

Comparison of 2018 and 2024 Geography Curriculum in terms of Subject and Content Related to Disasters**

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Summary

In addition to being a source of reference for teachers, curriculum are also guidelines that teachers should follow. For this reason, it is important to analyze the content of the curriculum. In addition to the general structure of curriculum, examining and evaluating specific subjects makes contributions in terms of both science and practice. One of these issues is the disaster issue, which has strengthened its place on the agenda. Since geography is one of the first sciences that come to mind when disaster is mentioned, this study aims to examine the disaster-related topics and outcomes (learning outcomes) in the 2018 and 2024 Geography Curriculum (GC). In the study, which was handled by the document analysis method, the data collected was analyzed by content analysis. As a result of the analysis, learning outcomes (outcomes) in 2024 GC are superior to 2018 GC in terms of both quality and quantity, and there is a similar situation in terms of emphasizing the concept of disaster. In addition, it was observed that the learning outcomes in 2024 GC were more emphasized on high-level cognitive skills according to the Revised Bloom's Taxonomy. Within the framework of these results, suggestions that can help teachers manage the process have been made.

Keywords: Disaster, Curriculum, Geography Education

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In the process from the first human being to the present day, one of the issues that people have emphasized the most is the process of recognizing and interacting with their environment. In addition to the efforts to meet the needs of the increasing population, the rapid development in technology, especially after the Industrial Revolution, has further increased the human impact and pressure on nature. It seems that this process will accelerate soon, and the pressure on the environment will increase even more. If the process progresses at this rate, it can be said that it is inevitable to face natural events or environmental degradation beyond the human capacity to cope. A natural, technological, or human-induced event that causes physical, economic, and social losses for the whole or certain segments of society, that stops or interrupts normal life and human activities, and that the coping capacity of the affected society is not sufficient is generally referred to as a disaster (AFAD,2024a). The concept of disaster is defined by the Disaster and Emergency Management Presidency (AFAD) (2024) as "a natural, human, or technological event that affects a large part of society and causes different losses, negatively affects or interrupts normal life, and exceeds the coping capacity of society" (AFAD, 2024a). According to the 2023 disaster report published by the International Emergency Events Database (EM-DAT) affiliated with the Centre for Research on the Epidemiology of Disasters (CRED), the number of disasters recorded worldwide in 2023 is 399. The number of people affected by these disasters was 93.1 million, the economic loss due to disasters was 202.7 billion dollars, and the total number of deaths was 86,473 (EM-DAT, 2024). The distribution of disasters in 2023 according to their types and a comparison with the 2003-2022 period are presented in Figure 1 in the same report.

Figure 1

Distribution of disasters in 2023 according to types of occurrences and comparison with 2003-2022 average (Source: EM-DAT,2024).



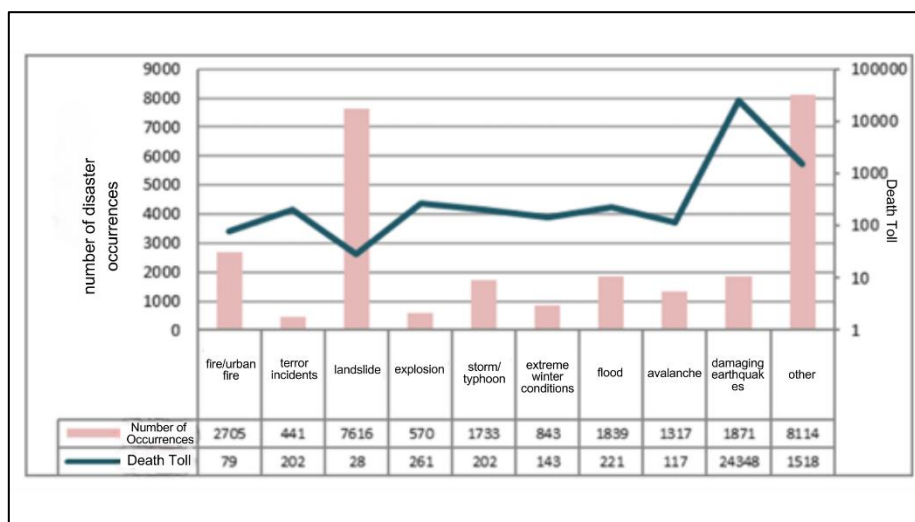
When Figure 1 is analyzed, it is seen that the number of disasters that occurred in 2023 is above the average of the previous 20 years, and it is also seen that floods and storms are the most common types of disasters. When the loss of life caused by disasters is analyzed, it is seen that earthquakes cause the highest loss of life. In 2023, after earthquakes, storms, and floods were the disasters that caused the highest loss of life. Of the 93.1 million people affected by disasters in 2023, 32.4 million were affected by floods, 21.8 million by drought, and 20.2 million by earthquakes. The largest share of the total economic loss of more than 200 billion dollars belongs to storms, with 100.8 billion dollars. After storms, the highest economic loss

was caused by earthquakes with 51.9 billion dollars and drought with 22.1 billion dollars (EM-DAT, 2024).

