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Exploring the Impact of Values Education on Sustainable Environmental Awareness and Behavior Among Eighth-Grade Students

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Abstract: Education plays a crucial role in fostering numerous established and sustainable behaviors in individuals. Among these behaviors, environmental awareness is particularly important because of its significant sociological impact. The aim of this study is to investigate the effect of values education on environmental awareness and pro-environmental behavior. This study employs a mixed-method approach, combining both quantitative and qualitative research methods. The quantitative part of this research consists of 225 eighth-grade students and the qualitative part consists of six Turkish teachers. As a result of the quantitative analysis, it was found that the environmental attitude levels of the middle school students participating in this study were at a high level. In the qualitative analysis, it was found that the teachers participating in this study established a strong connection between mother tongue education, values education, and environmental education. The outcomes from the qualitative and quantitative analysis were discussed in depth and compared with the results previously presented in the literature. Additionally, the findings of this study indicated opportunities for future research as presented in the Discussion Section.

Keywords: education; environmental education; values education; environmental awareness; mother tongue education

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1. Introduction

Education is the process of imparting desired behaviors in individuals. The inclusion of teaching activities in the educational process increases the scope of education and ensures that it becomes programmatic. While there is a transition between class levels in the education of individuals, there is also a transfer of value. Value transfer indicates to the individuals who make up a society what is important and what it means for the society. The transfer of values to individuals at targeted class levels takes place within the framework of values education. Today, values education is carried out with both educational programs and applications that fall within the scope of the implicit program [1] (p. 11).

Before examining the dimensions of values education, "value" as a concept can be defined as a quality. Value is a widely used concept that can have different meanings according to the context in which it is used [2]. Values emerge as concepts that are passed down from generation to generation and provide a certain standard in social life. As a human being, some virtues, both national and universal, are needed for social order.

The creation of an orderly social structure and its continuation is related to the fact that the members of that society have common good values [3,4]. Societies that have adopted ideal values can thus be stable in their levels of prosperity. There is a need for these values to be established in society in many areas such as education, economy, security, health, and standard of living [5]. Values education is necessary for societies not to undergo moral erosion and to be composed of well-educated individuals [6,7]. Values can be classified

in many ways according to their content properties and functionality. The most accepted classification was made by Spranger, and in later years, this classification was turned into a scale by Allport, Verno, and Lindzey [8,9]. According to this classification, values are included in six ways as follows: scientific, economic, aesthetic, social, political, and religious values.

The common point of the values education programs of the countries in the world is that they start in the preschool period [10] (p. 79). In the program documents, some countries continue this education until the end of elementary school, while others compare the student with values education until the end of high school.

Values education is basically not the responsibility of certain courses. It has an interdisciplinary structure that is adapted to almost any course content. It is especially suitable for social content, mother tongue, and science courses. The existence of nature and environmental issues in the content of the science course contributes to the acquisition of values related to students' sensitivity to nature and the environment [11].

In the most general terms, the environment can be defined as the system formed by living and non-living beings, where these beings constantly interact with each other in terms of biological, physical, chemical, and social factors [12,13]. The environment includes both nature and culture [14].

Although the technological age of our world, especially with the industrial revolution, has brought many innovations to our lives, the activities carried out have created great pressures on the environment. At this point, the negative effects left by humanity on the environment, whose ways of living and perceiving life have changed, have gradually increased. The negative effects of humanity that have been left on the physical environment appear in the form of biodiversity loss, deforestation, environmental pollution, global warming, and the global climate crisis. This situation shows the importance of individuals having environmental awareness. The most appropriate method for individuals to gain environmental awareness is environmental education [15].

Environmental education can be broadly expressed as an approach and a philosophy that expresses learning about the environment [16]. Environmental education can be defined as a process that educators use to create the necessary knowledge, skills, values, and attitudes to develop environmental awareness in order to raise responsible individuals who can engage in positive behaviors toward environmental protection and sustainability [17]. Environmental education focuses on attitudes, actions, and life skills as well as knowledge and action skills [18].

According to the 1977 Tbilisi Declaration on Environmental Education prepared at the end of the Intergovernmental Conference on Environmental Education held in Tbilisi in 1977, the aims of environmental education consist of awareness, knowledge, and attitude and participation dimensions. These objectives aim to ensure that individuals and societies gain awareness and sensitivity, gain basic knowledge and experience about the environment, form value judgments, and gain skills to solve environmental problems and actively participate in studies carried out on environmental problems [19].

