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An Investigation of The Awareness, Attitudes and Behaviors of Primary School Students Towards Natural Resources

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Abstract

The purpose of this study was to determine the level of awareness, behavior, and attitude regarding natural resources among students in the 4th grade of a primary school. The study was conducted in the academic year 2021-2022 among 65 students studying in primary schools located in the central region of Erzincan province. As a case study, the study was designed according to qualitative research methodology. An analysis of the data was conducted using the Vignette technique. The researchers developed short stories with naturalistic content and asked students to answer questions such as "what would you feel?", "what would you think?", and "what would you do?" Content analysis was used to analyze the data. From the content analysis, it was concluded that the students' answers were related to the use, importance, protection, limitation, and exhaustibility of resources in all the awareness, attitude, and behavior dimensions. Despite the fact that students were highly aware of natural resources on a variety of dimensions, it was concluded that some of their awareness did not translate into attitudes or behaviors. However, some positive attitudes did not appear to be reflected in behavior. Based on the findings of this study, it was concluded that students' natural resource knowledge, awareness, attitudes, and behaviors were lacking on a number of different levels.

Key Words

Primary school students
Environment
Natural resources

About Article

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Introduction

The term environment is used in a different manner today than when it was first used by ecologists at the turn of the 20th century. A common definition of the word "environment" is that it refers to those factors that provide the basic natural resources we rely on to survive (Jones, 2014). Because people forget that they are part of nature, they do not realize that by relying too heavily on natural resources and moving away from nature, they are causing environmental damage (Çabuk, 2021). Humans, as well as all other living things, live in an environment where natural resources must be used effectively and efficiently in order to survive (Gök and Arıcı, 2016). Since the dawn of time, mankind has been changing the environment, and a substantial portion of our current wealth was derived from the transformation of nature into productive assets (European Commission, 2002). Today, society is becoming increasingly concerned about the degradation of the environment. These resources are becoming increasingly scarce due to increasing human consumption and population pressure, and degradation of environmental resources is frequently regarded as humanity's greatest threat. In this regard, biodiversity loss and the potential degradation of ecosystems that support life are examples of the problem (European Commission, 2002).

The Human and Environment Conference held in the 1970s, and the Tbilisi Declaration, contributed to international unity for dealing with environmental problems and increased pressure on natural resources (Teksöz, 2020). It was primarily Western countries that began to pay attention to natural resources during the 19th century (Doğanay and Altaş, 2020). The first signs of natural resource depletion began to appear in the 1950s, indicating that our utilization of the biosphere is not an endless process (Jones, 2014). It was in the 1970s that awareness of environmental problems affecting human life began to focus on water, air, and soil pollution. Following the scientific studies conducted in the 1980s, water, air, and soil pollution continued to be a major concern for environmental protection. In the 1990's, the focus of the content shifted to the environment, society, and economy, and, since 2020, the content shifted to the realization of sustainable development goals (Teksöz, 2020).

People's relationship with natural resources begins at birth and continues throughout their lives. In the course of human history, natural resources have been used in various ways and people have benefited from these resources to survive and prolong their lives (Ateş Gençtan and Tangriverdi, 2022; Koca and Toklu, 2020). As a result of the industrial revolution, people have developed a closer relationship with nature. Throughout history, humans have seen, used, and polluted nature as a limitless resource, which has resulted in a wide range of environmental problems worldwide. The rapid urbanization, technological advancements, and increased industrialization have led to an increase in production while at the same time increasing its use. As a result, a sustainable development approach has been developed in an effort to ensure that depleting natural resources are transferred to future generations without being completely depleted (Çabuk, 2021; Jones, 2003; Tıraş, 2012). By focusing on the limitations of the planet's resources with the understanding that all living things have a right to life, environmental sustainability emphasizes the importance of raising awareness about the effects of human-environment interaction on the environment (Unesco, 2005). The concept of environmental sustainability aims to ensure the continued use of natural resources by all living things without harming them and without ignoring the needs of future generations. By damaging natural resources with their lifestyles and consuming them in a way that cannot be recycled, humans prevent this from occurring (Köklü Yaylacı and Feriver, 2020).

The term "natural resource" refers to any element or material that is naturally occurring in its primary form and is useful for one or more human activities (Jones, 2003). Natural resources refer to all resources that are derived in the natural world and are capable of meeting human needs. Among the natural resources are water (lakes, seas, rivers), soils, natural vegetation, minerals, and natural animal communities. In addition, the sun is at the top of the list of natural resources, as it is the source of natural and unnatural formations. It is possible to categorize natural resources in different ways, including organic and inorganic resources, exhaustible and inexhaustible resources, and renewable and nonrenewable resources (Başol, Durman and Çelik, 2005). The most common classification scheme divides natural resources into three categories: renewable (e.g. solar, wind, hydropower), non-renewable (e.g. fossil fuels, minerals) and potentially renewable (e.g. freshwater, fertile soil, biodiversity) (Koutsoukos and Mouratidis, 2016). In addition, the energy resources that are used by humans in many

areas also fall under the category of natural resources (Koca and Toklu, 2020). Natural resources classified as renewable resources include oxygen, fresh water, wood, and biomass. In contrast, they can become non-renewable resources if they are used at a rate that exceeds the capacity of the environment to replenish them (Balasubramanian, 2022).

