Storm (P7, P11, P16, P22)	
Human-Induced Disasters	Fire (P1, P3, P4, P5, P7, P11, P12, P13, P16, P17, P19)
	Epidemics (P3, P4, P5, P8, P9, P10, P15, P16, P18)
	Global Warming (P3, P8, P9, P11, P15, P18, P21)
	Famine (P3, P4, P8, P15, P18)
	Pollution (P3, P19)
	Nuclear Disasters (P5, P19)
	Wars (P2)
	oBiological Warfare (P5, P11)
	oNaval Warfare (P4)
oChemical Warfare (P5)	
oTechnological Warfare (P11)	
Events	Frequency (P4, P7, P11, P13, P14, P16, P18, P2)

As demonstrated by Table 2, the participants’ knowledge regarding disasters were collected under three different themes. Examination of the categories in the theme of natural disasters reveals that the participants stated these events that had the most impact on social life, left lasting effects and were the most common, both in the country and the region. Participant 7 stated her opinions regarding the natural disasters that occur in Turkey most frequently:

“The most frequent ones we see are earthquakes, floods and storms. As you may know, a Russian ship sank a few days ago due to a storm. Landslides also occur in our country frequently. It doesn't

happen here (Black Sea), but we experienced an avalanche in the east, and our soldiers were caught under it. Erosion is our country's general problem, and there is always forest fires. It didn't occur too many times this year, but forest fires are among the largest natural disasters.” (P7).

As can be seen in the quotations above, natural events such as earthquakes, floods, avalanches and forest fires that frequently occur in Turkey negatively affect human life materially and morally and leave negative effects on human memory. The disasters in question occur frequently, and some are even discussed globally. Undoubtedly, disasters can occur naturally as well due to humans. Participants in the theme of human disasters emphasised that humans cause disasters and that people are often the cause of life and property loss. To represent the views of the participants in this theme, the views of Participant 7 are given below:

“...when I watched people who drowned in mud in the city (İzmir-Buca) I was watching during a flood, those images are engraved in my head, and I cannot forget their effects. I believe that humans are the cause for it to some extent, because if those areas were afforested in time or if the existing trees were preserved, at least this disaster wouldn't have happened.” (P11).

As emphasised in the quote above, disasters leave negative memories in people's psyches. Both those who lost relatives and those affected by disasters directly are permanently affected by the consequences of disasters, including people who are not affected by them directly. Negative thoughts that have taken root in people's memories resurface when disasters come up. They experience the same negative thoughts even if they are not affected by that disaster, which partially affects social life.

The participants of the theme of experienced events emphasised that disasters frequently occur, that society suffers at different times and that disasters are inevitable for our country.

FINDINGS REGARDINGS THE SECOND RESEARCH QUESTION

Participants’ knowledge regarding disaster education is given in Table 3.

Table 3. Participants’ Knowledge Regarding Disaster Education

<i>Themes</i>	<i>Categories</i>
Disaster preparedness	Minimising possible damages (P1, P2, P4, P8, P10, P13, P15, P18, P19)
	Pre-Disaster Preparations (P1, P2, P3, P7, P8, P12, P13, P21)
	Individual education (P10, P11, P12, P15, P16, P18)
	State of Preparedness (P4, P7, P10, P12, P14)
	Social education (P2, P4, P5, P18, P19)
	Applied Education (P2, P9, P14, P17)
	Education for high-probability disasters (P1, P2)
Raising Awareness	Things To Do Post-Disaster (P1, P2, P3, P7, P8, P12, P13, P19, P20, P21, P22)
	Raising Awareness (P3, P7, P8, P11, P14, P16, P18, P19)
	Things to Do During Disaster (P1, P2, P3, P12, P13, P19, P21)
	Lifelong learning (P2, P11, P22)

As demonstrated by Table 3, the participants’ perceptions regarding disaster education were collected under two different themes. Examination of the categories included in the disaster preparedness indicates that the participants emphasised being prepared for disasters and that this should be done before a disaster occurs. The views of Participant 1, who emphasised an effective disaster education, are as below:

“Disaster education is the whole of educations given to people to know what to do before, during and after a disaster to minimise the possible damages. That is, it is not possible to prevent the disasters anyway, so it is for minimising the possible damages.” (P1).

As seen from the quote above, ensuring that disaster education achieves its goals is only possible by providing it before disasters. Participants in the theme of raising awareness drew attention to the importance of individuals being conscious about disasters before it occurs, knowing what should be done during a disaster, and being aware of the process in order to accelerate the transition to normal living conditions after the disaster in terms of social recovery. To represent the views of the participants in this category, the views of Participant 5 are given below:

“Disaster education is a general concept. Therefore, I think not only of formal education but the entire society. Therefore, when I think of disaster education, I think of raising awareness, being ready for possible problems, and becoming aware of how disasters can be endured with minimal damage.” (P5).

As emphasised above, disaster education is a process that includes the period before, during and after disasters. Each process has its steps, and each is important in its own way. Undoubtedly, individuals and society should be educated about disaster processes to prevent losses, especially human life, or minimise the damage.

Participants’ opinions regarding disaster education are given in Table 4.

Table 4. Participants’ Opinions Regarding Disaster Education

Themes	Categories
Damage Prevention	Disaster Preparedness (P4, P5, P6, P7, P9, P11, P12, P13, P14, P15, P16, P20, P21, P22)
	Minimising possible damages (P1, P2, P3, P6, P8, P10, P16, P17, P19)
	Preventing Losses of life and property (P1, P2, P8, P11, P12, P19)
	Awareness (P5, P9, P13, P14, P15, P18, P19)
Vital importance	Necessity (P1, P3, P4, P5, P6, P9, P10, P15, P16, P17, P18)
	Disasters in Turkey (P1, P3, P4, P5, P7, P9, P10, P12, P13, P14, P17)
	Disaster Experience (P1, P3, P4, P5, P18)
	Lack of Knowledge (P5, P6, P14)
Recovery	Normalisation (P6, P18, P20, P21)
	Benefitting (P2, P9, P18, P22)

As demonstrated by Table 4, the participants’ opinions regarding disaster education were collected under three different themes. Examination of the theme of preventing damages category reveals that the participants emphasised the importance of disaster education in minimising the damages and preventing/reducing losses of life and property. To represent the views of the participants in this category, the view of the participant coded P19 is given below:

“The importance of disaster education is in raising awareness, minimising the loss of life and property, and informing the society about this issue. Increasing the society’s level of knowledge can prevent wrong behaviour during a disaster and minimise the losses of life and property.” (P19).

As seen in the quotations above, preventing or minimising the damages caused by disasters before they occur is the most fundamental importance of disaster education. When the categories in the vital importance theme were examined, it was seen that the participants emphasised the necessity of disaster education in our country, how our country faces different types of disasters at different times, and how there have been negative experiences due to ignorance about disasters. To represent the views of the participants in this category, the views of Participant 4 are given below:

“Disaster education is absolutely a necessity because we suffer disaster-related problems each year. If just count the ones in 2020, we had an avalanche in Van, and I am not talking about smaller earthquakes because we have earthquakes magnitude four that occur in Van. The things that happened in Elazığ and Izmir, forest fires... These things happen constantly” (P4).

