KNOWLEDGE AND OPINIONS ON NATURAL DISASTERS AND DISASTER EDUCATION OF PRE-SERVICE TEACHERS WHO SURVIVED THE 6 FEBRUARY EARTHQUAKE IN TURKEY

CONHECIMENTO E OPINIÕES SOBRE DESASTRES NATURAIS E EDUCAÇÃO EM DESASTRES DE PROFESSORES EM EXERCÍCIO PRÉVIO QUE SOBREVIVIRAM AO TERREMOTO DE 6 DE FEVEREIRO NA TURQUIA

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Abstract. Human-related events that occur in an unexpected time and affect people's lives adversely are defined as natural disasters. Today, when we live in the age of technology, several regions are faced with natural disasters such as earthquakes, floods and hurricanes. Not different from various countries in the world, Turkey faces such natural disasters frequently. Especially the earthquake disaster of February 6, 2023, which affected a very broad area, caused many people to suffer. After the earthquake, several problems such as unemployment, need for education and shelter, and psychological traumas, especially among children, emerged. Although preventing natural disasters is not possible, it is a well-known fact that damages can be minimized through disaster education given in schools from an early age. It is of vital importance that Turkey, which is located in an earthquake zone, attaches more importance to disaster education and that students are educated on this subject from an early age, as in countries such as Japan, in order to reduce the disaster damages. Some action has been taken in this area in Turkey especially after the 1999 Marmara earthquake, but the recent major earthquake disaster has shown that more attention should be paid to disaster education. This study was carried out to determine the knowledge and opinions on disaster and disaster education of pre-service teachers who survided the earthquake in Turkey on February 6, 2023. The study group consisted of students studying in different departments of education faculties of universities. The structured interview form developed by the researchers was used as a data collection tool.

Keywords: Disaster education, Natural Disaster, Earthquake, Pre-service teachers, Turkey.

Resumo. Eventos relacionados ao homem que ocorrem em um momento inesperado e afetam a vida das pessoas adversamente são definidos como desastres naturais. Hoje, quando vivemos na era da tecnologia, várias regiões enfrentam desastres naturais, como terremotos, inundações e furacões. Não diferente de vários países do mundo, a Turquia enfrenta esses desastres naturais com frequência. Especialmente o desastre do terremoto de 6 de fevereiro de 2023, que afetou uma área muito ampla, fez com que muitas pessoas sofressem. Após o terremoto, vários problemas, como desemprego, necessidade de educação e abrigo, e traumas psicológicos, especialmente entre crianças, surgiram. Embora a prevenção de desastres naturais não seja possível, é um fato bem conhecido que os danos podem ser minimizados por meio da educação sobre desastres ministrada nas escolas desde cedo. É de vital importância que a Turquia, que está localizada em uma zona de terremotos, dê mais importância à educação sobre desastres e que os alunos sejam educados sobre esse assunto desde cedo, como em países como o Japão, a fim de reduzir os danos do desastre. Algumas ações foram tomadas nessa área na Turquia, especialmente após o terremoto de Mármara em 1999, mas o recente grande desastre de terremoto mostrou que mais atenção deve ser dada à educação em desastres. Este estudo foi realizado para determinar o conhecimento e as

opiniões sobre desastres e educação em desastres de professores em formação que sobreviveram ao terremoto na Turquia em 6 de fevereiro de 2023. O grupo de estudo consistia em alunos que estudavam em diferentes departamentos de faculdades de educação de universidades. O formulário de entrevista estruturada desenvolvido pelos pesquisadores foi usado como uma ferramenta de coleta de dados.

Palavras-chave: Educação em desastres, Desastre natural, Terremoto, Professores em formação, Turquia.

1. INTRODUCTION

Natural disasters are events that occur as a result of natural phenomena such as earthquakes, floods, hurricanes, landslides, avalanches, and fires. Such natural disasters bring serious damage to people, buildings, property, and the environment, and can affect all people and other living things in the country. In addition to natural disasters, unexpected man-made disasters also occur. For example, most fires are man-made disasters. Similarly, mine blasts and nuclear power plant explosions can occur due to human error or negligence. "Earthquakes, floods, landslides, hurricanes, droughts, tsunamis, and volcanic events are examples of natural disasters. On the other hand, wars, migrations, terrorism, transportation accidents, fires and violence can be given as examples of man-made disasters" (Mızrak, 2018, 57).