As a result of the fact that natural resources have been utilized in almost every field since human history began, it is clear how important natural resources are to humanity. The more people value natural resources, the greater the return they will receive. They should be aware that, if they are not given the necessary importance and not used effectively and consciously, they will face negative effects in the future, and humanity will be endangered (Koca and Toklu, 2020). To effectively manage any natural resource, one must first understand its characteristics and qualities, and such knowledge can be obtained largely through education (Koutsoukos and Mouratidis, 2016). The emergence of environmental disasters at unexpected times and places, scientific research on these events, published books, and the realization that natural resources have the capacity to carry people and that they can threaten human life when this capacity is exceeded have all contributed to an increase in environmental education. Due to the growing impact of environmental problems on human life and the call for solutions, environmental education has become increasingly important (Teksöz, 2020). The provision of individuals with knowledge and personal characteristics related to this subject from primary school is likely to enable them to fulfill their responsibilities as citizens (Baloğlu Uğurlu, 2007). From a very young age, individuals should be educated about the effective use of natural resources, which is a very important issue for humanity. It is important for the general public to understand the natural resources in the environment they live in, how they are used, where they are used, and how to utilize them effectively (Koca and Toklu, 2020). Additionally, effective education develops skills that prepare individuals to engage in proactive environmental action and responsible behavior towards the environment in a collaborative manner, in addition to developing a sense of awareness, attitude, value, and knowledge (Aminrad et all., 2013; Ardoin, Bowers and Gaillard, 2020; Orbanic and Kovac, 2021). Conscious students play a vital role in creating this awareness in society (Sengwar, 2015). Today, students are required to acquire knowledge, attitudes, and behaviors about environmental problems and natural resource usage (Baloğlu Uğurlu, 2007). There is a strong correlation between students' awareness and attitudes towards environmental issues, according to Aminrad, Zakariya, Hadi, and Sakari (2013). It is therefore critical to have an awareness of natural resources that takes into account the past, present, and future, and that this awareness should be reflected in attitudes and behaviors.

As part of the review of the primary school curriculum, the subject of natural resources is included among the subjects of Life Science, Social Studies, and Science courses. When the main objectives of these curricula are reviewed, it has been noticed that individuals who are sensitive to nature and the environment are aimed to be educated in the Life Science course, individuals who are aware of the limitations of resources and try to protect natural resources with environmental awareness are aimed to be trained in the Social Studies course and individuals who have a sustainable understanding of the environment are targeted to be developed in the Science course (Ministry of National Education, MoNE, 2018).

Based on the reviews of curricula, it was observed that the concepts and activities related to natural resources in Social Studies curricula and textbooks should be enhanced and accompanied by illustrations within the context of the sustainability of natural resources at each grade level (Koca and Toklu, 2020), and in Life Science curricula, knowledge was emphasized above skills, attitudes, and attendance (Öz-Aydın et al., 2022), environmental education was not incorporated into the science curriculum outcomes (Muşlu Kaygısız, 2020), environmental education curricula was mostly prioritized the knowledge dimension among the environmental education objectives of the Tbilisi Declaration (Dere and Çinikaya, 2023). In addition, although studies and curricula were reviewed in different age groups regarding environmental awareness, attitudes, perceptions and natural resources (Aksan and Yenikalaycı, 2019; Aminrad et al, 2013; Aydın Gürler, 2023; Balakoğlu and Erol, 2020; Çelikler el al., 2019; Erdem et al., 2019; Muşlu Kaygısız, 2020; Tokmak Karamık and İlhan, 2023; Yeşilyurt el al., 2021), the studies involving students other than primary school students were noticed to be conducted more frequently (Balasubramanian, 2022; Koca and Bilgiç, 2020; Koca and Kaya, 2014; Koca and Yıldırım, 2016; Koutsoukos and Mouratidis; 2016; Öz-Aydın et al., 2022; Tıraş, 2007;), and especially in the primary

school dimension, there were no studies except for a few (Duran, 2019; Koca and Toklu, 2020). This study investigated awareness, attitudes, and behaviors towards natural resources in primary school Life Science, Social Studies, and Science curricula, which were the basis of environmental education. We analyzed the awareness, attitudes, and behaviors of primary school 4th grade students regarding protecting and using natural resources in order to understand students' beliefs about natural resources, their attitudes toward natural resources, and their behaviors which reflect those attitudes.

The purpose of this study was to assess students' awareness, attitudes, and behaviors regarding protecting and using natural resources. This was accomplished by seeking answers to the following sub-problems:

- How aware are the students of 4th grade primary schools regarding the use and protection of natural resources?
- How are the attitudes of 4th grade primary school students toward the protection and use of natural resources?
- How are the behaviors of 4th grade primary school students regarding the protection and use of natural resources?

Method

Study Design

As a qualitative research method, this study was carried out as a case study. There is an in-depth analysis of one or more cases in a case study. Factors relating to a case are analyzed holistically and a focus is placed on how these factors affect or are affected by the case. In holistic multiple case studies, each case is analyzed holistically within itself and then compared with each other (Yıldırım and Şimşek, 2021). As part of this study, natural resources were examined independently as awareness, attitude, and behavior, and then holistically as a whole.

Research Group

A total of 65 fourth grade students studying in public primary schools in Erzincan city center participated in the research. Among the participants in the study, 34 were females and 31 were males. In qualitative research, there are no rules regarding the size of the sample. It depends on what we want to know, what the research is intended to accomplish, what will be useful, and what can be accomplished within the constraints of time and resources (Patton, 2018). The students and schools participating in the research were selected based on these criteria. The research group was selected using the convenience sampling method, one of the purposeful sampling techniques used in qualitative research. The purpose of convenience sampling is to allow the research to be conducted as quickly and practically as possible (Yıldırım and Şimşek, 2021).