The number of disasters reported worldwide between 1980 and 1999 was 4212; the total number of deaths was 1.19 million, and the total economic loss was 1.63 trillion USD. In the period 2000-2019, the number of reported disasters was 7347, the total number of deaths was 1.23 million, and the total economic loss was 2.97 trillion dollars (CRED, 2020). As can be seen from the figures, there is a significant increase in the number of reported disasters and the total amount of economic losses as we approach the present day. The situation in Turkey, which is one of the major disaster countries, is not very different from the world in general. According to the Turkey Disaster Information Bank (TDIB) data prepared by the Republic of Turkey Ministry of Internal Affairs, Disaster and Emergency Management Presidency (AFAD), a total of 27,049 disasters, excluding road accidents, occurred in Turkey between 1990 and 2018. A total of 27,119 people lost their lives in these disasters. The distribution of the disasters according to their types and the number of deaths in these disasters is given in Figure 2.

Figure 2

Number of disasters and deaths caused by disasters in Turkey between 1990-2018 (Çevre Şehircilik ve İklim Değişikliği Bakanlığı, 2024).



When Figure 2 is analyzed, it is seen that most landslide disasters were experienced in Turkey between 1990 and 2018. However, when we look at the loss of life, it will be seen that the most effective disaster is earthquakes. On 6 February 2023, more than 53,000 people lost their lives due to the Kahramanmaraş-based earthquakes. This figure is more than half of the total number of deaths in disasters worldwide in 2023. This is one of the best indicators that our country is in an extremely risky region in terms of disasters. According to AFAD (2024) data, a total of 5233 disasters occurred in Turkey in 2023. Among these disasters, there were 2028 floods, 1711 forest fires, and 830 earthquakes with a magnitude of over 4.0 (AFAD,2024b).

It is observed that there is an increase both in the number of disasters and in the number of people affected by disasters and in the magnitude of material damage in the world and in Turkey (Figure 2; Çevre Şehircilik ve İklim Değişikliği Bakanlığı, 2024). One of the important points in reducing the number of people affected by disasters and economic losses is to build an aware society against disasters. In order to build a conscious society, it is of great importance to support the information and awareness-raising training starting in the family

with the formal education process. In the formal education process, curriculum and textbooks and well-trained teachers, as well as quality curriculum and interactive textbooks with rich content, have a great impact. Kırıkkaya et al. (2011) emphasize that schools are the places where knowledge, awareness, and behaviors related to disasters can be gained in the most accurate way. In addition to this, Değirmenci (2019) emphasizes the importance of awareness raising and disaster education in schools, which should start at an early age in order to create a society with a high level of knowledge and awareness about disasters. The role of planned disaster training in the compulsory education process is very important in the creation of disaster-resilient societies.

Laying the foundations in the family with the role modeling and awareness level of parents in disaster education will be very useful in terms of supporting the formal education process. Starting from pre-school, efforts should be made to provide information and raise awareness about disasters at every grade level in accordance with the field of study. In this regard, the process of preparing the curriculum that determines the scope of the courses and draws the boundaries of the contents, such as textbooks, interactive content, and digital materials with the perspective of creating knowledge and awareness about disasters, contributes more.

It is expected that geography should be one of the first among the disciplines in which topics related to disasters should find a wide place at the secondary education level due to its research area. Finnis, Johnston, Becker et al. (2007) state that the integration of disaster education in geography and social studies curriculum should be considered as a part of the basic education given to children. It has been emphasized in some studies that there are practices that reveal that effective disaster education is provided in geography courses in different countries (Erdem, 2010; Kekic & Milenković, 2015; Seddighi et al., 2021). It is thought that the fact that geography curriculum is prepared in a way that supports disaster knowledge and awareness-raising processes for disasters is important in order to create a disaster-ready society. Ronald, Merab, and Byalusaago (2017) emphasize that geography courses are the most appropriate discipline due to their interdisciplinary structure in order to reduce the effects of global climate change, which is among the biggest disasters for the whole world in the last century. Artvinli and Dönmez (2023) state that education for disasters plays a major role in reducing the destructive effects of these events and that education is the key to making societies more resilient to disasters. In 2012, Singapore's National Climate Change Secretariat called on the Ministry of Education to include climate change education in official curriculum, including in geography classes (Chang, 2012). In addition, topics related to disasters should be included in the curriculum for people to take part in volunteering activities in possible disasters (Gül & Artvinli, 2024).