One of the most important tasks of governments is to protect the people living in the country against all kinds of disasters. When the natural disasters in Turkey are examined, it is seen that disasters such as earthquakes, floods and fires are more common than others (Erkal & Değerliyurt, 2009; Ergünay, 2009, 1; Koç, 2004). The latest major earthquake disaster in Turkey has once again revealed that people in the country should always be prepared for earthquakes. As underlined by Varol (2018, 194) "people in Turkey should always be prepared for an earthquake, because a part of Turkey is located on fault lines." It should not be forgotten that every disaster starts as an emergency. If this situation is managed well using available resources, it remains at the level of emergency, but if it is managed poorly, the event turns into a disaster (İnal et al., 2018, 115). "One of the most important elements of good management of the disaster preparedness process is to ensure that the society has information and awareness about disasters. The most effective tool to achieve this is undoubtedly education. With the disaster training they receive, individuals will be able to realize how to prepare for a disaster, as well as what to do and how to behave in case of a disaster" (Çelik & Gündoğdu, 2022, 79).

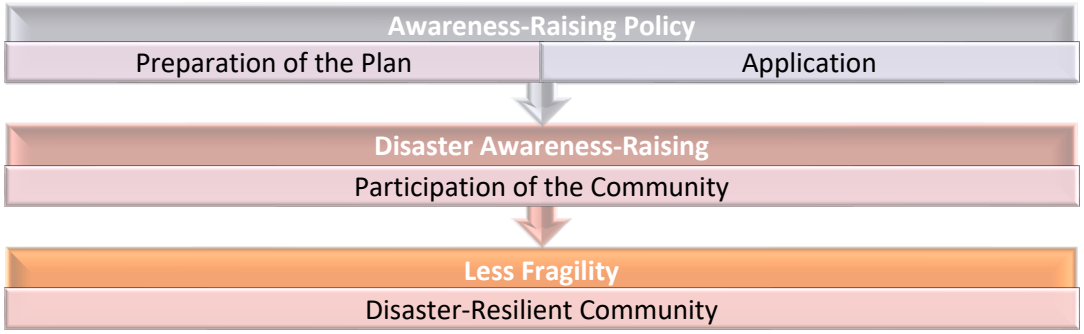

Figure 1. Relationships between public awareness policy development and disaster mitigation (Davis et al., 2003, 5).

As can be seen in the figure above, disaster awareness and the participation of the community in this awareness-raising process play a very important role in building a society that is less fragile and more resilient to disasters. Formal education institutions in the country should be seen as the basis of this awareness-raising process. Especially with

the disaster education to be given in schools, individuals will gain awareness as early as possible and the society will become more disaster-resilient.

In Turkey, more importance should be given to disaster education in order to have higher awareness of earthquakes and to minimize earthquake damage, and people should be given such awareness at a very young age. Disaster education must be offered at every education level. Disaster education can be given in schools, public institutions and non-governmental organizations (Koçak, 2019, 91). These training activities are of great importance in terms of raising awareness in the society against the effects of disasters, preparing people for disasters and ensuring that people exhibit the right behaviors during disasters. In addition, such training activities play a critical role in terms of early response, swift organization, and post-disaster coordination. Therefore, disaster education should be given importance in places where natural disasters are common and where there is a risk of disaster (Ebru et al., 2018; Şahin, 2019). Disaster education covers topics such as predictable indicators of disasters, measures to be taken against disasters, safe behaviors during disasters, post-disaster recovery, and preventing the recurrence of certain disasters (such as fires and floods) (Karakuş & Önger, 2017; Mızrak, 2018, 59-60).

The importance given to disaster education in countries such as Japan, which witness natural disasters frequently, as well as the high risk of disasters such as earthquakes in Turkey (Ergünay, 2007; Genç, 2007) makes it necessary to increase the number of academic studies on this subject. In this study, which was carried out for this purpose, the knowledge and opinions on natural disasters and disaster education of pre-service teachers who survived the 6 February 2023 earthquake in Turkey were determined and revealed, and, the positive developments as well as deficiencies in the country in terms of disaster education from the perspective of pre-service teachers were underlined.

2. METHODOLOGY

Research Model

In this study, which used the phenomenology pattern, one of the qualitative research designs, the knowledge and views of pre-service teachers who survived the earthquake on natural disasters and disaster education were discussed. The phenomenology pattern focuses on phenomena that we know but do not have a detailed understanding of. Phenomena can manifest themselves in different forms such as experiences, perceptions, orientations, concepts, and situations. In phenomenological studies, data sources are individuals or groups that experience and can express or reflect the phenomenon that the research focuses (Tekindal & Arsu, 2020).