Data Collection Process

Having obtained the necessary ethical approvals, the research was conducted with the permission of the school administration and the voluntary participation of the students. Forms containing short stories suitable for the Vignette technique were distributed to the students, who were shown an example of how to complete the form before being asked to fill it out themselves. While completing the forms, the researchers assisted students who needed assistance at points that were unclear.

Data Collection Tool

As part of the research, short stories prepared by the researchers according to the Vignette technique were used to measure the levels of awareness, behaviors, and attitudes of primary school students towards natural resources. As part of this technique, perception, belief, and attitude are explained as stories that refer to important points in the study and are constructed from relevant research findings, professional opinions, or first-hand experiences (Boydak Özan, 2015; Carlson, 1996). Because vignettes are hypothetical and often contain fiction, the stories and their questions obtain information beyond the informant's current personal situation (Schoenberg and Ravdal, 2000).

The following stages were analyzed while creating the short stories:

Stage 1: Prior to beginning the research, a literature review on primary school students and natural resources was conducted.

Stage 2: A review of studies that used the Vignette technique in the literature was undertaken, information about the technique was collected, and a discussion of the characteristics of short stories and the points that need to be considered was conducted.

Stage 3: Life Science, Social Studies, and Science curricula in primary schools were analyzed, and the natural resources and acquisition levels were determined.

Stage 4: Following these stages, eleven short stories were developed based on the natural resource outcomes that should be provided to primary school students. Experts in their fields, two primary school teachers and one science and one social science educator, analyzed the stories. As a result of the analyses, 7 stories were selected and finalized. The case scenarios represented erroneous situations regarding the protection and use of natural resources. Each participant was asked to write two responses to the questions "What do you think?", "What do you feel?", and "What do you do?" These questions measured awareness, attitudes, and behaviors:

While you were studying in your room, you took a 15-minute break and went to the living room to watch TV. While watching TV, you realized that you did not turn off the lamp in the room,

What do you think?

1.

2.

What do you feel?

1.

2.

What do you do?

1.

2.

Figure 1: Data collection tool

A content analysis was used to analyze the data of this research, which was conducted using the Vignette technique. As part of content analysis, whose primary objective is to analyze the data in detail, it is necessary to classify the data, group them under a variety of themes and concepts based on their similarities and interpret the data by arranging it in a meaningful manner. (Yıldırım and Şimşek, 2021). During the analysis of the data, the following stages were followed in order:

1. Classification Stage: On the forms collected from the students, it was determined whether the responses were blank or not, as well as whether or not they were related to the subject.
2. Elimination Stage: Among the responses given to the awareness, attitudes, and behaviors towards natural resources, those that were irrelevant / didn't answer most of the questions or wrote the same answer to every case were eliminated. Four papers were excluded from the analysis as a result of this elimination, while 61 were included in the content analysis.
3. Coding Stage: The responses of students to the questions on the form were coded separately according to the dimensions of awareness, attitude, and behavior.
4. Category Development Stage: Following the coding, the responses with the same characteristics were categorized according to awareness, attitude, and behavior. A questioning approach was used to create these categories, similar to the study by Koca and Yıldırım (2016) that examined the "Resources of Our Country" unit in the 6th grade social

studies course for the purpose of examining natural resource protection awareness among students.

5. Stage of Ensuring Validity and Reliability: Validity and reliability are essential components of qualitative research credibility. Moreover, to be accepted as scientific research and to increase its credibility, the research process and results must be clear, consistent, and verifiable by other researchers. Credibility of a study is enhanced when people with general knowledge of the research and experts in qualitative research methods examine the research from various perspectives (Yıldırım and Şimşek, 2021). For the purpose of ensuring the validity and reliability of this research, the procedures for data analysis were described in detail. During the research, codes were generated from students' responses to the short stories, and the student expressions were left unchanged. Based on the codes obtained, similar categories were created for the phenomena (conscious use of natural resources, consequences of unconscious use, limitation and exhaustibility of resources, use of resources, importance and use of renewable resources) questioned by Koca and Yıldırım (2016) regarding students' awareness of the importance of protecting natural resources. A number of other researchers were consulted regarding the codes and categories, and the coding and categories were finalized by taking into account their disagreements and agreements. A similar set of categories was obtained for natural resource awareness, attitudes, and behaviors.

In each dimension of awareness, attitude, and behavior towards natural resources, the same categories were obtained. Natural resources were divided into four categories based on their use, protection, importance, limitedness, and exhaustibility. In regard to awareness, attitude, and behavior towards natural resources, the same categories emerged, enhancing the study's consistency and transferability.

6. Stage of Transferring the Data to the Computer: In the data analysis, there were 4 different categories, and each category had its own codes. After the codes and categories were imported into the computer, the findings were expressed with illustrations.

Findings

In this study, which was conducted to determine students' awareness, attitudes and behaviors towards natural resources and the use of natural resources, students were first asked the question "What are the natural resources?". The responses from the students were presented in Figure 2.