The main purpose of environmental education is also expressed as contributing to the education of individuals in the education process so that they will grow up to be citizens with knowledge, skills, and value judgments that will enable them to demonstrate responsible behaviors toward the environment [20].

Hungerfold et al. [21] identified the following four goals for environmental education: ecological foundations, conceptual awareness, inquiry and evaluation, and environmental action skills. Conceptual awareness and inquiry and evaluation objectives include elements such as the impact of beliefs and value judgments on the environment, the importance of decisions made, and the ability to define and clarify individual value judgments. These features of environmental education show that it has important similarities with values education in the context of developmental psychology [21,22]. Environmental education aims to understand how environmental decisions and behaviors are influenced by values, while values education supports individuals in making decisions based on moral and

social values. At the same time, environmental education raises environmental awareness, whereas values education helps individuals understand their environmental and ethical responsibilities.

The principle of "not ignoring the importance of value judgments and belief systems in solving and preventing environmental problems", which is among the working principles of environmental education, is an element that expresses the fundamental similarity between environmental education and values education and reveals the important role of values education in creating environmental awareness [23].

In their study titled "Environmental Ethics through Value-Based Education", Moorthy and Akwen [24] found that with a value-based curriculum, environmental awareness can be instilled more efficiently, more involvement in environmental discourses can be ensured, and a moral stance can be taken towards the actions of other individuals in addition to individual awareness.

Research on values education and on environmental awareness is included separately in the literature [25–35]. The aim of this research is to investigate the effect of values education on environmental awareness and pro-environmental behavior. Accordingly, the measure of environmental awareness acquisition in Turkish courses was examined. There are many environmental problems that threaten our world, and the lack of values and environmental behaviors that lead to these problems. In this context, establishing a positive relationship between the values conveyed in a mother tongue education course and the level of environmental awareness may help studies carried out within the scope of preparing a new curriculum for mother tongue education by including more environmental elements and making curriculum updates by determining the missing environmental awareness. In line with the purpose of this research, the answers to the following questions are related to the sub-problems that were searched:

1. Is environmental awareness being gained in mother tongue teaching?
2. Is values education used to gain environmental awareness in Turkish courses?

2. Materials and Methods

2.1. Research Sampling

In the current research, the effects of values education on environmental awareness and behavior were investigated. In this context, this research was carried out separately with both students and teachers. The research sample consisted of 6 Turkish teachers working in different primary schools and 225 8th-grade students studying at a primary school in Northern Cyprus. In focus group studies, the number of participants typically ranges from 6 to 8 [36].

According to national statistics, the total number of 8th-grade students in the city where the research was conducted is 1419 (cf. http://eohd.mebnet.net/sites/default/files/2023-2024%20%C4%B0STAT%C4%B0ST%C4%B0K%20YILLI%C4%9EI.pdf, accessed on 30 September 2024). The school where the research data were collected was chosen because, according to the 2023–2024 Ministry of National Education (MEB) data, it is the school with the highest number of 8th-grade students in Nicosia (a total of 257). The current total number of 8th-grade students in the city is 1419, which represents 15.86% of the total. The type of sample used was typical case sampling. This sampling method involves selecting examples that best represent the characteristics of a specific phenomenon or situation [37]. Typical case sampling refers to selecting a typical or normal case from among situations in the target population of the research to gain insight into a particular area. In a similar quantitative study, typical case sampling was applied to 72 participants [38]. The reason why 8th-grade students were selected is because this is the level at which values education is significantly completed. Information about the participants is given in Table 1.

Table 1. Demographic information about participants.

Teacher				**Student**		
Gender		Age		Gender		Grade
Female	Male	<30	>30	Female	Male	8th
5	1	0	6	110	115	225
f:6	f:6			f:225	f:225	

2.2. Data Collection Method

In this research, the "Primary School Students Environmental Attitude Scale" developed by Gökçe et al. [39] was applied to the students. The scale consists of a single dimension and includes 17 items. The individuals to whom the scale was applied were asked to choose a frequency response that organized their reactions to the stimuli presented to them as "I Agree", "I am undecided", or "I disagree". Among the items included in the scale, the "agree" category was scored with a score of "3" and the "disagree" category was scored with a score of "1". The lowest score that can be obtained using the scale is 34, and the highest score is 102. The Cronbach alpha coefficient of the scale was calculated, and it was found to be 0.87 [39]. This value was considered sufficient for reliability.