Sample

The sample of the research consists of 50 earthquake survivor pre-service teachers studying at the universities of Northern Cyprus. In the selection of the participants, “convenience case sampling” was used. Purposive sampling allows for in-depth study of situations that are believed to provide rich information. In this sense, purposive sampling methods are useful in discovering and explaining facts and events. In the convenience case sampling method, the researcher chooses a situation that is available and easy to access, which adds speed and practicality to the research (Yıldırım & Şimşek, 2008).

Collection and Analysis of Data

Structured interview form with 12 questions was used to obtain the data that would form the basis of the research. After the questions in the structured interview form were prepared, two experts in the field of geography were consulted, and the form was rearranged in line with their inputs. Descriptive analysis was used in the analysis of the data

obtained, and descriptive statistics were employed in the digitization of these data. The purpose of descriptive analysis is to present the findings to the readers in an organized and interpreted manner.

3. FINDINGS AND DISCUSSION

Table 1. Distribution of the opinions of pre-service teachers on whether disaster education should be given at schools

		f	%
Disaster education should not be given.		0	0
Disaster education should be given.		50	100
Who should provide disaster education?*	Geography Teachers (13-27.65%), Institutions and Teams Related to Natural Disasters such as AFAD (Disaster and Emergency Management Agency) (5-10.63%), Earth Scientists (4-8.51%), Social Studies Teachers (4-8.51%), Physical Education Teachers (4-8.51%), Civil Defense Teams (4-8.51%), Seismologists (2-4.25%), Turkish Teachers (2-4.25%), Guidance Services (2-4%) ,25), Classroom Teachers (2-4.25%), Psychological Counselors (1-2.12%), School Administrators (1-2.12%), Life Sciences Teachers (1-2.12%), Miners (1-2.12%), Fire Department (1-2.12%).		

*(Some participants did not answer this question.)

According to the answers given in Table 1, all earthquake survivor pre-service teachers agree that natural disaster education should be offered.

There are quite different opinions about who should give education with geography teachers ranking the first (27.65%). Institutions and teams related to natural disasters such as AFAD were the second preferred institution (10,63%). While it is expected that the civil defense teams (8.51%) would be preferred at a higher rate, it is seen that they are in the 3rd place.

Table 2. Distribution of the views of pre-service teachers on whether or not they received training on natural disasters.

	f	%
Yes, I received training on natural disasters.	24	48
No, I did not receive any training on natural disasters.	26	52

It can be seen in Table 2 that the pre-service teachers were asked whether they had received any training on natural disasters to find out that 48% of the pre-service teachers received training on natural disasters. On the other hand, it was determined that 52% of pre-service teachers did not receive any training on natural disasters. This result shows that more than half of the pre-service teachers have not received any training on disasters.

Table 3. Distribution of the opinions of pre-service teachers as regards which level, institution or course the natural disaster education was received*

	f	%
Primary school	3	12,49
Middle school	13	54,16
High school	6	24,99
Public Education Center	0	0
Courses etc.	2	8,33

*(This question was answered by 24 people who answered “yes” to the second question.)

This question was answered by 24 people who answered "yes" to the second question in Table 2. In this question, the participants were asked in which school level, institution, or course they received training on natural disasters. According to the answers presented in Table 3, it is seen that 54.16% of the participants received disaster education at the secondary school level and 24.99% of the participants received disaster education in high school. The fact that only 8.33% of the participants received training on disaster education in the courses indicates the low number of those who voluntarily received training on this topic.

Table 4. Length of training activities on natural disasters *

	f	%
1-3 hours	17	70,83
4-8 hours	5	20,83
9-11 hours	1	4,16
12-15 hours or more	1	4,16

*(This question was answered by 24 people who answered "yes" to the second question.)

Table 4 shows the length of the training activities received by the 24 participants. According to the findings in Table 4, a high percentage of participants (70.83%) stated that they received disaster training between 1-3 hours. However, the number of participants who received more than 9 hours of training is only 8.32%.

Table 5. Distribution of the views of pre-service teachers on which disasters occur more frequently in Turkey*

	f	%
Earthquakes	45	67,16
Floods	7	10,44
Avalanches	0	0
Landslides	0	0
Fires	15	22,38
Tsunamis	0	0

* (A maximum of 2 options could be marked in this question. Accordingly, some participants marked 1 option and some marked 2 options, as a result of which a total of 67 answers were obtained.)