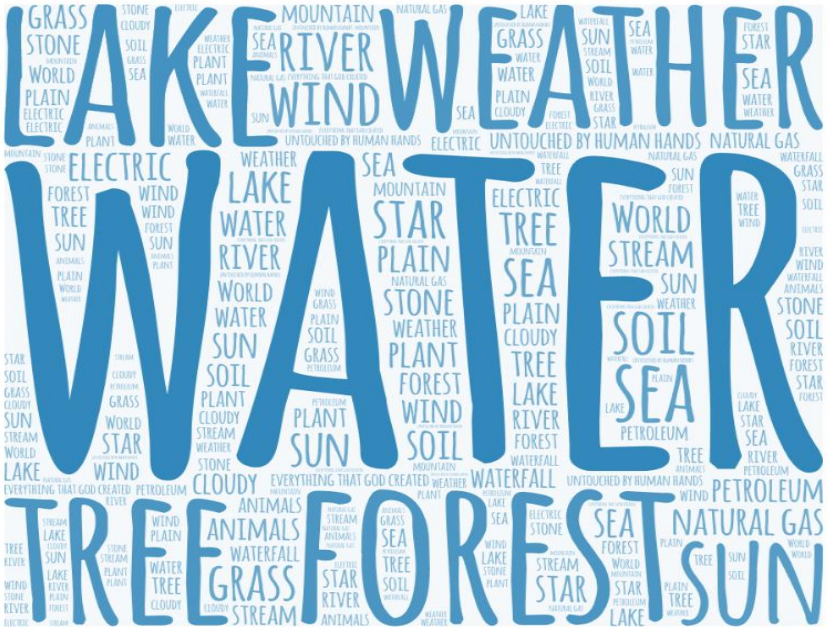

Figure 2: Natural resources

The figure illustrated the concepts students were familiar with regarding natural resources. It was observed that students mostly associated the concept of natural resources with the concept of "water." "Forest," "sun," "tree," "air," and some minerals (oil, natural gas) were also frequently included among the responses. Further, although not frequently, it was noted that they also expressed natural resources such as "animal," "soil," and "plant/vegetation." It was concluded that natural resources were confused with landforms such as "mountain," "plain," "river," "lake," and "waterfall" which were considered natural by definition. Additionally, responses such as "everything created by God," "things untouchable by human hands," "human," "star," and "heart" were also identified as natural resources.

Based on the responses of the students, it was inferred that some of them were aware of natural resources but were lacking in knowledge or had misconceptions about them. As a result of this finding, the awareness, attitudes, and behaviors associated with natural resources were examined separately. As part of the case scenarios, students were asked to write answers to the questions "What do you think?" "What do you feel?" and "What do you do?" The responses to these questions were used to measure their knowledge, attitudes, and behaviors. In Figure 3, students' responses to the question "What do you think?" indicated their awareness of natural resources.

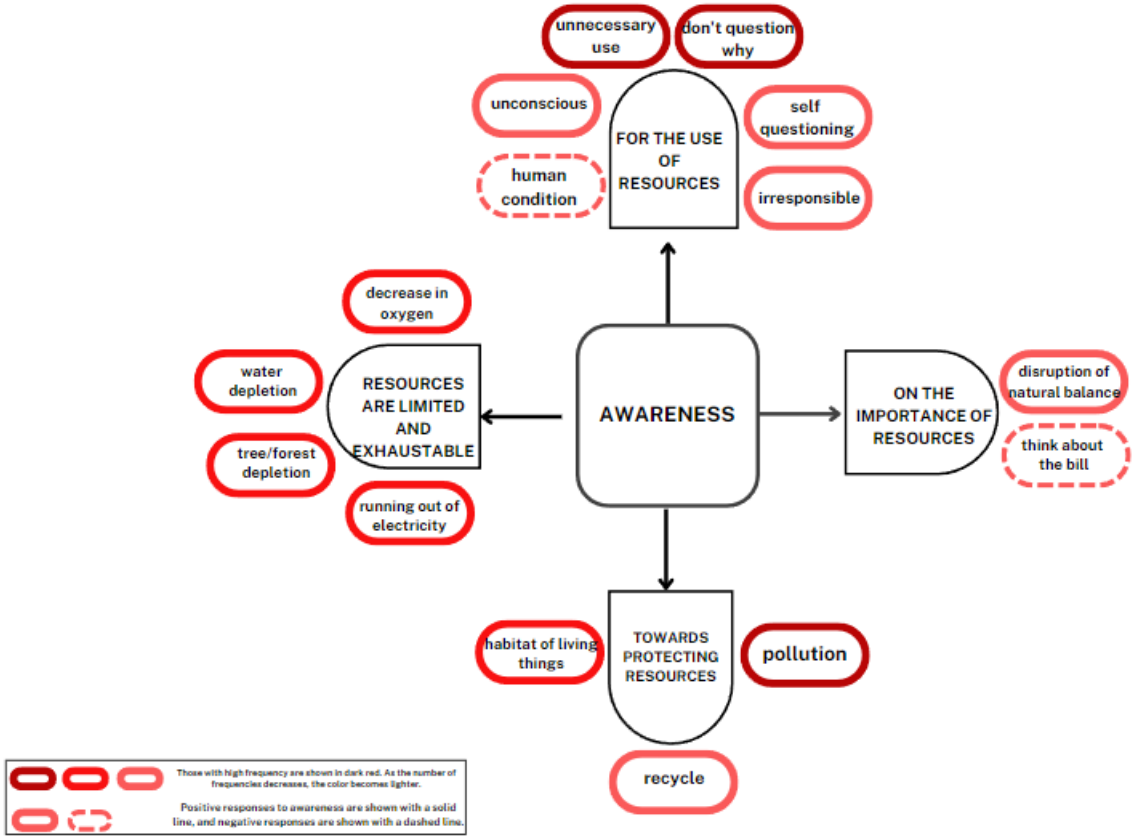

Figure 3: Awareness towards natural resources

The awareness of students towards natural resources was analyzed in Figure 3. According to the results of the study, students had a good understanding of several aspects of natural resources and their use, including "use of natural resources", "importance", "protection", and "limited and exhaustible". Their awareness on natural resources was mainly in terms of the use and protection of resources, followed by the limited and exhaustible nature of resources and the importance of resources.