The next step was the specification of the basic values of values education. Values education, which is included under the umbrella of mother tongue teaching, aims to provide many root values to students (cf. https://mufredat.meb.gov.tr/Dosyalar/20195716392253-02-T%C3%BCrk%C3%A7e%20%C3%96%C4%9Fretim%20Program%C4%B1%202019.pdf, accessed on 30 September 2024). These values are love, respect, responsibility, sensitivity, tolerance, empathy, self-confidence, courage, leadership, fairness, friendship, solidarity, cooperation, kindness, honesty, cleanliness, valuing family unity, independent and free thinking, integrity, optimism, and the development of aesthetic feelings [40]. Based on these values, we determined which value the scale items corresponded to. The values for which the scale items were matched are shown below (Table 2). The matching of the scale items with the values included in values education was based on the opinions of 5 field experts from the Department of Turkish Education. As can be seen in Table 2, among the 17 items on the scale, one item corresponds to the value of independent and free thinking, one to solidarity, two to optimism, five to responsibility, and eight to sensitivity.

The focus group interview was held in May of the 2023–2024 academic years. The participants consisted of an executive and a discussion (teacher) group. While preparing the focus group interview questions, a scan of the relevant field was conducted by the authors, and draft interview questions were prepared. The interview questions were presented to five experts in the field. In line with the suggestions received, the interview questions were finalized. The participants were informed that the interviews would be conducted in accordance with the principle of confidentiality and that the focus group interview would be recorded, and the participants' approvals were obtained. The participants were informed about the purpose of this study and how the data would be used. It was stated that no personal data would be used, and the identity of the participants was made anonymous. Since the interview time was kept as at least 60 min in the focus group interviews [41], each session was conducted for 60 min. Initially, individual interviews were conducted with the teachers, followed by a group session. The questions of the focus group interview were formed based on the value codes associated with the scale items. Open-ended questions for the purpose of this research are shown in Table 3.

Table 2. The values with which the scale items are matched.

Scale Items (SIs) and Values (Vs)
SI: I Believe that environmental problems can be solved through reason and knowledge. **V:** Optimism.
SI: I do not believe that shopping a lot harms the environment. **V:** Sensivity.
SI: I am not bothered by garbage being thrown on the floor. **V:** Sensivity.
SI.: I hate people who spit on the floor. **V:** Sensivity.
SI: I do not like to participate in reforestation studies. **V:** Responsibility.
SI: It saddens me that there is no reaction to those who pollute the environment. **V:** Sensivity.
SI: I want everyone to be sensitive to the environment. **V:** Sensitivity.
SI: I appreciate those who grow plants. **V:** Independent and free thinking.
SI: I am aware that individuals have duties in solving environmental problems. **V:** Responsibility.
SI: I enjoy participating in activities carried out in nature. **V:** Sensitivity.
SI: Feeding animals is disgusting to me. **V:** Sensitivity.
SI: I am aware that cleanliness is important for the environment. **V:** Responsibility.
SI: I believe that everyone should notice the beauties in nature. **V:** Optimism.
SI: I do not believe that the countries of the world should work together for the environment. **V:** Solidarity.
SI: I believe that it is necessary to be frugal for the environment. **V:** Responsibility.
SI: Environmental-related projects should be given importance in schools. **V:** Responsibility.
SI: I do not prefer to buy environmentally harmful products when shopping. **V:** Sensitivity.

Table 3. The focus group interview questions.

Focus of the question: Acquisition of sustainable environmental awareness through values education
Age:
Gender:
Field of expertise:
Professional duration:
1. What is being done for lifelong environmental awareness in the country?
2. Are sensitivity and consciousness the same thing?
3. At what age should environmental awareness be acquired?
4. Which courses in primary education do you consider appropriate to raise environmental awareness?
5. Are Turkish lessons (native language lessons) suitable for gaining environmental awareness?
6. Can you tell us about the fundamental values determined by the Ministry?
7. Could you share your thoughts about values education?
8. Can we gain environmental awareness by using values education as a tool?
9. Which value among those mentioned in question 6 is suitable for the acquisition of environmental awareness?
10. Can we incorporate environmental awareness into the process of gaining values?

2.3. Ethical Statement

The research protocol was reviewed and approved by the Scientific Research Ethics Committee, Near East University, approval number NEU/AS/2024/C007. All subjects gave informed consent for inclusion before they participated in this study.