As emphasised in the quote above, it can be seen that the variety of disasters that our country often faces generally have negative consequences. In line with this, since our country is a country of disasters, the participants drew attention to the importance of disaster education. Examination of the categories in the recovery theme reveals that the participants emphasised the importance of disaster education in returning society to normal conditions after the disaster, the emotional recovery of individuals, and ensuring that the negative effects on society is not permanent.

The Participants’ Opinions on the methods that can be used to make disaster education more effective in primary school are given in Table 5.

Table 5. Participants’ Opinions Regarding Methods for Disaster Education

<i>Themes</i>	<i>Categories</i>
Learning	Learning by doing/experience (P1, P2, P3, P4, P5, P6, P8, P10, P11, P12, P13, P18, P19, P21, P22)
	Permanent learning (P5, P7, P10, P11, P12, P13, P15)
	Learning through authorised individuals/institutions (P3, P9, P11, P12, P16, P22)
Education	Technology-Assisted Methods (P1, P2, P3, P4, P9, P10, P11, P12, P13, P15, P18, P19, P22)
	Outdoor education (P1, P2, P4, P10, P12, P13, P16, P17, P18, P19, P20)
	Applied Education (P1, P5, P6, P10, P13, P16, P19, P21)
	Relative-Concrete Education (P2, P11, P15, P18, P19, P20)
	Material assisted (P2, P5, P6, P19)
	Drama (P3, P12, P14, P15)
	Principle of Currency (P6, P19, P20)
	Showing and Doing (P15, P22)
	Educational Games (P13, P14)

As demonstrated by Table 5, the methods-approaches-techniques of participants’ regarding disaster education were collected under two different themes. Examination of the categories of preventing damages theme reveals that the participants emphasised that the learning process in disaster education will become more effective by doing and experiencing. In contrast, the participants, who drew attention to the importance of permanent learning in disaster education, emphasised that effective learning would occur if authorised experts give disaster education. The views of Participant 11, who emphasised an effective disaster education, are as below:

“theoretical knowledge is insufficient. It is just memorised and is forgotten very quickly. We can create disaster awareness in children by doing, living, experiencing or by producing these disasters in virtual environments and making their effects visible and concrete.” (P11).

As can be seen in the quotations above, it is believed that permanent disaster education can be achieved through learning-doing method, which will allow the realisation of an efficient educational process. Examination of categories in the teaching theme demonstrates that the participants underlined that there should be a technology-supported teaching process in the education of disaster themes, the practices should be done outside the classroom, and different teaching methods-techniques should be used considering the age and development of the students. To represent the views of the participants in this theme, the views of the participant coded P13 are given below:

“I believe in-class education is insufficient. To ensure permanency in education, I believe the children should be given education through doing and experiencing. It is impossible to increase permanency regarding an event that is not experienced. We need to prefer out-of-class and simulation environments where we can experience current disasters” (P13).

The quotations above state that disaster education should be realised through experiencing, using technology-supported outdoor environments, factoring in the students’ developmental levels, and using different teaching methods-techniques.

The suggestions of participants regarding disaster education in primary schools are given in Table 6.

Table 6. Participants' Suggestions Regarding Disaster Education

<i>Themes</i>	<i>Categories</i>
Education	Age Appropriateness (P6, P7, P8, P9, P12, P14, P15, P18, P20, P22)
	Active Learning Experiences (P7, P11, P13, P14, P17, P18, P20)
	Simulation Use (P2, P18, P20)
	Authorised-expert educators (P17, P19)
	Fun learning environments (P14)
	Close to far principle (P13)
Program	Required Course (P1, P4, P11, P12, P18, P20)
	Cyclical Approach (P6, P7, P10, P12, P14, P20)
	Primary School-Based (P1, P7, P17, P19)
	Interdisciplinary approach (P6, P8, P9, P11)
Improvement	Lifelong learning (P4, P7, P8, P12, P13, P15, P20)
	Informal education (P3, P12, P13, P20)
	Increasing Education Programs (P1, P2, P7)
	Teacher training (P2, P14)
	Disaster Literacy (P2)
	Parent training (P2)

As demonstrated by Table 6, the participants' suggestions regarding disaster education were collected under three different themes. Examination of categories in the teaching theme demonstrates that the participants emphasised that disaster education should be done with the relativity principle using the active teaching methods. The views of Participant 8 regarding suggestions for disaster education are as below:

"I don't believe disaster education has an age because we live in a disaster area... Disaster education should be given at the primary school level implicitly. For example, if a landslide is being discussed, a simple mechanism should be built to demonstrate the event to the children." (P8).

As seen with the quotation above, relativity to children is important due to many factors and including the students in the process is critical. Examination of the categories in the curriculum theme reveals that the participants emphasised the necessity of including a course on disasters in the scope of disaster education in primary schools and how providing this course in a cyclical structure will increase its effects. To represent the views of the participants in this category, the views of Participant 11 are given below:

"First, disaster courses should be mandatory because disasters affect the lives of humans and other beings in nature. Outdoor educations, applications and practices should be included. Disasters should not be just the subject for social studies and life studies courses. They should be included in Turkish course texts and be a theme for painting courses. For example, a painting can be made regarding what should be done during a disaster. Alternatively, they should be included in music courses. The effect of a fire, disaster, flood, erosion should be brought into our lives through all courses." (P11).

The quote above shows that disaster education is among the necessities of human life, and it is important that this education is compulsory at an early age. Examination of the categories in the improvement theme reveals that the participants emphasised that disaster education should benefit society with non-formal education within the scope of lifelong learning. On the other hand, the participants pointed out that the activities to be organised within the scope of disaster education

should be increased and disseminated. The views of the Participant 22 are given below to represent the participants’ opinions on this issue, which is important for the general population:

“Disasters don't discriminate between ages or individuals. Ignorance is more lethal than earthquakes (disasters) anyway. If we were a little more aware, calm, and cautious, the number of lives and property loss would be smaller. Perhaps we would get through it with a little less damage. Theoretical disaster educations should be provided based on age ranges and levels.” (P22).

FINDINGS REGARDINGS THE THIRD RESEARCH QUESTION

Information of the participants regarding whether they would receive education for the teaching of disaster-related subjects is given in Table 7.