In the study conducted by Başbüyük and Pala (2023) on how the curriculum in Turkey include disaster education, it was stated that the acquisitions in the GC were at higher cognitive levels than the acquisitions at primary and secondary school levels. Delen (2023) emphasized that the acquisitions for disaster education are not given as a separate unit or theme in the curriculum but are given in other units. In the study conducted by Kaya, Artvinli, and Dönmez (2023), when the 2018 GC was examined in terms of disaster risk reduction education, it was concluded that the program was insufficient in terms of raising awareness among students and guiding teachers. In the study conducted by Değirmenci and İltter (2013), it was examined how disasters were handled in the geography course curriculum.

When the literature is examined, it is seen that the studies on disasters and Geography curriculum are generally related to disasters in only one curriculum or comparisons are made between different branches and Geography curriculum (Değirmenci & İltter, 2013; Kaya, Artvinli, & Dönmez; Sarıkoca & Topçu, 2024). In the current study, the focus was on the disaster topics in the last two geography curriculum implemented in our country. In this context, the main purpose of the study is to compare the geography curriculum implemented in 2018 and 2024 in terms of disaster topics and contents. From this point of view, the problem statement of the research was determined as "What are the differences between 2018 and 2024 CGPs in terms of the use of the concept of disaster and the distribution of disaster contents according to cognitive domain levels?". The sub-problems formed depending on this problem statement are as follows:

1. How is the frequency of use of the concept of disaster in the 2018 and 2024 Geography Curriculum?
2. How are the learning outcomes, including disaster topics, in the 2018 GC and the learning outcomes, including disaster topics, in the 2024 GC distributed according to Revised Bloom's Taxonomy and according to grades and levels?

Method

This study was designed using the document analysis technique, one of the qualitative research methods. Document analysis involves the analysis of written materials containing information about the phenomenon or phenomena targeted for research (Yıldırım & Şimşek, 2008). Since the Geography Curriculum of 2018 and 2024 were examined in the current study, the document analysis method was preferred as a data collection tool.

Source of Data

The data sources of the study are the Geography Course Curriculum (9th, 10th, 11th, and 12th grades), which was drafted by the Ministry of National Education in 2004 and finalized in 2005; the Geography Course Curriculum (9th, 10th, 11th, and 12th grades), which took its final form in 2018 with changes, additions, and corrections; and the Geography Course Curriculum (9th, 10th, 11th, and 12th grades) prepared by the Ministry of National Education in 2024 within the scope of the Turkey Century Education Model.

Analyzing the Data

In this study comparing the 2018 and 2024 geography curriculum in terms of subject and content related to disasters, content analysis method was preferred as the analysis method since the data were tried to be explained by categorizing. Because the basis of the content analysis method is to categorize what is written and said and to investigate how often they are used (Simon, Burstein, 1985).

Findings

2018 and 2024 Findings and Interpretation Regarding the Frequency of Use of the Concept of "Disaster" in the Geography Curriculum and Its Distribution According to the Units

In the 2018 and 2024 Geography Curriculum, the frequency of use of the concept of disaster is given in Table 1.

Table 1

Comparison of the Frequency of Use of the Concept of Disaster in the Geography Course Curriculum in 2018 and 2024

2018 GC		2024 GC	
Number of "Disaster" Words in Sections Other Than Acquisition/Learning Outcome	Number of "Disaster" Words in Acquisition/Learning Outcomes	Number of "Disaster" Words in Sections Other Than Acquisition/Learning Outcome	Number of "Disaster" Words in Acquisition/Learning Outcomes
1	10	8	165
Total: 11		Total:173	

When Table 1 is analyzed, it is seen that the concept of disaster is used 11 times in the 2018 GC. 10 of these uses are in the outcome statements, and the word "disaster" is encountered only once in the sections other than the outcome. The use of the word "disaster" outside the outcome statements is found in the 11th article in the basic philosophy and general objectives of the program: "Evaluating natural disasters and environmental problems and developing practices for ways to protect and take precautions against them" (GC, 2018).