2.4. Data Analysis

In the scale part of this research, the data obtained from the scale were transferred to a computer environment and analyzed in SPSS 26, a computer program for statistical analysis. Arithmetic means and standard deviations related to students' environmental awareness were determined. Whether the environmental awareness of the students showed a significant difference according to gender was analyzed by t-test for independent groups.

In the focus group interview section, the data obtained from Zoom, a video conference platform using end-to-end encryption developed by Zoom Video Communications, meetings were converted into text. After the data collection process was completed, the data were analyzed using the content analysis method. The content analysis method included encoding the data and dividing it into themes [42]. The codes and the themes were created from the above-mentioned data. After digitizing the data collected through the interview form, the data encoded by researchers who are experts in qualitative research were compared with each other. The data were categorized based on the level of agreement between the two coders. After determining the level of compliance, discrepancies in the coding were resolved, and a final version was produced.

The relationships between the codes were developed based on the participants' individual and group responses. Themes were derived according to the meanings they carried among the categories. In the content analysis, the data were sequentially coded, themes were identified, and the codes and themes were organized. The teachers who were interviewed were coded in the form of "T". The codes obtained during the qualitative data content analysis process were generated manually, following a systematic and structured procedure.

In the quantitative dimension of this research, the environmental consciousness of the students was determined by the "Environmental Attitude Scale of Elementary School Students". In the qualitative dimension, focus group interviews were conducted with teachers. In the collection, analysis, and interpretation of the obtained data, the "mixed method" was used. The fundamental understanding of the mixed method is that quantitative and qualitative methods act together [43–45]. Because of the fact that quantitative

and qualitative data were used together and analyzed separately, the "converging parallel mixed method" pattern was used.

3. Results

The results obtained from the analysis were structured according to the subheadings. The subheadings show the results obtained from the data applied to students and teachers.

3.1. Results Based on Scale Data Applied to the Students

The data obtained from the scale applied to the students are presented under this heading. First, common theme sets were created from the scale items within the scale applied to the students. In Table 4, the scale items with their numbers and related theme titles are shown. The scale items are abbreviated with the "SI" code in the table.

Table 4. The relationship between the determined themes and the scale items.

Themes	Scale Items
Nature and Living Things	SI.5, SI.8, SI.10, SI.11, SI.13
Sensitivity	SI.2, SI.7, SI.9, SI.14, SI.15, SI.17
Environmental Pollution	SI.3, SI.4, SI.6, SI.12
Epistemological Practices	SI.1, SI.16

In line with the results obtained, four different themes were determined including "nature and living things", "sensitivity", "environmental pollution", and "epistemological practices". In Table 4, the relationship between the scale items used in the quantitative part of this research and the determined themes are given. Table 5 below shows the scale results with the themes of environmental attitude level, nature and living things, environmental pollution, sensitivity, and epistemological practices.

Table 5. Results of the scale data applied to the students according to themes.

	N	Min	Max	SD	M
Environmental Attitude Levels of Secondary School Students	225	1.59	3.00	0.27048	2.5569
Nature and Living Things	225	1.40	3.00	0.36523	2.6231
Environmental Pollution	225	1.50	3.00	0.36879	2.6744
Sensitivity	225	1.50	3.00	0.33109	2.4111
Epistemological Practices	225	1.00	3.00	0.49344	2.5933

The result of the analysis eliminated from the scale application conducted with 225 secondary school students appears in the average Table 5 for environmental attitude levels. Table 5 shows that the environmental attitude average of the secondary school students participating in this study is 2.5569 (M). This result shows that the environmental attitudes of the students participating in this study are at a positive level. The output also reveals the presence of an environmental attitude in a significant majority of the students participating in this study.

The attitude average of the secondary school students participating in this study towards the theme of nature and living things is 2.6231 (M). This result shows that the attitudes of the students participating in this study towards nature and living things are at a positive level. The vast majority of the students participating in this research are sensitive to nature and living things.

The attitude average of the secondary school students participating in this study towards the theme of environmental pollution is 2.6744 (M). This result shows that the attitudes of the students participating in this study towards environmental pollution are at a positive level. The students gave a joint response in all scale items related to environmental pollution and are sensitive to environmental pollution.

The attitude average of the secondary school students participating in this study towards the theme of sensitivity is 2.4111 (M). This result shows that the environmental sensitivities of the students participating in this study are at a positive level. This shows that most of the students have environmental sensitivities.