Students' awareness of resources and their use were observed to be particularly related to the unnecessary use of resources and its reasons. Among their responses, it was also noted that people were unaware and irresponsible towards the use of resources, and that they questioned themselves in such situations. In spite of the fact that the answers given by the students regarding misbehavior toward natural resources indicated a high level of awareness, in cases where misuse, which was considered "human nature" among the responses given, was considered natural, some students did not demonstrate

adequate awareness of natural resource utilization. In addition, in the dimension of recycling, which was included in the awareness of the use of natural resources, although there were positive responses regarding recycling, the answers "I do not know the symbol", "I am undecided" or "it is expensive because of its quality" suggested that students were unaware of the recycling of natural resources.

In the dimension of pollution, it was observed that their awareness of the protection of natural resources was high, and they explained this by using the expressions of air, water, sea, nature, or environmental pollution:

"Due to the pollution they are causing, I believe they are destroying the future."

"I think the seas become polluted because I think the seas are important for us."

Upon analyzing their awareness of the importance of natural resources, it was frequently stated that natural resources should be protected since misuse of natural resources damaged the habitats of living things. Aside from habitats for living things, disruption of the natural balance was also mentioned, although not very frequently. Responses that were notable in terms of habitats for living things and disruptions to the natural balance indicated that some students have a fundamental understanding of natural resources. Nevertheless, thinking about the upcoming bill rather than protecting natural resources, especially in the misuse of electricity and water, was also cited as one of the responses. Some students were unaware of the importance of natural resources, as indicated by this finding:

"I would consider shutting it down so that electricity is not wasted, and the bill is not too high."

As a result of an examination of the students' awareness of the limited and exhaustible nature of natural resources, frequent responses were made about the decrease and exhaustion of oxygen, trees/forests, electricity, and water due to improper use of natural resources. As a result, students were relatively aware that resources were limited and exhaustible:

"(I think) it harms people's lives, we will run out of breath."

It was determined that there was a high or low level of awareness of natural resources in different dimensions. In Figure 4, it was presented how the students' attitudes were affected by this awareness.

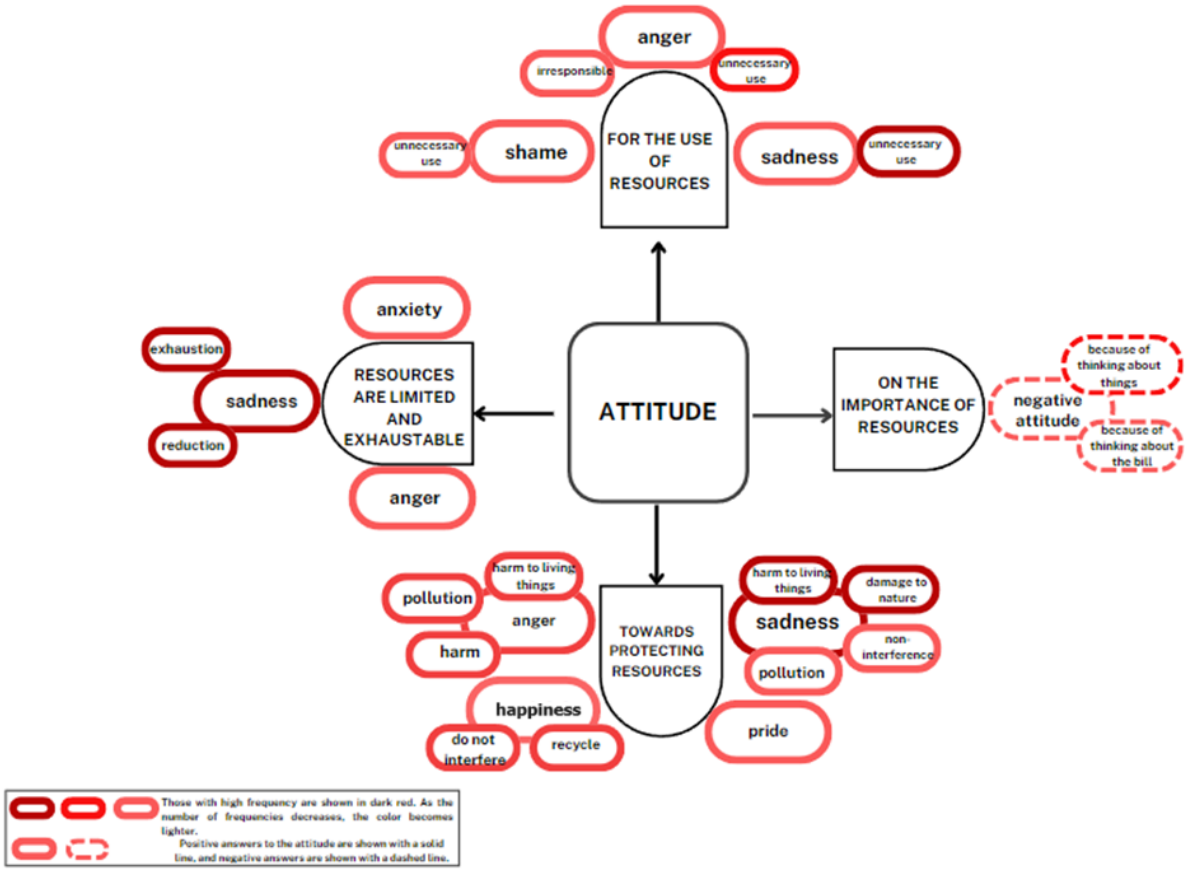

Figure 4: Attitude towards natural resources

Figure 4 illustrated students' attitudes towards natural resources and their use of them by responding to the question "How do you feel?". In terms of students' attitudes towards natural resources, it appeared that they were concerned with "use of resources", "importance", "protection", and "limited" and "exhaustible." According to the results, students demonstrated positive attitudes toward natural resources and their use in terms of use, protection, limited, and exhaustible resources, but a more negative attitude towards resources' importance.