Table 7. Disaster Education Demands of the Participants

<i>Themes</i>	<i>Categories</i>
Development	General Need (P3, P6, P10, P11, P14, P15, P18, P20)
	Personal development (P1, P12, P13, P16, P22)
	Qualified Education Demand (P5, P9, P16, P17, P19)
	Professional development (P4, P21)
Necessity	Vital importance (P2, P7, P8, P21)

As demonstrated by Table 7, the participants’ demands for disaster education were collected under two different themes. Examination of the categories of the development theme reveals that the participants emphasised reasons such as it being a general need and a necessity for individual and professional development, among the reasons for demanding to receive a qualified disaster education. The views of Participant 2, who stated that disaster education is an important need for the teaching profession, are given below:

“To be honest, I didn't see the need for receiving disaster education until the last one or two years. But when the number of disasters increased, we, as teachers, saw that it was a need. I have a child, a wife, a family at home. It is not just a thing that we see on television. It can one day happen to us, or it can happen while we are at school. We are responsible for the children while at school, so I definitely would like to receive disaster education.” (P2).

As can be seen in the quotations above, the participants emphasised that they desire to receive qualified education as disasters affect themselves, their families, their environment and their students. The participants in the theme of necessity emphasise reasons such as minimising the losses in life and property, saving lives of living beings, and surviving, as the reasons for demanding to receive qualified education. The views of Participant 8, who emphasised the vital importance of disaster education, are as below:

“Of course, I would like to receive disaster education because knowing how to act would make me feel more secure for both my family and myself. Knowing what to do after a disaster makes me feel calm, and knowing that I would be of benefit to others eases my conscience.” (P8).

Information on the self-sufficiency levels of the participants regarding disaster education is given in Table 8.

Table 8. Participants’ Self-sufficiency Levels Regarding Disaster Education

<i>Themes</i>	<i>Categories</i>
Basic Knowledge level	Basic Knowledge level (P5, P8, P19)
Inadequacy	Lack of Knowledge and Skill (P1, P2, P3, P5, P9, P10, P14, P18, P20, P21)
	Lack of Skill and Practice (P5, P8, P12, P15, P16, P17, P22)
	Lack of knowledge (P6, P11)

As shown in Table 8, the participants' disaster education self-sufficiency levels were collected under two different themes. Participants in the theme of basic knowledge level pointed out that they only have basic knowledge about disasters and that this is insufficient. The views of Participant 11, who emphasised that she does not have enough knowledge and skills regarding disaster-related subjects, are as below:

"I do not consider myself fully competent in disaster-related matters. I can introduce disaster-related topics to primary school students. I can inform them, but I can't educate them." (P19).

As seen in the quotations above, the participants stated that they had basic knowledge, albeit insufficient. Examination of the categories in the inadequacy theme indicates that some participants were insufficient in knowledge and application in general terms, and some were insufficient only in the application part. To represent the views of the participants in this category, the views of Participant 16 are given below:

"No, I do not see myself as adequate. Because I received some education, but I believe that they would have been more effective if they were hands-on. Yes, I have knowledge and skills regarding disaster-related subjects, but I don't think it is enough." (P16).

Participants stated that they had deficiencies in terms of both theory and practice regarding disaster-related subjects. At this stage, the self-sufficiency that teachers should have in order to acquire and apply vital knowledge becomes critically important.

The participants' opinions on the qualifications that teachers who will provide disaster education in primary school should have are given in Table 9.

Table 9. Participants' Opinions Regarding Teachers Who Will Provide Disaster Education

Themes	Categories
Personal characteristics	Being Open to learning, innovation, and development (P3, P4, P5, P7, P, P8, P10, P11, P20)
	Equipment (P1, P5, P15, P17, P21)
	Disaster Awareness (P4, P16)
	Responsibility (P4, P21)
	Volunteering (P2, P9)
	Experience (P18)
Education characteristics	Active Teaching Methods (P1, P5, P14, P17, P19, P20)
	Knowledge of Disaster-Related Subjects (P3, P6, P8, P9, P12, P13)
	Relativity-Suitability to Student (P8, P12, P14, P22)

As demonstrated by Table 9, participants' opinions regarding teachers who will provide disaster education were collected under three different themes. Examination of the personal characteristics theme categories reveals that the participants emphasised that a teacher needs to be open to learning, development, and innovation to provide a qualified disaster education. On the other hand, the participants emphasised that teachers should be equipped against disaster types, feel responsible, and have a high awareness of the importance of disasters. The views of Participant 3, who emphasised the characteristics of qualified teachers who will provide disaster education, are given below:

"They should be well-equipped with information. The teacher should have sufficient levels of knowledge, experience and skills. The teacher should take advantage of technology, and she must know how to use it. She needs to be open to self-development and learning and have curiosity." (P3).

As seen in the quotation above, a qualified disaster educator must have willingness regarding disaster education, keep up to date with the topics, and benefit from technology and innovations. Participants in the theme of teaching characteristics pointed out that methods-techniques that will enable the students to participate actively in the process instead of being passive listeners should be preferred in the education of disaster-related subjects. Additionally, the participants stated that the

teachers who will provide disaster education should have a good command of disaster-related subjects and that the subjects/contents should be taught to the students appropriately during the teaching process. To represent the views of the participants in this category, the views of the Participant 14 are given below:

“These subjects should be taught at the primary schools by making them tangible and fun. At this point, educating the primary school group by making it tangible via educational games is critical. The middle school group and high school students are a little bit different. At that point, educational activities or methods-techniques that are suitable for each level should be applied. In particular, making the subjects tangible instead of just presenting them should be more beneficial.” (P14).

As emphasised by the quote above, the teachers who provide disaster education should pay attention to many factors in and out of the classroom. Acquiring disaster education competencies in addition to teaching competencies is especially important for students.

FINDINGS REGARDINGS THE FOURTH RESEARCH QUESTION

The participants' views about the place of disaster-related subjects in primary school curricula and textbooks are given in Table 10.

Table 10. *The Participants' Views About the Place of Disaster-related Subjects in Primary School Curricula and Textbooks*

Themes	Categories
Inadequacies in Education Dimension (Application)	Insufficient Activities (P2, P5, P8, P9, P16, P18, P19)
	Exam-Focused Approach (P2, P4, P8, P16)
	Theory Focused Curriculum (P1, P8, P9)
	In-Class Education (P2, P17)
Inadequacies of Curricula	Inadequacy of Curricula (narrow scope) (P2, P4, P5, P6, P11, P13, P16, P17, P18, P20, P21)
	Insufficient Time (P2, P4, P5, P6, P16)
	Limited Achievements (P5, P7, P10, P15)
	Subjects-Contents That Are Not Locally Focused (P13, P14, P19)
Inadequacy of textbooks	Poor-quality textbooks (examples, tangibility, narrative) (P1, P3, P4, P5, P6, P9, P10, P11, P12, P14, P15, P16, P17, P18, P19, P20)
	Theory-focused Textbooks (P2, P5, P8, P9, P10, P17, P18)

As demonstrated by Table 10, the participants' views about the place of disaster-related subjects in primary school curricula and textbooks were collected under three different themes. Examination of the categories in the inadequacies in the education dimension theme reveals that the participants stated that the activities on teaching disaster-related subjects were inadequate, that an exam-based approach that emphasises theoretical knowledge is adopted, and that the outdoor environments were not employed. To represent the views of the participants in this category, certain participant views are given below:

“Disaster-related topics are already in the curriculum, but a unit should be dedicated to disaster-related subjects and taught in practice, instead of presenting them at the end of a unit theoretically. If a teaching space (unit) is dedicated to disasters to have hands-on activities, by taking the children on a trip, for example, the classes may be held more actively.” (P17).