The attitude average of the secondary school students participating in this study towards the theme of epistemological practices is 2.5933 (M). Epistemological practices encompass information-based activities related to the environment. This result shows that the attitudes of the students participating in this study towards epistemological practices are at a positive level. The theme of epistemological applications occurred from the items of making environmental projects and prioritizing environmental knowledge among the items of the scale.

An independent samples t-test was conducted to determine whether the environmental attitude levels of the participants differed significantly according to the gender variable. According to the results of the analysis in Table 6, no significant difference was found between the gender groups.

Table 6. T-test results of the scores obtained by the students from the environmental attitude scale according to gender.

Gender	N	M	SD	t	df	*p*
Female	110	2.60	0.22	2.454	223	0.15
Male	115	2.51	0.31			

$p = 0.15 > 0.05$.

Table 7 shows the relationship between the root values in values education and the scale items related to values. Out of the seventeen items on the scale, one item was matched with the value of independent and free thinking, one item with solidarity, two items with optimism, five items with responsibility, and eight items with sensitivity.

Table 7. Values and scale items related to values.

Values	Related Scale Items (SIs)
Optimism	SI.1, SI.13
Sensivity	SI.2, SI.3, SI.4, SI.6, SI.7, SI.10, SI.11, SI.17
Independent and Free Thinking	SI.8
Responsibility	SI.5, SI.9, SI.12, SI.15, SI.16
Solidarity	SI.14

3.2. Results Based on the Focus Group Discussion Conducted with the Teachers

The findings obtained from the interviews with the teachers are presented below. The detailed demographic information of the participants is also included in this section in Table 8.

Table 8. The focus group information.

Participant Code (PC)	Age	Gender	Field of Expertise	Professional Duration
T1	38	F	Turkish	17 years
T2	37	F	Turkish	13 years
T3	38	M	Turkish	12 years
T4	40	F	Turkish	18 years
T5	36	F	Turkish	12 years
T6	49	F	Turkish	24 years

The answers obtained from the questions directed to the participants were transformed into text. After categorizing the responses internally, they were grouped. The original

forms of the questions and the themes seen in the table headers were identified, and the participants' responses were placed accordingly. According to the data in Table 8, all of the participants are over the age of 35 and there is only one male participant in the group.

The data in Table 9, titled educational practices carried out for the sustainability of environmental awareness, were collected in three themes. According to the answers given by the participants, the applications made for environmental awareness in educational environments can be provided with two basic courses (mother tongue and science), workshops within courses, and poetry and composition competitions. T1, who expressed a positive opinion on all three themes among the participants pointed out that "…an environmental awareness can also be created through social linguistic activities that are connected with mother tongue lessons…". Another participant stated (T3) that "…I find the nature or classroom activities or tasks that students will participate in practically more permanent for environmental awareness…".

Table 9. Educational practices carried out for the sustainability of environmental awareness.

Theme	PC
Poetry and Painting Competitions	T1 T3 T4
Workshop Studies	T1 T2 T5 T6
Mother Tongue and Science Courses	T1 T2 T3 T4 T5 T6

Table 10 focuses on which points of mother tongue teaching can be related to environmental awareness. From the answers given by the participants, themes such as values education, curriculum, textbooks, texts, and language skills (listening/speaking/reading/writing) emerged. All participants expressed the opinion that environmental awareness can be gained indirectly through four basic language skills. Four participants stated that direct values education could be useful. Some of their answers were as follows:

Table 10. Lifelong acquisition of environmental awareness in mother tongue teaching.

Theme	PC
Through values education given in mother tongue courses	T1 T3 T4 T6
Through curriculum and course book	T2 T3
Through reading text	T1 T2 T3 T4
Through four basic language skills activities	T1 T2 T3 T4 T5 T6

> "…Values vary as love, respect, responsibility, sensitivity, tolerance, empathy, self-confidence, courage, leadership, fairness, friendship, solidarity, helpfulness, kindness, honesty, cleanliness, caring for family unity, ındependent and free thinking, truthfulness, optimism, the development of aesthetic feelings. And I think these are perfectly suitable for environmental awareness and awareness…". (T6)

> "Values education can indirectly provide many additional benefits when accompanied by a teacher…". (T4)

One participant (T5) provided the following opinion on language skills, which is the last theme in the table

> "…During the teaching of the four basic language skills, we also touch on different areas. Of course, if we have time left. Usually, our efforts to educate the curriculum get in the way of these side teachings, but environmental awareness can be gained even when reading a text in a very easy way…".