Based on the responses of students, it was found that they experienced feelings of sadness, anger, and embarrassment towards the use of resources, especially when they were being used in an unnecessary manner. They often expressed sadness regarding the unnecessary use of natural resources in their attitudes towards the use of resources. Furthermore, it was also frequently reported that they became angry when natural resources were used in an unnecessary manner:

"I'm unhappy because they cut down the trees and our oxygen is decreasing."

"I would be upset because a tree symbolizes breath and breath is more important than a house and those trees are also the home of some animals."

Based on student attitudes towards the protection of natural resources, it was found that students were very often upset when nature and living things were damaged as a result of misbehavior. As well as this, they frequently stated that they became angry when nature was polluted and that they were happy when they recycled:

"I feel angry because the seas are affected, and the air is polluted."

"I would be upset and angry because their unconscious behavior threatens the lives of some living beings."

Upon analyzing the student expressions in the context of natural resources being limited and exhaustible, although they expressed feelings of anxiety and anger, they explicitly stated that they were more upset by this situation:

When student attitudes towards the importance of natural resources was analyzed, the responses frequently included the statements "I worry about the future bill", "I feel sad because the family budget is damaged", "I feel sad because the faucet is broken", "I feel sad or angry because the damage to natural resources prevents me from doing things (not being able to have a picnic, etc.)" rather than the importance of resources. This indicated that students lacked a positive attitude towards the importance of natural resources:

"I feel happy to turn off the light because my family pays less."

The students appeared to have positive or negative attitudes towards natural resources in different dimensions. How these attitudes affected their behaviors was presented in Figure 5.