As can be seen in the quotations above, it is important to teach disaster subjects to carry out the activities for disaster types in practice, use out-of-class environments, and abandon the exam-focused approach. Examination of the categories in the Inadequacies of Curricula theme reveals that the participants stated that the disaster-related subjects were not included in the curricula sufficiently

and that some programs did not even include them, which means that the curricula are narrow in terms of the scope of disasters and they are limited to certain courses. Additionally, the participants have emphasised that time dedicated to these subjects and achievements was limited and that disaster-related subjects should focus on disasters that are highly likely to occur in the region where the students live. The views of Participant 1, who draw attention to the need to provide education for high-possibility disasters, are given below:

“Each region has a different disaster type. Landslides in the Black Sea Region, an avalanche in Erzurum region and Hakkari region, forest fires in the coastal regions of Antalya, Muğla or Adana during summer. We should teach what other disasters are but focus on the ones that differ between regions. Since regional disasters are seen in regions more often, we should focus on them.” (P14).

As emphasised by the quotation above, including more disaster-related subjects in the curricula and extending their scope is critical for qualified disaster education. Examination of the categories in the theme of the inadequacy of the textbooks reveals that the participants emphasised that the disaster subjects are included in the textbooks only theoretically and that the content is not rich. To represent the views of the participants in this category, the views of Participant 1 are given below:

“I don't believe textbooks are adequate. Because they only include theoretical knowledge. For each class, at least one applied disaster training should be required. If the school doesn't have the equipment, perhaps applied education can be provided by visiting AFAD.” (P1).

The participants' opinions on how the ideal disaster education should be in primary school are given in Table 11.

Table 11. Participants' Opinions Regarding Ideal Primary School Disaster Education

Themes	Categories
Learning	Relative-Concrete Education (P5, P6, P14, P15, P18, P19, P20, P21, P22)
	Permanent learning (P5, P7, P8, P11, P14, P20)
Education	Education by doing/experience (P4, P5, P7, P8, P10, P11, P13, P15, P16, P17, P18, P20, P22)
	Applied Education (P1, P4, P6, P7, P8, P10, P11, P13, P16, P19, P22)
	Technological support (P1, P4, P5, P8, P12, P13, P18, P19, P21)
	Expert-Institution support (P1, P12, P13, P17, P19, P22)
	Outdoor Learning Environments (P1, P4, P10, P11, P13, P20)
	Educational Game and Drama (P6, P14, P16)
Disaster preparedness	Disaster Awareness (P1, P4, P7, P10, P11, P17)
	Need for Disaster Education (P5, P20)
Improvement	Updating Curricula (P4, P5, P9, P10, P17)
	Disaster Education Programs-Projects (P1, P2, P7, P17)
	Updating Textbooks (P1, P10, P20)
	Disaster Learning Domain (P2, P5, P17)
	Exemplary Countries (P2)
	Diversifying Drills (P8)

As demonstrated by Table 11, the participants' opinions regarding ideal disaster education were collected under four different themes. Examination of the categories in the learning theme revealed that the participants emphasised that the primary school students in the tangible period should learn the disaster-related subjects in line with their age-development characteristics and that the vital

information they learned should be permanent. To represent the views of the participants in this theme, the views of Participant 14 are given below:

"... making subjects tangible, using educational games and drama, and teaching subjects according to the levels of the children by talking, demonstrating and providing details would both be more beneficial and more permanent. The children truly learn the subjects and use them in their lives. Educational games and drama are beneficial because I think teaching children in the tangible stage by making things tangible would be more beneficial." (P14).

As can be seen in the quotation above, ensuring that disaster-related subjects are taught more frequently and in a wider scope are critical for ideal disaster education. Examination of the categories in the teaching theme reveals that the participants have noted that teaching by doing and experiencing should be adopted in disaster education, applied education over theoretical education should be adopted, technology should be used to demonstrate and explain disaster types, and experts-authorised people should be benefited from by going to learning environments outside the classroom according to the subject-content situation. To represent the views of the participants in this theme, the views of the Participant 11 are given below:

"It definitely shouldn't remain just as knowledge in a book; it should be applied. Experiencing opportunities should be provided to children, virtual drills should be held, and simulations should be held to provide children with more effective and permanent knowledge. Outdoor environments should be used to make this knowledge permanent. If necessary, camps should be held, or activities should be held in nature to provide basic disaster awareness. Effective and permanent learning is better provided by learning and experiencing." (P11).

According to the quote above, effective teaching of disaster subjects goes through a learning process in which the student is also included. When the categories in the theme of disaster preparedness are examined, it was noted that the participants drew attention to the importance of creating disaster awareness and awareness in the preparation stage before disaster events occur. Participants emphasised that disaster education, which includes vital information, should be given the importance it deserves before it's too late. To represent the views of the participants in this theme, the views of Participant 4 are given below:

"We need to be in a position to guide children and make them more aware. We need to take them to disaster zones, and although we cannot make them experience an earthquake, we can use simulations. We should prepare students for what we should do as a society or what we should do in case of a disaster. There was an avalanche last year (in Van), we could have taken the children there to see those places, or we could have made online demonstrations to make them more aware." (P4).

As seen in the quote above, the participants emphasised the need for students to develop disaster awareness and have a high level of disaster awareness by referring to the negative events we experienced as examples. Examination of the categories in the theme of recovery reveals that the participants emphasised that for ideal disaster education, the scope of disaster subjects should be expanded in the curricula, the achievements should be increased, the learning domains should be created, the projects related to disasters should be organised, the amount of disaster educations should be increased, and the books on disaster-related subjects should be developed and enriched. To represent the views of the participants in this theme, the views of Participant 5 are given below:

"... first of all, different awareness centres may be established. Field trips could be carried out to these places. Education methods and techniques should be modernised. Learning by doing and experiencing innovative activities should be opportunities where the children can be involved in the process and find creative solutions. Disaster topics must be increased in our curricula, which consist of a series of acquisitions. ...Their amount is very little for a subject that has such vital importance. For this reason, a unit or a sub-learning domain should be designed, and disasters should be integrated

with a curriculum that is ordered from easy to difficult. Additionally, the structure of achievements should be increased in terms of quantity. On the other hand, how disaster-related subjects are included in textbooks, one of our main sources, should be altered. If the subject is a natural disaster, their importance should be emphasised, and the number of pages should be increased. We cannot bring such vital content to children with a single acquisition a year.” (P5).

As can be seen, the current disaster education in primary school differs in many respects from the ideal disaster education described by the participants' opinions. Participants generally drew attention to the importance of disaster education in primary school and the existing inadequacies.