When we look at the use of the concept of disaster other than the learning outcome statements, it is seen that only protection and taking precautions are emphasized.

All the disaster words in the "outcomes" section of the 2018 GC are found in the "Environment and Society" unit with the decimal code 10.4. 3 of these uses are used in the explanation of the unit, and the explanation is given below:

"In this unit, the causes and characteristics of disasters, the distribution and effects of disasters in the world and in Turkey, and methods of protection from disasters will be covered, respectively." (GC, 2018).

Seven of the uses of the word disaster are directly mentioned in the statements of the outcome and outcome descriptions. These achievements and explanations are given below:

"10.4.1. Explains the causes and characteristics of disasters. Examples of the use of GIS and other spatial technologies in solving geographical problems are given.

10.4.2. Associates the distribution and effects of disasters.

10.4.3. Associates the distribution and effects of disasters in Turkey.

10.4.4. Explains the methods of protection from disasters.

a) Practices against natural disasters in different countries are included.

b) The importance of creating awareness against disasters, especially earthquakes in our country, is emphasized.

c) The responsibilities of individuals during the occurrence of disasters are mentioned (GC, 2018).

As it is seen, when the whole program is taken into consideration in 2018 GC, it is seen that the frequency of use of the concept of disaster is very low both in the outcome statements and in the sections other than the outcome statements. The word disaster is included in only 4 (1.86%) of 215 objectives in the e program. This section is only the Environment and Society unit in the 10th grade. In addition to this, it is seen that in the sections related to disasters which are mentioned in a few places, basic information about disasters in the context of natural processes and environmental problems is given; they are not mentioned as an independent subject, and methods of protection from disasters are superficially included.

When we look at the frequency of use of the concept of disaster in the 2024 GC, 8 uses outside the learning outcomes sections stand out. It is seen that these uses are included in the basic approach and specific objectives of the curriculum and the principles for the implementation of the curriculum, and the first of these uses is ".....It is used as an important tool in the prominent issues on the agenda of Turkey and the world (combating disasters, globalization, urbanization, climate change, planning, environmental problems, geographical information systems, sustainability, etc.)" under the heading 1.1. Basic Approach and Specific Objectives of the Geography Curriculum. The second one is "....8. Approach current issues such as disasters and environmental problems with geographical consciousness and develop their individual knowledge and skills for the goal of a strong society;" under the heading 1.2. Principles for the Implementation of the Geography Curriculum.

The "Disasters and Sustainable Environment" unit aims to evaluate disasters, the effects of which are increasingly observed in Turkey and the world, within the framework of holistic disaster management, to create disaster awareness, and to gain sustainable environmental approaches. In this unit, students are expected to gain awareness about disasters that they may encounter in real life and to develop responsibility for a sustainable environment." (GC, 2024).

In 2024, GC, when we look at the places where the concept of disaster is mentioned in the sections other than learning outcomes, it is determined that disaster and sustainability are given as a whole, and current approaches to disaster management are included.

2024 When we look at the frequency of use of the concept of disaster in the learning outcomes section of GC, there is a separate unit named "6. Disasters and Sustainable Environment" related to disasters in this program. It was determined that the concept of disaster was used 165 times in these units. Table 2 shows the learning outcomes related to disasters in the "6th Disasters and Sustainable Environment" unit, one for each of the four grade levels:

Table 2

Examples of Learning Outcomes Related to Disasters According to Class Levels in the Geography Course Curriculum in 2024

Class Level	Learning Outcomes
9	COĞ.9.6.1. To be able to analyse the concepts of hazard, risk and disaster a) Determines the characteristics of hazard, risk and disaster concepts. b) Determines the relationships between the concepts of hazard, risk and disaster.
10	COĞ.10.6.2. To be able to analyse the geographical conditions of disaster-resistant living areas a) Defines the geographical conditions of disaster resistant living areas. b) Analyses the relationships between the spatial elements in disaster resilient living spaces.
11	COĞ.11.6.1. To be able to create content for environmental problems caused by the strain of the planetary boundary a) It determines the components that form the boundary of the planet and the human impacts on these components. b) It establishes a relationship between the components that make up the boundary of the planet it lives on and human influences. c) Based on the information he/she has obtained, he/she creates an original content for environmental problems caused by the strain of the planetary boundary.
12	COĞ.12.6.3. To be able to compare policies and practices prepared for the prevention of environmental problems in Turkey and countries with different levels of development a) Determines the policies and practices prepared for the prevention of environmental problems in Turkey and countries with different levels of development. b) List the similarities of policies and practices prepared for the prevention of environmental problems in Turkey and countries with different levels of development. c) List the differences in policies and practices prepared for the prevention of environmental problems in Turkey and countries with different levels of development (GC, 2024).