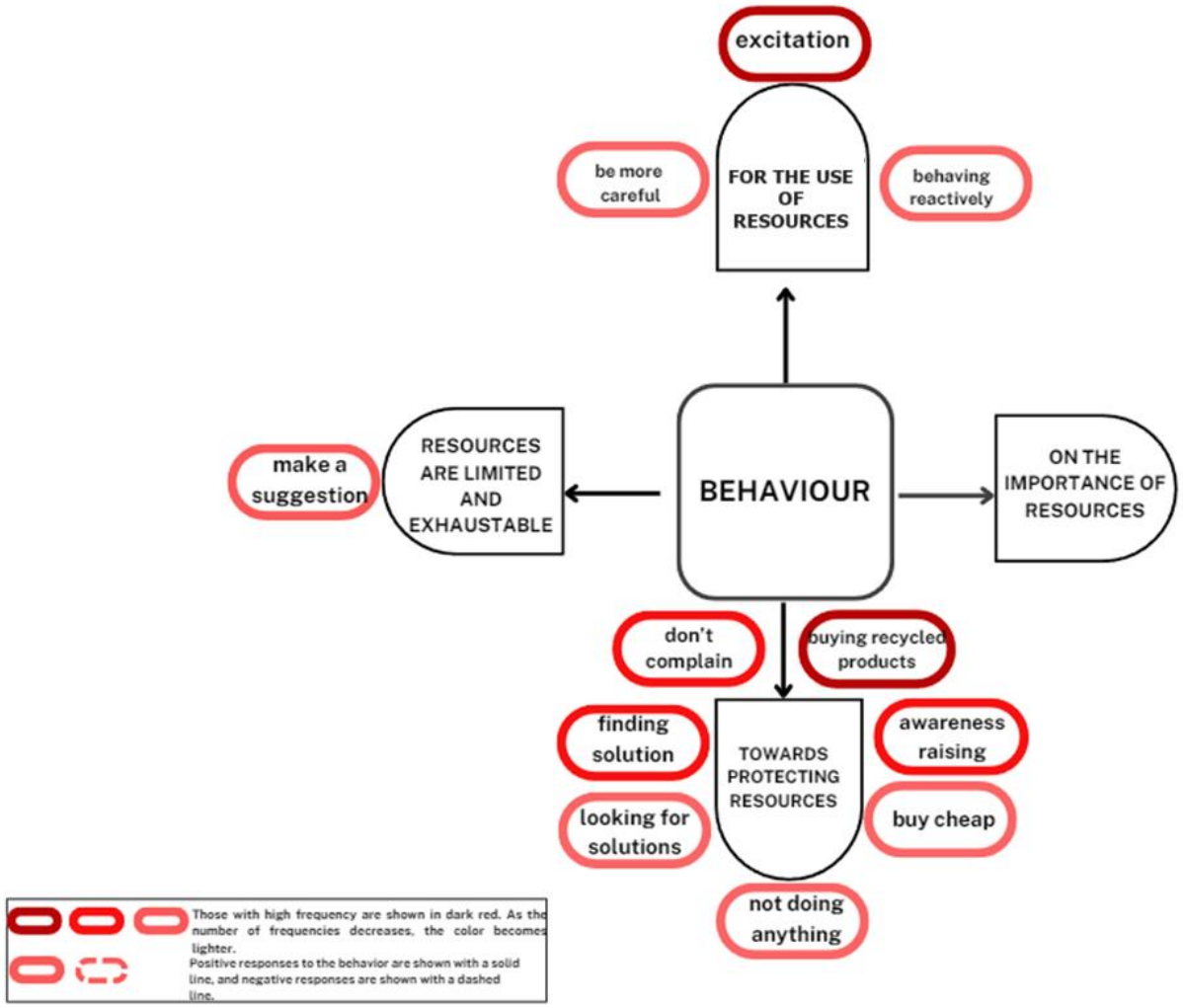

Figure 5: Behavior towards natural resources

As shown in Figure 5, students' responses to the question "What do you do?" indicated their behavior toward natural resources and the way in which they used them. The students' behaviors towards natural resources were related to issues such as "use of resources", "importance", "protection", and "limitation and exhaustibility". After examining the responses of the students, it was determined that they exhibited behaviors in the intended manner in the dimensions of "use" and "protection" of natural resources and resource use; however, there were few behavioral examples in the dimensions of "importance" and "limited and exhaustible."

Upon examining the students' behaviors in regards to the use of natural resources, it was found that they often displayed warning behaviors in the event of misuse of natural resources. Furthermore, although not very often, reactive responses such as "I will be more careful" or "I will cause chaos", "I will sue," or "I will beat" were also mentioned after misuse:

"Upon complaining to the police, s/he is fined, and a chimney filter is installed."

"I find that person (the polluter) and I warn him/her for polluting the environment and tell him/her not to do it again."

"I'll create chaos with the nature lovers, I'll beat the workers."

When the behaviors towards the protection of natural resources were examined, it was noted that in case of misbehavior, the most common behavior was to complain to the relevant authorities; however, finding solutions (cleaning, calling a repairman, etc.), seeking solutions (talking to the authorities, collecting information, asking for help, trying to prevent, etc.), and raising awareness (warning signs, slogans, etc.) were also among the frequently given answers.

"*I'll write a petition to the factory and tell them not to pollute the environment."*

"I will write a petition and submit it to the municipality."

Furthermore, "I do not intervene", "I am powerless to change the situation", and "I do not eat in a dirty place, I clean it up" were among the responses received against the inappropriate situations. Although some students demonstrated intended behaviors regarding the usage of natural resources, it was determined that this was not the case for all students.

It was concluded that students' responses to behavioral questions regarding natural resources were not very focused on the fact that natural resources were limited and exhaustible, and that some students responded primarily to suggesting solutions to others (cut down dry trees, plant saplings elsewhere) or finding solutions on their own (I plant saplings). Based on the low number of positive responses, it would seem that students did not have many positive behaviors regarding the fact that natural resources were limited and finite.

Discussion, Conclusion and Suggestions

Students in the 4th grade of a primary school were investigated with respect to their awareness, attitudes, and behaviors about natural resources in this study. The first thing they were asked about was what natural resources were, and although they frequently referred to natural resources such as water, forests, trees, but air, soil, vegetation, and animals were not mentioned frequently, and some minerals were not mentioned at all. A number of natural landforms were also described according to their origins (plains, lakes, rivers, forests, etc.). It was apparent that students did not fully comprehend what natural resources were, and their knowledge of natural resources was limited. When Duran (2019) measured primary school students' knowledge about natural resources, he found that students referred to forests, flowers, and water as natural resources. According to Koca and Toklu (2020), soil and water were the most commonly used concepts of natural resources in Social Studies coursebooks. In general, the results of these studies were in agreement with the answers given by the students about natural resources. In addition, according to the findings of the study carried out by Koca and Toklu (2020), it was stated that some natural resources that were not included in the Social Studies curriculum were included in the coursebooks but were only briefly addressed in the curriculum. Consequently, it was discovered that students may not have a sufficient understanding of natural resources as a result of the superficial inclusion of some resources in the curriculum.

Students were asked to respond to short stories about protecting and utilizing natural resources in the study. On the basis of the answers provided, the dimensions of "use", "importance", "protection", and "limited and exhaustible" of resources were created. Despite the high level of student awareness of natural resources across different dimensions, it was concluded that some of these awareness did not translate into attitudes or behavior. Nevertheless, some positive attitudes were not reflected in behavior. The results indicated that students' knowledge about natural resources was incomplete or not internalized, resulting in their inability to develop positive attitudes or to reflect these attitudes in their

behavior. Upon examining the metaphorical perceptions of 6th and 7th grade students regarding natural resources, Koca and Bilgiç (2020) concluded that the instructional methods for abstract concepts, which were particularly intensive in the social studies curriculum, should be highlighted, thereby preventing incomplete and incorrect learning. In addition, Muşlu Kaygısız (2020) compared the learning outcomes of primary school science course and preschool curricula in terms of environmental education. They concluded that environmental education was not sufficiently included in the outcomes, and that more emphasis in the curriculum could improve students' attitudes and behaviors towards the environment, thereby increasing their civic participation. An article by Aminrad et al. (2013) stated that environmental education could enhance attitudes and knowledge about the environment, which were essential to understanding and solving environmental issues.

The dimension of the use of natural resources was examined, and it was found that the students were aware of the unnecessary use of natural resources, that this made them angry and upset, and that they generally warned others not to use natural resources in an unnecessary manner; however, there were few responses suggesting that they should be more careful. Accordingly, students were aware of the need to conserve natural resources, had positive attitudes, and expected positive behavior from others, rather than reflecting this on their own behavior.