DISCUSSION, CONCLUSION AND IMPLICATIONS

The first research question of the study attempted to determine participants' awareness and knowledge levels regarding the concept of disasters. In line with their opinions, it was determined that disasters, which create various effects on society and nature, generally result in negative consequences. The participants have defined the concept of disaster as a series of events that cause material-moral damages and losses that deeply affect lives, stop and disrupt social life and negatively influence the individual, society, and the environment. The participants categorised disasters as natural and human-induced. The fact that natural disasters come to mind first when disasters are mentioned has revealed that the occurrence of disasters is of natural origin, and the human factor is ignored. Therefore, the fact that knowledge on disasters is concentrated on natural disasters shows that the participants' disaster knowledge is deficient in terms of scope and variety. In this context, Maya and Sarı (2018) found in their study that while teachers stated that subjects on earthquakes, fires and floods should be given priority, they did not give priority to human disasters. Likewise, knowledge and awareness levels regarding disasters vary according to participants' region and time. Similarly, Mızrak (2018) stated that education for qualified disaster training should be determined according to need and priority. The participants frequently emphasised the types of disasters that are currently occurring worldwide and in Turkey. Participants classified the frequent earthquakes, floods, avalanches, tsunamis and landslides in Turkey as natural disasters and fires, epidemics, and global warming as human-induced disasters. It has been determined that the past and current events experienced globally and in Turkey constitute the Participants' disaster knowledge, and their awareness levels are high. Similarly, Çelik (2020) concluded that primary school teachers are highly sensitive to disasters and take disaster situations seriously, take precautions against disasters, and think these measures will be useful.

In the second research question of the research, the participants' views on disaster education were tried to be obtained. With the questions asked in this context, the participant's knowledge of the concept of disaster education, their views on the importance of disaster education, methods that can be used in disaster education and suggestions for disaster education were obtained. Participants attributed meanings to disaster education, such as taking necessary precautions before disasters occur, minimising loss of life and property, and educating individuals and society. On the other hand, some participants attributed meanings to disaster education, such as raising awareness about disasters in individuals, creating disaster awareness, and having information about what should be done during and after the disaster. Similarly, Noviana and Afendi (2019) stated that disaster education provides students with accurate information about disasters, provides a systematic understanding of protection, and equips students through practical training on how to protect themselves and respond to disasters appropriately and quickly. Participants emphasised that disaster education is necessary for Turkey, that it is vital to create a disaster-ready Turkey, and that there is no alternative to surviving disasters with minimum losses. The participants have drawn attention to the fact that learning by doing-experiencing would be effective and permanent in terms of methods used in disaster education. In his study, Taş (2003) concluded that teachers generally use lecture and question-answer methods for disaster-related subjects and that since lectures cannot be adapted to the level of students, they

cannot actively participate. In their study focusing on the primary school level, Adiyoso and Kanegae (2012) indicated that different educational methods should be used, games and simulations should be employed, disaster area trips should be conducted, and experiments and drills for disasters should be done for effective and qualified disaster education. In the dimension of education, the participants have emphasised the importance of using technology, which is critical in today's world, and conducting outdoor applications. Regarding disaster education, the participants suggested that active learning methods should be employed, and disaster education should be made mandatory in every education level, starting with primary schools. In a study conducted by Maya and Sarı (2012), the teachers stated that disaster education should be started in the preschool stage, that even starting at such stage may be too late, and that disaster education should first be given in the family. Similarly, the teachers in the study conducted by Bulut (2020) stated that it is necessary to provide disaster education to children and increase their disaster awareness during the preschool stage. In the study conducted by Zhu and Zhang (2017), the teachers indicated that schools should develop disaster-related curricula, include disaster education programs in the curriculum, and design special textbooks for disaster education. Additionally, it is suggested that disaster education should not be given only in schools, that the concept of community-based disaster education should also be considered, and that lifelong learning should be adopted. In their study at the primary school level, Adiyoso and Kanegae (2012) concluded that teachers and students play an important role in raising awareness, disseminating accurate information about disasters and preparing society for disasters. Similarly, Mızrak (2018) emphasised that education given to children at schools is important for the future of society and that there is a direct correlation between the high level of knowledge of children about disasters, the high level of disaster education of the society and the level of resilience to disasters.

The third research question of the study was to establish the self-sufficiency views of the classroom teachers on the education of disaster-related subjects. In this context, the participants stated on the issue of being educated for teaching disaster-related subjects, that such educations are generally needed and that they are required for individual and professional development. Çelik (2018) noted that the teachers who educate society should be trained based on creating a society ready for disasters. The participants who believed that a quality disaster education is necessary indicated that they are not satisfied with their education and that theoretical education to be provided by experts-authorities in the future will not be necessary. Tuswadi ve Hayashi (2014), Maya and Sarı (2018), Mızrak (2018) pointed out that, for disaster training to be successful, it should be given by experts and experienced people using appropriate methods-techniques. Likewise, in his study with primary school teachers, Çelik (2018) concluded that the content of in-service disaster education, the expertise of the educators, the duration of the education, the frequency of the education and the implementations were insufficient. In the study conducted by Kırıkkaya et al. (2011), teachers stated that disaster education should be based on activities and that they should be given by Disaster Training Centres, the Red Crescent or similar authorised institutions. On the other hand, it was determined that certain participants desired to receive disaster education due to its vital importance. The disaster education self-sufficiency level of certain participants was at the basic level, and it was revealed that most had insufficient knowledge, experience and skills. Almost none of the teachers stated that they consider themselves sufficient for the teaching of disaster-related subjects. Çelik (2020) concluded that classroom teachers do not consider themselves competent in disaster education, are insufficiently prepared for disasters, and do not find themselves sufficient in knowledge and skills to do what is necessary during and after disasters. A primary school level study by Tuswadi and Hayashi (2014) determined that teachers lack knowledge and skills in teaching disaster-related subjects because of their limited education. Similarly, Maya and Sarı (2018) concluded that teachers feel inadequate about disaster education in their study. Teachers who are aware of their shortcomings stated that teachers who will provide disaster education should have competence in the dimensions of being open to learning, being up-to-date, being equipped, being aware of disasters, and taking responsibility. Additionally, participant views have also demonstrated that, in addition to personal characteristics,

teachers should focus on making students actively participate and be competent in teaching disaster-related subjects. In this context, Çelik (2020) suggested in his study to organise in-service educations for teachers, which should include activities and practice examples that they can apply in classroom environments that can actively include students in the education and increase their awareness against disasters. In the same study, teachers underlined that disaster education is not solely theoretical and that it should be based on implementation and given by authorised persons to create proficiency in disaster education.