The statement of the participant who expressed the opinion that environmental awareness or awareness should be given in mother tongue classes aid included below:

"…Yes, it is suitable. It can also be done very nicely. A text related to the environment can be read. Activities such as reading comprehension, sentence completion, what would you do if you were, add a paragraph to the text, write a paragraph or a poem that is the same as the main of the text can be done. An environmental trip can be arranged. After this trip, students may be asked to write an article for us. According to the level they are at, what is expected from the student can be given to them as a directive before the trip. Knowing in advance what to pay attention to when creating their articles will guide them when collecting data on the trip they are going to. They may be asked to write an article about the appearance of the place they are visiting, the environmental problem, the causes of this problem, solution suggestions, campaigns that can be done, etc. Thus, the student notices the problem, analyzes, comments and offers a solution proposal. He can even prepare posters and slogans for his campaign and bring this campaign to life…". (T6)

As can be seen in Table 11, four participants found a direct relationship between values education and environmental awareness. The other two participants described this relationship as a weak connection or indirect relationship. Some of the answers of the participants who found an indirect and weak relationship were as follows:

Table 11. The relationship between values education and environmental education.

Theme	PC
There is a relationship	T1 T2 T3 T4 T6
There is no relationship	T5

"Yes, it is possible to achieve this. For example, while teaching the value of 'responsibility', students can be asked how they use the local park at school, in the neighborhood, or in the village. They can be taught to clean the park and to keep it clean afterward. The value can be assessed by checking whether the park becomes dirty again…" (T6).

"…I don't see a direct relationship. I don't have much of an idea…" (T5).

Figure 1 below shows the relationship between environmental awareness and values education in accordance with the data obtained from quantitative and qualitative analyses.

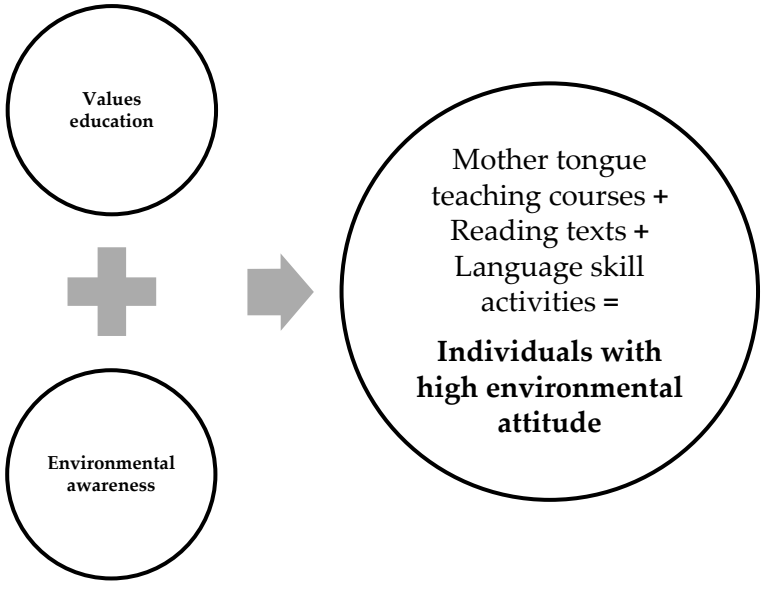

Figure 1. The correlation between values education and environmental education.

4. Discussion, Conclusions and Recommendations

4.1. Discussion and Conclusions

In this study, answers to the two problems mentioned in the Introduction were sought. The first problem shown within the scope of this research was to determine the effect of values education given in mother tongue education on environmental attitudes. In this context, the situation of gaining environmental awareness in mother tongue education and the use of values education in gaining environmental awareness were evaluated. The second problem was the situation of using values education in Turkish lessons to gain sustainable environmental awareness. The results reached in the light of the quantitative and qualitative data obtained from the research are as follows:

4.1.1. Quantitative Results Based on Scale Data Applied to the Students

According to the obtained quantitative data, it was concluded that the environmental attitude levels of the secondary school students participating in this study were at a high level (M = 2.5569).

As mentioned in the study titled "An implementation to raise environmental awareness of elementary education students", investing in environmental awareness is an important step for future generations. In addition, it is thought that developing practices and carrying out activities for possible environmental problems will have a positive impact on environmental awareness levels [46].