Upon examining the dimension of the importance of natural resources, it was found that the students were aware of the deterioration of the natural balance, but this response was not repeated very frequently. Furthermore, it was observed that some student responses stated that they were inclined to consider the bill, rather than the natural resources, to fight against the misuse of resources. Furthermore, it was observed that students generally held negative attitudes regarding the importance of natural resources, and that they were more concerned about the family budget or the bill than the natural resources. It was observed that they provided no response to the behavior dimension. As a result, it was evident that students had deficiencies in terms of their awareness, attitudes, and behaviors regarding the importance of natural resources. In spite of the students' assertions that they exhibited some positive awareness, attitudes, and behaviors regarding use, protection, limited, and exhaustible resources, they reported that their primary concern was the family budget or the bill, rather than natural resources. When Öz-Aydın et al. (2022) evaluated the primary school life science curriculum in terms of awareness, knowledge, skills, attitudes, and participation, they stated that the knowledge category was supported the most. When Dere and Çinikaya (2023) examined the Environmental Education and Climate Change Curriculum in secondary education, they concluded that the curriculum served the most knowledge dimension amongst the environmental education objectives of the Tbilisi Declaration and that the curriculum served the least participation objective. Based on a review of the primary or secondary school curriculum, it was observed that environmental education learning outcomes were mostly focused on the knowledge dimension, and that the curriculum had deficiencies in the attitude and behavior dimensions, which were reflected in the students' behavior.

Students were aware of the pollution of natural resources when the dimension of protecting natural resources was examined, they expressed anger when natural resources were polluted, and in the behavioral dimension, complaints and finding solutions to this situation, as well as raising awareness among people, were the most common responses. Based on the research conducted by Duran (2019) for primary school students, it was concluded that students should be conservative in protecting natural resources, refraining from harming them, and warning others. This study supported the results obtained in the dimension of protecting natural resources.

Students showed high awareness of the importance of protecting natural resources in the dimension of protecting natural resources. The students were upset when nature and living things were damaged, and they displayed behaviors such as complaining, raising awareness, and finding solutions to those who acted wrongly in such circumstances. As a result, students were highly aware of pollution and the existence of living things when it came to protecting natural resources, that their awareness resulted in positive attitudes, and that this awareness and attitude were reflected in their behaviors when they themselves demonstrated examples of solution-oriented behavior, even though they expected a great deal from others. According to Orbanic and Kovac (2021), students had a high level of environmental awareness and generally had a positive attitude towards nature and its protection. This study supported the results obtained for students' natural resource protection behaviors.

While students showed a high level of awareness, positive attitudes, and behaviors in relation to protecting natural resources, this was not the case when it came to recycling. Students were not very aware of recycling, especially some of them were not familiar with the recycling symbol, but they became enthusiastic about recycling and stated that they would prefer to purchase recyclable products. According to the results of the study, students lacked knowledge and awareness regarding recycling, although they might have had positive attitudes and behaviors toward recycling as a result of environmental influences. While they were not highly aware of recycling because they did not know the recycling symbol, the fact that they said they were happy with recycling also demonstrated that they were aware of the need to recycle but were not able to put it into practice. Additionally, they stated that they would be satisfied when purchasing recycling products. It was evident that they understood the need for recycling but had little knowledge of the content and were unable to adopt it. In previous studies, it was shown that students could obtain information from sources such as their parents, teachers, and the media; however, the results of this information may differ from one study to another (Hall and Rogers, 2002; Mrema, 2008). As a result, students acquired some knowledge about the environmental impacts of recycling but displayed positive attitudes and behaviors without raising awareness through incomplete or complex/incorrect learning. According to Mrema (2008), in their study of increasing attitudes and behaviors towards recycling in schools, students were aware of recyclable products that attitudes and behaviors were influenced by a variety of factors, and that students were generally aware of recycling but did not take action. There was no overlap between the results of this study and the results of this study. The study found that while awareness should be high and attitudes and behaviors should increase, awareness was lower, and attitudes and behaviors were higher. As a result, children's awareness and, indirectly, their attitudes and behaviors were affected. Therefore, when teaching something to children, it would be advantageous to provide them with explanations as to why they should understand it.

As a result of the high awareness that students had regarding pollution of resources, their anger in the event of pollution of resources, and their statement that they would complain about the polluters, find solutions, or raise awareness in this case, it was evident that their awareness, especially in the aspect of pollution, was reflected in their attitudes and behaviors. Additionally, in the context of limited and exhaustible resources, it was concluded that they were aware that trees, water, energy, and oxygen resources could be depleted through misuse of these resources. Additionally, they expressed sadness over the decline and depletion of natural resources. In the behavioral dimension, students did not respond much, and those who did responded generally offered suggestions to others and corrected misbehavior themselves, although not very often. Aminrad et al. (2013) stated that there was a strong correlation between awareness and attitude concerning environmental issues, particularly environmental problems, and that students with high awareness could increase their attitudes based on their awareness. In spite of the fact that their awareness was high, and their attitudes were positive in the dimensions of pollution, limited, and exhaustibility, the study was consistent with the fact that their awareness and attitudes were positive in the dimensions of pollution, limitedness, and exhaustibility.

Despite the fact that natural resources were an important aspect of environmental education included in the acquisition of Life Science, Science and Social Studies courses in primary school curricula, it was not widely incorporated into 4th grade curricula and literature. Including natural resources more frequently in the curricula is necessary in order to increase students' knowledge, awareness, attitudes, and behaviors towards natural resources, as well as eliminate students' missing and incorrect knowledge. The learning outcomes should be appropriate for the outcomes from the knowledge dimension to the attitude and behavior dimension. As a result of the activities that will be carried out by teachers in and outside the classroom, it is believed that high levels of awareness, positive attitudes, and behaviors towards natural resources will improve.

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