The fourth research question of the study sought answers to how an ideal disaster education should be by examining the current ones. In this context, to reveal the current situation, questions about how disaster education is being addressed in primary school curricula, textbooks, and implementation were asked to the participants. In line with the participants' opinions, it has been revealed that the existing disaster education practices are lacking, the education is based primarily on lectures and theoretical knowledge, an exam-oriented approach is adopted, and the practices are limited to classrooms and schools. In addition, it has been determined that the curricula are insufficient in terms of scope, duration and acquisition, and the textbooks are not adequately equipped regarding these subjects. Maya and Sarı (2018) concluded that the curricula' disaster-related subjects, learning domains, and achievements are inadequate in their study with secondary school teachers. Öcal et al. (2016) emphasised that the achievements related to disaster education should be developed in a way that is based on different knowledge and skill levels of students and should be integrated into the curricula. By examining the current primary school disaster education based on these results, it has been determined that curricula and textbooks should be re-evaluated and enriched in the context of disaster education and a theory-based approach in the relevant classes should be abandoned, and activity-based practices should be implemented. Similarly, Çelik (2020) determined that the teachers find the outcomes regarding disaster education lack at the primary school level, that practice-based outcomes are not included, that education level that focuses on just knowledge will be ineffective, that the content of the curricula are inadequate, that restructuring content in cyclical framework would provide grounds for more permanent outcomes, and that curricula do not provide enough course hours for disaster education. When asked about ideal disaster education in primary schools, the participants stated that the education should be adapted to the students and that permanent learning is critical. Moreover, it was determined that educating via the learning doing-experiencing method, adopting practical activities, taking advantage of technology, getting support from experts and relevant institutions, and employing outdoor learning environments are necessities for ideal disaster education. Taş (2003) stated in his research that experiencing a disaster or participating in a trip to a disaster area facilitates the teaching of disaster subjects, both for teachers and students. Similarly, as a result of their study at the primary school level, Adiyoso and Kanegae (2012) concluded that examining disaster sites such as the tsunami museum, a grounded ship, or disaster escape buildings within the curriculum's scope is an effective practice in disaster preparedness. In addition, it was concluded that programs and projects should be organised, curriculum and textbooks should be updated by giving due importance to disaster issues to raise awareness of disaster.

As a result of the study, it has been determined that the classroom teachers have sufficient knowledge about the concept of disasters, that disaster education is an inevitable reality for Turkey, that teachers are inadequately equipped for disaster education and that they want to overcome this via qualified education, and that there are many differences between the current disaster education given in primary school and the ideal disaster education. It has been concluded that a qualified disaster education is necessary to minimise disasters' negative and destructive effects. To this end, educating using the learning by the doing-experiencing method, using the means provided by technology, revising and updating the curricula and textbooks by imitating countries that address disasters successfully, employing the benefits of outdoor education and the expertise of individuals and

authorised institutions, and correctly implementing a school-based disaster education are necessities. Based on the results obtained in this study, the following are recommended:

- Increasing the number of video animations and interactive content for students,
- Preparing artificial disaster sites and organising disaster site trips with parents,
- Introducing disasters by establishing technological disaster stations,
- Updating basic disaster awareness education and exercises to cover all disasters,
- Creating disaster heroes and characters for primary school students, and creating and reading books and e-books containing disaster scenarios involving these characters,
- Designing digital disaster games for primary school students and creating a disaster portal.

REFERENCES

- Adebäck, P., Schulman, A., & Nilsson, D. (2018). Children exposed to a natural disaster: psychological consequences eight years after 2004 tsunami. *Nordic Journal of Psychiatry*, 72(1), 75–81. <https://doi.org/10.1080/08039488.2017.1382569>
- Adiyoso, W. & Kanegae, H. (2012). The effect of different disaster education programs on tsunami preparedness among school children in Aceh, Indonesia. *Disaster Mitigation of Cultural Heritage and Historic Cities*, 6, 165-172. <https://doi.org/10.20965/jdr.2013.p1009>
- Afet ve Acil Durum Yönetimi Başkanlığı. (2014). Açıklamalı Afet Yönetimi Terimleri Sözlüğü. Ankara.
- Aksoy, B. (2011). Depremi yaşamış olan 9. sınıf öğrencilerinin deprem kavramına yönelik algılarının nitel açıdan incelenmesi. *Journal of World of Turks*, 5(1), 247-265.
- Boon, H., & Pagliano, P. J. (2015). Disaster education in Australian schools. *Australian Journal of Environmental Education*, 30(2), 187-197. <https://doi.org/10.1017/aee.2015.8>
- Buitink, J. (2009). What and how do student teachers learn during school-based teacher education. *Teaching and Teacher Education*, 25(1) 118–127. <https://doi.org/10.1016/j.tate.2008.07.009>
- Bulut, A. (2020). Raising awareness of disaster and giving disaster education to children in preschool education period. *Acta Educationis Generalis*, 10(2), 162-179. <https://doi.org/10.2478/atd-2020-0016>
- Çelik, A. A. (2020). *ilkokul öğretmenlerinin afete hazırlık düzeyleri ile afet eğitiminin eğitim programlarındaki yerine yönelik görüşleri*, [Unpublished master dissertation]. Adnan Menderes University-Aydın.
- Chadderton, C. (2015). Civil defence pedagogies and narratives of democracy: disaster education in germany. *International Journal of Lifelong Education*, 34(5), 589-606. <https://doi.org/10.1080/02601370.2015.1073186>
- Cin, M. (2010). Sınıf öğretmeni adaylarının doğal afetler ile ilgili yanılgıları. *Marmara Coğrafya Dergisi*, 22, 70-81.
- Codeanu, T. A., Celenza, A., & Jacobs, I. (2014). Does disaster education of teenagers translate into better survival knowledge, knowledge of skills, and adaptive behavioral change? A systematic literature review. *Prehospital and disaster medicine*, 29(6), 629–642. <https://doi.org/10.1017/S1049023X14001083>
- Cohen, L., Manion, L. & Morrison, K. (2007). *Research methods in education*, New York: Routledge.
- Coveleski, J. (2014). *A study of students' perceptions of natural disaster plans and emergency preparedness at a higher education institution*, [Unpublished doctoral dissertation]. Florida State University- Florida
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks: Sage.
- Değirmenci, Y. (2019). An examination of metaphors regarding the concept of natural disaster developed by prospective classroom teachers. *International Journal of Geography and Geography Education*, 39, 83-94. <https://doi.org/10.32003/iggei.488627>
- Dey, B. & Singh, R. B. (2006). Introduction to disaster management. In S. M. P. Sajani (Ed.), *Natural hazards and disaster management* (pp. 1-9). Delhi: Central Board of Secondary Education.
- Dikmenli, Y. & Gafa, İ. (2017). Farklı eğitim kademelerine göre afet kavramı. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 44, 21-36. <https://doi.org/10.21764/maeuefd.335007>