According to the quantitative data obtained, four separate themes were determined as "nature and living things", "sensitivity", "environmental pollution", and "epistemological applications". When the attitude levels of the secondary school students participating in this study towards the four identified themes were examined, it was concluded that the participants' attitude levels towards the themes of nature and living things (M = 2.6231), sensitivity (M = 2.4111), environmental pollution (M = 2.6744), and epistemological practices (M = 2.5953) were at a high level.

In order to ensure the sustainability of our planet, it is very important to gain environmental awareness, especially at an early age, and to make it permanent in individuals. When the studies in the literature are examined, it is revealed that environmental awareness is a skill that can be learned. This is an example of the role of different approaches such as values education in gaining environmental awareness at an early age [47].

According to the results of the *T*-test conducted to determine whether students' environmental attitude levels showed a significant difference based on the gender variable, no significant difference was found between the gender groups. In line with this finding from this research, other studies on environmental education have also not yielded different results based on gender [48–50].

4.1.2. Qualitative Results Based on Focus Group Interviews with the Teachers

The qualitative data were evaluated in three dimensions as follows: educational practices for sustainable environmental education, the relationship between mother tongue teaching and environmental attitude, and the relationship between values education and environmental education.

Based on the qualitative data obtained, it was concluded that workshops, poetry and essay competitions, and the content of two basic courses (mother tongue and science) can be used for sustainable environmental education.

Environmental education is a multidisciplinary concept that encompasses and is related to many fields [51]. Its multidisciplinary nature prevents environmental education from being confined to a single subject or specific discipline. In studies conducted in countries such as New Zealand and Indonesia, the integration of environmental education into different courses such as science, language, and social studies, similar to the results we obtained, are examples that prove the multidisciplinary feature of environmental education mentioned above [52,53]. Another study in the literature emphasized the necessity of a multidisciplinary approach by revealing that the environmental awareness levels of

secondary school students are low and that environmental awareness can be gained with a multidisciplinary approach. Moreover, various studies have shown that this integration is not limited to courses; environmental awareness can also be enhanced through various artistic activities such as writing letters and poetry [54].

It was found that [55] different fields such as aesthetics and visual art have a positive impact on students' environmental awareness. This emphasized that family or individual activities and applications in which students can establish a cause-and-effect relationship should be used.

From the qualitative data obtained, it was concluded that mother tongue teaching can be associated with environmental attitude through values education, curriculum and textbooks, reading text, and four basic language skills (listening, speaking, reading, and writing) practices. In parallel, it has been stated that teaching materials and educational environments for instructors should be developed regarding the teaching and integration of environmental education into different subject areas [56].

One study examining the aims, fields of interest, and problems of environmental education stated that the concept of education also includes elements such as the acquisition of values and attitudes [23]. In addition, it was emphasized that different problems of individuals can be analyzed epistemologically, theoretically, and methodologically in the context of environmental education since it affects the behavior of individuals from a psychological, sociological, ideological, and cultural point of view. Based on this, researchers revealed that giving children skills such as problem-solving and decision-making plays an important role in the solution of environmental problems.

Self-esteem, which is the sub-dimension of respect included under the values that make up the subject area of this study, is effective for environmental awareness both in a social and individual sense. It was found that individuals with high self-esteem have environmental awareness. The role of values education is great for the formation of self-esteem and perception [57].

In the light of the data obtained from the teachers, the acquisition of environmental awareness with many different alternatives was revealed. Environmental awareness can also be gained through indirect means such as materials, activities based on language skills, and educational programs in the studies conducted. Environmental awareness is not only acquired through formal education practices. Environmental awareness can also be gained by accessing various reading materials such as magazines, newspapers, books, blog posts, and social media posts and by analyzing the content of these materials. It is thought that this shows the positive effect of reading skills acquired within the scope of mother tongue education on gaining environmental awareness [58].

In the research titled "Environmental awareness level of secondary school students: A case study in Balıkesir (Türkiye)" [59], it was stated that although students have a high level of environmental awareness, these achievements do not translate into active participation. The authors suggested using communication tools, visual media literacy, and applied educational models in schools. At the same time, they emphasized the importance of the curriculum.

It was stated that environmental awareness should be added to the educational curricula and that it would be effective to conduct activities at special times, such as certain days and weeks, for young students [60]. Researchers who identified differences in environmental awareness between students of the two countries (Iran and India) emphasized that school administration, teachers, and educational programs have an impact [61]. In a study focusing on environmental awareness through mother tongue teaching, the data obtained from teachers emphasized the integration of environmental awareness with classroom practices and activities in mother tongue lessons.