Table 5 presents participant views on which disasters occur more frequently in Turkey. Accordingly, 67.16% of the participants stated that earthquake disasters occur more frequently, followed by fires (22,38) in the second rank and floods (10,44) in the third rank. Avalanches, landslides, and tsunamis were not mentioned by any of the participants.

Table 6. The disaster types seen most dangerous *

	f	%
Nuclear power plant accidents	15	16,12
Fires-explosions	20	21,50
Earthquakes	42	45,16
Floods and inundation	10	10,75
Tsunamis	5	5,37
Landslides and avalanches	1	1,07

* (A maximum of 2 options could be marked in this question. Accordingly, some participants marked 1 option and some marked 2 options, as a result of which a total of 93 answers were obtained.)

In Table 6, which shows the most dangerous disaster types according to the participants, it is seen that the most dangerous type of disaster is earthquake (45.16%). In addition, fires-explosions was reported as 21.50%, nuclear power plant accidents 16.12%, and floods and high waters 10.75%. Landslides and tsunamis were mentioned at very low rates because the number of people affected by landslides in Turkey is low, and the probability of occurrence, impact rate and frequency of tsunamis is negligible.

Table 7. Distribution of the views of pre-service teachers on what needs to be done in order to be protected at first instant from natural disasters such as earthquakes.

	f	%
We should try to get out of our apartment as soon as the tremors start.	6	12
We should grab our important identity documents and wallet and get out of the house quickly.	4	8
We should get under a table in an earthquake.	5	10
We should drop-cover-hold on next to a solid item in an earthquake.	35	70

In Table 7, the participants are presented with options about what should be done first in order to be protected from an earthquake at first instant. It was observed that 70% of the participants marked the correct option "drop-cover-hold on". If the building is solid and the risk of collapse in an earthquake is very low, it is the best protection action to "drop-cover-hold on" next to a solid item. Among the wrong options, "we should try to get out as soon as the tremors begin" was marked by 12%. The rate of the participants who chose the option "we must go under a table in an earthquake" was 10%, and the rate of those who chose "we should take our important identity documents and wallet and get out of the house quickly" was 8%. These rates show that the participants are knowledgeable about what to do first in the event of an earthquake.

Table 8. Distribution of the opinions of pre-service teachers about the number of natural disaster drills they attended

	f	%
1	20	40
2	12	24
3	3	6
4 and more	8	16
None	7	14

Table 8 shows the findings as regards the number of disaster drills that the participants have attended. Accordingly, 40% of the participants attended in one drill, 24% in two drills, and 16% in four or more drills, whereas 14% of the participants stated that they did not attend in any natural disaster drills. Nearly half of the participants attended in one or more drills, which can be seen as a positive result.

Table 9. Distribution of the views of pre-service teachers on priority materials that should be put in the bug-out-bag*

	f	%
Photocopies of important documents	12	12
Clothes	11	11
Fruits and vegetables	3	3
Drinking water	40	40
Whistle	31	31
Battery radio	3	3

*(A maximum of 2 options could be marked in this question. Accordingly, a total of 100 answers were obtained.)

According to Table 9, which shows the answers to the questions about the priority materials that should be put in the bug-out-bag, drinking water was the most preferred item with a rate of 40% followed by whistle with a rate of 30%. Photocopies of important documents (12%) and clothing (10%) were mentioned at lower rates.

Table 10. Distribution of the opinions of pre-service teachers as regards the teams/institutions that should first reach the region after disasters *

	f	%
1 and 2	3	6
2 and 3	30	60
1 and 4	4	8
4 and 5	5	10
1 and 3	8	16

*UMKE (1) – Kızılay (Red Crescent) (2) – AFAD (3) – Military (4) – NGOs such as Ahbap, AKUT etc. (5)

According to Table 10, Red Crescent and AFAD (Disaster and Emergency Management Agency of Turkey) (60%) were reported by the participants as the teams/institutions that should first reach the region in the wake of a disaster. In addition, UMKE (National Medical Rescue Team of Turkey) and AFAD couple took the second place with a rate of 16%. Non-governmental organizations and the military were preferred at low rates (10%).

Table 11. Distribution of the opinions of pre-service teachers as regards the most important application to be installed on mobile phones before disasters*

	f	%
AKUT-I AM SAFE	32	41,02
AFAD URGENT	41	52,56
BRIDGEFY	1	1,28
WHISTLE	3	3,84
LIFE360	1	1,28

*(A maximum of 2 options could be marked in this question. Accordingly, some participants marked 1 option and some marked 2 options, as a result of which a total of 78 answers were obtained.)