- Duffy, N. (2018, November). A new approach to disaster education. the international emergency management society (tiems). *Annual Conference*, Manila, Philippines.
- Eken & Gündoğdu (2017). Hazırlık sınıfı ve özel kurs öğrencileri ile öğretmenlerinin İngilizce öğretimine ilişkin görüşleri. *The 26th International Congress Educational Sciences*, Antalya, Turkey.
- Fuhrmann, S., Stone, L. D., Casey, M. C., Curtis, M. D., Doyle, A. D., Earle, B.D., Jones, D. D., Rodriguez, P. & Schermerhorn, S. M. (2008). Teaching disaster preparedness in geographic education. *Journal of Geography*, 107(3), 112-120. <https://doi.org/10.1080/00221340802458482>
- Gampell, A., Gaillard, J. C., Parsons, M. & Loic L. D. (2020). Serious disaster video games: An Innovative approach to teaching and learning about disasters and disaster risk reduction. *Journal of Geography*, 119(5): 159-170. <https://doi.org/10.1080/00221341.2020.1795225>
- Gwee, Q., Wen C. J. & Shaw.R. (2011). Disaster education system in Yunlin county, Taiwan. *Journal of Environment and Disaster Management*, 3(2), 189–204. <https://doi.org/10.3850/S1793924011000745>
- How, V., Azmi, E. S., Rahman, H. A. & Othman, K. (2020). The way forward: opportunities and challenges of sustainable school disaster education in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 10(15), 315–324. <http://dx.doi.org/10.6007/IJARBS/v10-i15/8252>
- Irawan, L. Y., Ayuni, I. K. & Sumarmi, S. (2018). School preparedness toward Kelud eruption hazard (Case study on kelud disaster prone area). *IOP Conference Series: Earth and Environmental Science*, 1-6. <http://dx.doi.org/10.1088/1755-1315/145/1/012027>
- Johnson, V. Ronan, K. R., Johnston, D. M. & Peace, R. (2014). Evaluations of disaster education programs for children: a methodological review. *International Journal of Disaster Risk Reduction*, 9, 107-123. <https://doi.org/10.1016/j.ijdr.2014.04.001>
- Karataş, O. (2011). *İlköğretim 1. kademe sosyal bilgiler dersi doğal afet eğitiminde drama tekniğinin öğrencilerin başarılarına etkisi (DeneySEL Çalışma)*, [Unpublished master dissertation]. Kafkas University-Kars.
- Kırıkkaya, E. B. & İmalı, B. (2013). What are teachers' opinions about including topics of natural events and their risks in primary curriculum in kocaeli (Turkey)?. *Asia-Pacific Forum on Science Learning and Teaching*, 14(1), 1-17.
- Kırıkkaya, E. B., Oğuz Ünver, A. & Çakın, O. (2011). İlköğretim fen ve teknoloji programında yer alan afet eğitimi konularına ilişkin öğretmen görüşleri. *Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi*, 5(1), 24-42.
- Kitagawa, K. (2015). Continuity and change in disaster education in Japan. *History of Education*, 44(3), 371-390. <https://doi.org/10.1080/0046760X.2014.979255>
- Koç, H. Şeker, G., Evcı, N. & Doğan, M. (2020). Afet eğitimi konulu araştırmaların içerik analizi yöntemiyle değerlendirilmesi. *Cumhuriyet International Journal of Education*, 9(2), 637–655.
- Koca, B. (2020). Okul çocuklarına verilen afet eğitiminin önemi. *Uluslararası Harran Sağlık Bilimleri Kongresi*, Şanlıurfa, Turkey. <https://doi.org/10.30703/cije.679526>
- Mangione, G. R., Capuano, N., Orcioli, F. & Ritrovato, P. (2013). Disaster education: A narrative-based approach to support learning, motivation and students' engagement. *Journal of e-learning and knowledge society*, 9, 129-152. <https://doi.org/10.20368/1971-8829/837>
- Maya, İ. & Sarı, B. (2018). Ortaokul öğretmenlerinin görüşlerine göre türkiye'de afet eğitimi uygulamaları. *JASS Studies-The Journal of Academic Social Science Studies*, 71, 49-65. <http://dx.doi.org/10.9761/JASSS7804>
- Mızrak, S. (2018). Eğitim, afet eğitimi ve afete dirençli toplum. *Muğla Sıtkı Koçman Üniversitesi Eğitim Fakültesi Dergisi*, 5(1), 56-67. <http://dx.doi.org/10.21666/muefd.321970>
- Mönter, L. & Otto, K. H. (2018). The concept of disasters in geography education. *Journal of Geography in Higher Education*, 42(2), 205-219. <https://doi.org/10.1080/03098265.2017.1339266>
- Mudavanhu, C. (2014). The impact of flood disasters on child education in muzarabani district, Zimbabwe. *Jambá: Journal of Disaster Risk Studies*, 6(1), 1-8. <http://dx.doi.org/10.4102/jamba.v6i1.138>
- Nakano, G. (2020). Long-term evaluation of proactive attitudes toward disaster education in nepal. *International Journal of Disaster Risk Reduction*, 50, 2-12. <https://doi.org/10.1016/j.ijdr.2020.101866>
- Noviana, E. & Affendi, N. (2019). Media pembelajaran komik sebagai sarana literasi informasi dalam pendidikan mitigasi bencana di sekolah dasar. *Prossiding Seminar Nasional Pendidikan Guru Sekolah Dasar*, Halaman, 61-73.