As can be seen, when the whole program is taken into consideration in the 2024 GC, the concept of disaster is used both in the sections other than the learning outcome statements and in the learning outcomes. The number of learning outcomes related to disasters constitutes 21.05% of the total learning outcomes and is 16 (GC, 2024). One of the units in the program is called "Disasters and Sustainable Environment," and this unit is included in all grade levels. When the 2024 GC learning outcomes related to disasters are examined, it is seen that it is viewed from a holistic disaster management perspective, a systematic approach is presented, and it has more comprehensive content by including terms such as disaster awareness and resistance.

2018 and 2024 Findings and Interpretation Regarding the Distribution of Disaster-Related Topics and Contents in the Geography Curriculum According to the Revised Bloom's Taxonomy

Table 3 shows the distribution of learning outcomes related to disaster in the 2018 and 2024 Geography Curriculum according to the Revised Bloom's taxonomy and grade levels.

Table 3

2018 and 2024 Distribution of Learning Outcomes Related to Disaster in the Geography Curriculum According to the Revised Bloom's Taxonomy and Grade Levels

COGNITIVE DOMAIN STEPS	2018 GC		2024 GC		
	Grade 10	Grade 9	Grade 10	Grade 11	Grade 12
Creation				1	
Evaluation			2	1	2
Analysis	2	2	2	1	1
Application					

COGNITIVE DOMAIN STEPS	2018 GC		2024 GC		
	Grade 10	Grade 9	Grade 10	Grade 11	Grade 12
Understanding	2	1			2
Recall					1
Total	4				16

When Table 3 is examined, it is seen that 2 of the 4 learning outcomes related to the subject of disasters in the 2018 GC are in comprehension and 2 of them are in the analysis stage. All of these learning outcomes belong only to the 10th-grade level. In the outcome with the decimal code 10.4.1. (10th grade, 4th unit, 1st outcome), which is positioned at the comprehension level, students are expected to explain the causes and characteristics of disasters, and in the outcome with the decimal code 10.4.4., students are expected to explain the methods of protection from disasters. Since students are expected to understand the causes and characteristics of disasters and methods of protection from disasters, give examples and express them with their own sentences in these learning outcomes; these learning outcomes are positioned at the comprehension level. In objectives 10.4.2 and 10.4.3, students are expected to associate the distribution and effects of disasters and the distribution and effects of disasters in Turkey. Since these objectives require students to establish a cause-effect relationship by linking at least two concepts or phenomena related to the distribution and effects of disasters, these objectives are positioned at the analysis level (Krahtwohl, 2002; Bümen, 2010; GC, 2024). According to Bloom's taxonomy, no learning outcomes corresponding to other levels were identified.

In 2024 GC, it is seen that 1 of the 16 learning outcomes related to the subject of disasters is at the recall, 3 at the comprehension, 6 at the analysis, 5 at the evaluation, and 1 at the creation step (Table 3). A learning outcome corresponding to each of these steps and why it is positioned in the relevant step can be explained as follows.

In the learning outcome with decimal code COĞ.12.6.4. (COĞ.12.6.4. To be able to collect information about the effects of organizations and agreements made for the protection of the natural environment), students are expected to collect information about the effects of organizations and agreements made for the protection of the natural environment. Since the first stage of the information-gathering process is to recall the information learned by the students from their minds, this outcome is positioned in the recall stage. In the learning outcome coded COĞ.9.6.2. decimal, students are expected to be able to interpret holistic disaster management practices through tables, graphs/figures, and/or diagrams. This learning outcome is positioned at the comprehension level since it is necessary to understand what these disaster management practices are in order to interpret them. In the learning outcome with decimal code COĞ.10.6.2., students are expected to be able to question the geographical conditions of disaster-resistant living areas. To achieve this, this learning outcome is positioned in the analysis step since students are required to separate the geographical conditions in these living areas into their components, determine the relationships between these components, and analyze them by establishing a cause-effect relationship. In the learning outcome with the decimal code COĞ.11.6.2, students are expected to be able to discuss strategies to reduce the effects of global climate change and adapt to climate change. For the students to do this, they need to evaluate the information on the subject by looking at it with a critical eye and to reveal their own views by comparing different views, so this learning outcome is positioned in the evaluation step. In the learning outcome with decimal code COĞ.12.6.5. (COĞ.12.6.5. Developing a solution proposal for a sample

environmental problem from the world or Turkey), students are expected to develop a solution proposal for a sample environmental problem from the world or Turkey. Since a solution proposal is developed by using the existing knowledge for the specified problem, this learning outcome is positioned in the creation step (Krahtwohl, 2002; Bümen, 2010; GC, 2024).