Table 11 shows the findings related to the most important application that should be installed on the mobile phones. Accordingly, AFAD Urgent application is the most preferred phone application with a rate of 52.56%. The AKUT-I'm Safe application is the second most important application with a rate of 41.02%. Although the remaining applications are also very useful, they were not preferred much because they were less known by the participants (the sum of the remaining three applications was 6.4%).

Table 12. Distribution of the opinions of pre-service teachers as regards whether the information about disasters and disaster education in Turkish, Life Sciences and Social Studies of the Ministry of Education of Turkey textbooks is satisfactory

	f	%
Satisfactory	3	6
Partly Satisfactory	9	18
Non-satisfactory	38	76

Examining the answers to the question whether the information about disasters and disaster education in Turkish, Life Sciences and Social Studies textbooks of the Ministry of Education of Turkey is satisfactory, it has been found out that 76% of the participants

found the books non-satisfactory, whereas the rate of participants who found them satisfactory was only 6 percent. The ratio of pre-service teachers who found Turkish, Life Sciences and Social Studies textbooks partly satisfactory was found as 18 percent. As a result, the participants who found the textbooks satisfactory and partly satisfactory is less than 25% in total.

4. CONCLUSION AND RECOMMENDATIONS

In this study, which aims to determine the knowledge and opinions of pre-service teachers who survived the earthquake on natural disasters and disaster education, important findings were obtained. According to the results of the study, it was seen that all of the pre-service teachers who participated in the research gave importance to disaster education and found it necessary. Various opinions have been put forward about who should provide disaster education. However, in the opinion of most participants, such training should be given by geography teachers.

All of the participants think that disaster education is necessary, but not all of them have received such training. According to the results of the study, more than half of the participants (52%) did not receive any training on natural disasters. When the institutions and educational levels of the trainees are examined, it has been determined that the majority of them received disaster education at the secondary school level. This situation should be accepted as an indicator that disaster education should start from primary school and curricula should be arranged accordingly. Considerably high rate of participants (76%) found the knowledge given in Turkish, Life Sciences and Social Studies textbooks of the Turkish Ministry of National Education about disasters and disaster education as non-satisfactory.

In addition, the fact that none of the participants received training on this subject in public education centers shows us that there are some problems with lifelong education. Public education centers should be made more effective in this regard.

The majority of the participants, who stated that they received disaster education at primary, secondary and high school levels, reported that the length of the training they received was between 1-3 hours. This period is quite short considering the content of all natural disasters. For this reason, the length of disaster training activities should be adjusted properly. In particular, it is necessary to increase the duration of training activities on earthquakes, fires, and floods, and to raise awareness among children and young people. Especially, lack of knowledge of children as regards what should be done during disasters can result in more injuries and loss of life. In addition, the fact that many children may be left alone after disasters and may not know what to do on their own in the beginning should be taken into consideration.

The pre-service teachers participating in the research stated that the most common and also most dangerous type of disaster in Turkey is earthquake. Although the number of participants who received disaster training was low, the rate of participants who knew what to do during an earthquake was higher than expected. The majority of the participants stated that they should “drop-cover-hold on” in the event of an earthquake. It can be argued that the reason for their high awareness is the earthquake disaster that they survived at a young age. After the recent major earthquake, accurate information about the earthquakes was repeated frequently in the mass media and on the internet. It can be claimed that natural disaster (earthquake and fire) drills realized in schools have also been effective. Nearly half of the participants stated that they attended in such natural disaster drills.

The fact that the participants have survived an earthquake recently enabled them to have an idea about the phone applications they should use during disasters. They are also knowledgeable as regards disaster response teams. Accordingly, it was stated by the

participants that the teams/institutions that should reach the region in the wake of a natural disaster are Kızılay and AFAD (60%). It is extremely important to use certain phone applications in order to be able to communicate with the rescue teams and to be less affected by the service outages and resulting chaos during natural disasters. Among these, the most preferred applications were mentioned as AFAD Urgent and AKUT-I am safe.

Based on this study, it is concluded that disaster education is seen as essential by participants, but that adequate education is not provided in Turkey. Participants received limited training in certain times of their lives, but they were not able to develop the necessary awareness. For this reason, action should be taken in no time to offer disaster education in formal and non-formal education institutions in a planned manner and with sufficient duration.

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