- Öcal, A. (2007). A research elementary school preservice teacher's earthquake knowledge level. *Mehmet Akif Ersoy University Educational Faculty Journal*, 13, 104-110.
- Öcal, A. Çakır, U. & Özelmacı, Ş. (2016). İlkokul ve ortaokul ders programlarında afetten korunma ve güvenli yaşam. *Alan Eğitimi Araştırmaları Dergisi (ALEG)*, 2(2), 71-83.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health*, 42(5), 533-544. <https://doi.org/10.1007/s10488-013-0528-y>
- Parajuli, R. R. (2020). Citizen Disaster Science Education for effective disaster risk reduction in developing countries. *Geoenvironmental Disasters*, 7(1), 1-4. <https://doi.org/10.1186/s40677-020-00150-2>
- Patton, M. (1990). *Qualitative evaluation and research methods*, Beverly Hills, CA: Sage Publications.
- Peek, L. (2008). Children and Disasters: Understanding vulnerability, developing capacities, and promoting resilience-an introduction. *Children, Youth and Environments*, 18(1), 1-29.
- Pınar, A. (2017). What is secondary school students' awareness on disasters? A case study. *Review of International Geographical Education Online (RIGEO)*, 7(3), 315-331.
- Preston, J. (2012). *Disaster Education 'Race, Equity and Pedagogy*, University of East London, UK.
- Rivera, J. D. & Miller, D. S. (2008). Disaster vulnerability education: A new focus on disaster education across the curriculum. *Journal of Applied Security Research*, 4, 60-67. <https://doi.org/10.1080/19361610802210202>
- Rogayan, D. V. & Dollete, L. F. (2020). Disaster awareness and preparedness of barrio community in zambales, philippines: creating a baseline for curricular integration and extension program. *Review of International Geographical Education (RIGEO)*, 10(2), 92-114. <https://doi.org/10.33403/rigeo.634564>
- Rogayan, D. V. (2019). I heart nature: Perspectives of university students on environmental stewardship. *International Journal on Engineering, Science and Technology*, 1(1), 10-16.
- Rosidin, U. & Suyatna, A. (2017). Teachers and students' knowledge about global warming: a study in the smoke disaster area of Indonesia. *International Journal of Environmental Science & Education*, 12(4), 777-785.
- Sakurai, A., Sato, T. & Murayama, Y. (2020). Impact evaluation of a school-based disaster education program in a city affected by the 2011 great east japan earthquake and tsunami disaster. *International Journal of Disaster Risk Reduction*, 47: 1-10. <https://doi.org/10.1016/j.ijdr.2020.101632>
- Sapsağlam, Ö. (2019). Okul öncesi dönem çocuklarında doğal afet farkındalığı. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi*, 38(1), 283-295. <https://doi.org/10.15013/omuefd.517081>
- Sarı, B. (2016). *Türkiye'de Afet Eğitimi Uygulamalarının Öğretmen Görüşleri Açısından Değerlendirilmesi*. [Unpublished master dissertation]. Çanakkale Onsekiz Mart University-Çanakkale.
- Şengün, H. & Küçükşen, M. (2019). Afet yönetimi eğitimi niçin gerekli? *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 33(46), 193-211.
- Sever, R. & Değirmenci, Y. (2019). Temel kavramlar. R. Sever (Ed.), *Afetler ve afet yönetimi* (pp. 2-11). Ankara: Pegem Akademi.
- Sharpe, J. & Kelman, I. (2011). Improving the disaster-related component of secondary school geography education in England. *International Research in Geographical and Environmental Education*, 20(4), 327-343. <https://doi.org/10.1080/10382046.2011.619810>
- Shiwaku, K. (2011). School based disaster education system in Maiko High school, Japan. *Asian Journal of Environment and Disaster Management*, 3(2), 243-258. <https://doi.org/10.3850/S1793924011000782>
- Shiwaku, K., Shaw, R., Kandel, R. C., Shrestha, S. N., & Dixit, A. M. (2007). Future perspective of school disaster education in Nepal. *Disaster Prevention and Management: An International Journal*, 16(4), 576-587.
- Shoji, M., Takafuji, Y. & Harada, T. (2020). Behavioral impact of disaster education: evidence from a dance-based program in Indonesia. *International Journal of Disaster Risk Reduction*, 45,1-13.
- Sözcü, U. & Aydınöz, D. (2019). Doğal afet okuryazarlığı bağlamında öğretim programlarındaki afetlerle ilişkili kazanımların incelenmesi. *Turkish Studies Educational Sciences*, 14(5), 2639-2652. <http://dx.doi.org/10.29228/TurkishStudies.32675>
- Sözcü, U. (2020). Disaster education in Turkey: Trends in theses and articles between 2003 and 2020. *Journal of Pedagogical Research*, 4(3), 418-441. <https://doi.org/10.33902/JPR.2020465083>
- Tanaka, Y. (2012). Disaster policy and education changes over 15 years in Japan. *Journal of Comparative Policy Analysis: Research and Practice*, 14(3), 245-253. <https://doi.org/10.1080/13876988.2012.687623>

- Taş, G. (2003). *Türkiye’de ortaöğretim kurumlarında doğal afetler (deprem, kütle hareketleri, volkan, don olayı) konularının öğretiminin değerlendirilmesi*, [Unpublished master dissertation]. Gazi University-Ankara.
- Teherani A, Martimianakis T, Stenfors-Hayes T, Wadhwa A, Varpio L. (2015). Choosing a qualitative research approach. *Journal of Graduate Medical Education*, 7, 669–670. <https://doi.org/10.4300/JGME-D-15-00414.1>
- Thi, T. & Shaw, R. (2016). School-based disaster risk reduction education in primary schools in da Nang city, central Vietnam. *Environmental Hazards*, 15(4), 356-373. <https://doi.org/10.1080/17477891.2016.1213492>
- Torani, S., Majd, P. M., Maroufi, S. S., Dowlati, M., & Sheikhi, R. A. (2019). The importance of education on disasters and emergencies: A review article. *Journal of education and health promotion*, 8: 85. https://doi.org/10.4103/jehp.jehp_262_18
- Tsai, M. H., Chang, Y. L., Kao, C. & Kang, S. C. (2015). The effectiveness of a flood protection computer game for disaster education. *Visualization in Engineering*, 3(1), 1-13. <https://doi.org/10.1186/s40327-015-0021-7>
- Tsai, M. H., Chang, Y. L., Shiau, J. S., & Wang, S. M. (2020). Exploring the effects of a serious game-based learning package for disaster prevention education: The case of Battle of Flooding Protection. *International journal of disaster risk reduction*, 43, 101393. <https://doi.org/10.1016/j.ijdr.2019.101393>
- Tsai, M. H., Wen, M. C., Chang, Y. L., & Kang, S. C. (2015). Game-based education for disaster prevention. *AI and Society*, 30(4), 463–475. <https://doi.org/10.1007/s00146-014-0562-7>
- Turan, İ. & Kartal, A. (2011). İlköğretimde doğal afetler öğretiminin öğretmen görüşlerine göre değerlendirilmesi. *20. Ulusal Eğitim Bilimleri Kurultayı*, Burdur, Turkey.
- Tuswadi & Hayashi, T. (2014). Disaster prevention education in merapi volcano area primary schools: Focusing on students’ perception and teachers’ performance. *Procedia Environmental Sciences*, 20, 668–677. <https://doi.org/10.1016/j.proenv.2014.03.080>
- Yamori, K. (2009). Action research on disaster reduction education: building a community of practice through a gaming approach. *Journal of Natural Disaster Science*, 30(2), 83–96. <https://doi.org/10.2328/jnds.30.83>
- Yeon, D. H., Chung, J. B. & Im, D. H. (2020). The effects of earthquake experience on disaster education for children and teens. *International Journal of Environmental Research and Public Health*, 17(15), 1-14. <https://doi.org/10.3390/ijerph17155347>
- Yusoff, N. B. M., How, V., Azmi, E. S. B & Othman, K. B. (2019). The educator’s perspective: knowledge, attitude and practices on occupational safety and health at school among primary and secondary school teachers. *Malaysian Journal of Public Health Medicine*, 19(1), 184-190. <https://doi.org/10.37268/mjphm/vol.19/no.1/art.52>
- Zavar, E. & Nelan, M. (2020). Disaster drills as experiential learning opportunities for geographic education. *Journal of Geography in Higher Education*, 44(4), 624-631. <https://doi.org/10.1080/03098265.2020.1771684>
- Zhu, T. T. & Zhang, Y. J. (2017). An investigation of disaster education in elementary and secondary schools: evidence from China. *Natural Hazards*, 89, 1009–1029. <https://doi.org/10.1007/s11069-017-3004-2>