When the distribution of the learning outcomes related to disasters in 2024 GC according to Bloom's taxonomy was examined, it was found that 12 of the 16 outcomes were in the analysis and above steps (Table 3). This situation shows that 2024 GC offers a more comprehensive educational goal in terms of subject content related to disasters, focuses on students' active participation and problem-solving skills, and thus offers a wide range and high-level development area (Anderson & Krahtwohl, 2001; Krahtwohl 2002; Bümen, 2010).

Conclusion and Discussion

Comparison of the 2018 and 2024 GCs in terms of disaster education shows that significant progress has been made in the 2024 program. This update not only provides students with basic knowledge about disasters but also enables them to develop a comprehensive awareness of the different stages of the disaster management cycle. In 2018 GC, disaster education was addressed in a limited number of outcomes, and these outcomes aimed to provide more basic knowledge (Kaya, Artvinli, & Dönmez, 2023). However, 2024 GC allocated more space to topics such as disaster awareness, sustainability, and disaster risk reduction strategies, thus enabling students to gain a higher level of disaster awareness. When we evaluate the programs in the context of disaster literacy, it can be said that the 2018 program is dominated by the cognitive dimension of disasters. In the 2024 program, it is seen that cognitive, affective, and behavioral dimensions of disasters are also mentioned (Sözcü, 2019).

In the Turkish education system, disaster education is mostly handled with an interdisciplinary approach and spiral content organization method. Disaster-related topics are included in courses such as Life Science, Social Studies, Environmental Education, and Geography (Kılıç, B. C., 2019; Sözcü & Aydınözü, 2019); however, these topics are not presented in a systematic manner. This deficiency may limit students' acquisition of consistent and in-depth knowledge, especially in a vital subject such as disasters (Değirmenci & İlter, 2013). Disaster education in Turkey should be harmonized with the standards set by the UN's International Strategy for Risk Reduction at the curriculum level. According to this strategy, education programs are expected to address risk reduction awareness through local hazards and participatory methods (Can & Çapuk, 2024).

When examined in terms of Bloom's Taxonomy, it was determined that 2024 GC was positioned at higher cognitive levels in terms of subject and content related to disasters compared to the 2018 program. While in the 2018 program, learning outcomes related to disasters generally remained at the level of basic knowledge, it is seen that the 2024 GC includes learning outcomes for high-level skills such as analysis, evaluation, and creation (Table 2). In particular, the unit "Disasters and Sustainable Environment" added in 2024 CLC contributes to students' ability to analyze disaster risks, produce solutions, and gain awareness on how they should behave during disasters.

Disaster education should include not only knowledge acquisition but also affective and behavioral acquisitions. Considering the role of values in developing disaster awareness, students are expected to develop correct attitudes towards disasters. In the 2018 curriculum, it was found that core values and skills were not sufficiently associated with disaster outcomes

(Canlas & Karpudewan, 2021). In the 2024 curriculum, root values are integrated with disaster education, thus providing a framework for students to acquire values that will increase their awareness of disaster preparedness and resilience. For example, integrating values such as solidarity and benevolence into the disaster education process provides students with a sense of social responsibility (Değirmenci & İltter, 2013).

Recommendations

- The concept of disaster or expressions that evoke it should be included not only in units related to disasters but also in other units. In this way, an interaction can be created for disaster awareness.
- In 2024 GC, the structure of learning outcomes related to disasters can be restructured to provide higher-level skills in the distribution according to cognitive domain steps.
- Studies can be carried out to monitor whether the learning outcomes prepared for high-level skills in the distribution according to the cognitive domain steps are applied by the teachers.
- In the distribution according to the cognitive domain steps, academic studies can be conducted in which sample activities related to the learning processes created according to the learning outcomes prepared for high-level skills are shown.

In this context, with the additional arrangements to be made by taking into consideration the suggestions given in this context, the steps taken by the 2024 GC in disaster education can assume an important role in creating a society that aims to provide students with higher-level skills and is resistant to disasters.

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There is no conflict of interest between the authors.

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Ethics Committee Decision

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