According to the qualitative data obtained, it was concluded that there is a strong relationship between values education and environmental education (four participants established a direct relationship and one participant established an indirect relationship).

The quantitative data obtained within the scope of this research show that the environmental attitude levels of the middle school students participating in this study are high both in terms of the scale as a whole and within the scope of the four themes determined (nature and living things; environmental pollution; sensitivity; and epistemological practices).

Once more, the qualitative data obtained within the scope of this research show that the mother tongue teachers who participated in this study associated environmental attitudes with various mother tongue teaching practices and established a strong relationship between values education and environmental education. In environmental education, there is a value-oriented field of teaching in order to develop concepts and integrate an individual's environmental knowledge and behavior [62].

In a study in which the contribution of Turkish textbook content to environmental education was examined, a different number of environmental-themed frequencies were reached at each level. The study draws attention to the importance of environmental education, environmental awareness, and environmental awareness in mother tongue education [63].

The scale items used in our study were matched with the values of optimism, sensitivity, responsibility, solidarity, and independent and free thinking, in line with expert opinions, as stated in the data collection method title. When the empirical studies in the literature that match environmental education with core values are examined, the relevant studies reveal that the values of respect, responsibility, and patriotism are closely related to environmental education. On the other hand, it is observed that the values of justice, patience, love, honesty, and friendship are stated to be the values that are the farthest from environmental education among the core values. The results of the studies in the literature and the fact that the scale items we used in our research overlap with five different values emphasize the importance of associating more values with the environment in educational programs. It is thought that the development of quantitative and qualitative data collection tools that match environmental awareness with various values will reveal the relationship between environmental awareness and values education in more depth [64,65].

One study investigating the compatibility of the achievements in primary education programs with the requirements of sustainable environmental education revealed that the concept of the environment in primary education programs in Turkey is part of science education with a focus on definition and protection, and this is a limited approach [66]. Other researchers also stated the importance of ensuring sufficient time, space, and activity in environmental-related achievements. Their studies conducted with 84 high school teachers concluded that there is not enough time allocated for environmental issues in secondary education programs [67].

The qualitative data obtained also show that teachers face time constraints in integrating environmental education into the course. One study conducted in 2004 stated that the intensity of the course programs creates difficulty for in-class environmental education activities [68]. In the same study, it was stated that alternative environmental education programs produced by environmental educators can provide primary school teachers with the opportunity to choose and spend more time on environmental education.

In Northern Cyprus, the density of the curriculum of courses that are not directly related to the environment, such as mother tongue education, creates some restrictions on integrating environmental education into a course. The observed restrictions, especially the time constraints experienced in integrating environmental education into a course due to the concern of completing the curriculum, are revealed by both the qualitative findings of our study and other studies in the literature. However, the data we obtained in the qualitative part of our study also show that teachers are motivated to integrate environmental education into courses such as mother tongue education. This suggests that practices that will increase teachers' environmental awareness levels can increase the integration of environmental education elements into different courses [17,69,70].

In this context, the quantitative and qualitative results obtained show that mother tongue education positively affects environmental attitudes. The results obtained also

show that values education in Turkish lessons reveals positive results within the scope of sustainable environmental awareness practices. These results reveal that students indirectly gain a positive environmental attitude thanks to values education. Environmental education, which begins in the preschool period, continues until the age when individuals fully shape their personalities. The most critical age ranges within these periods are the primary and secondary school ages.

Although this study was conducted with 225 students and six teachers, the sample is limited to Northern Cyprus. This geographic focus may limit the generalizability of the findings to other regions or countries. Future studies would benefit from including a larger and more diverse sample group from various educational settings to validate and expand upon these findings. While the use of a three-point scale was justified for simplifying responses, this may have constrained the range of student feedback. More detailed scales, such as five-point or seven-point Likert scales, might provide richer data, especially for older age groups, by capturing more nuanced attitudes and perceptions. This limitation could have affected the depth of insights regarding environmental attitudes and values education. This study primarily relied on quantitative data, limiting the exploration of students' and teachers' deeper thoughts, motivations, and experiences related to environmental attitudes. Including qualitative data through open-ended questions or interviews could provide a more comprehensive understanding of how environmental education is perceived and practiced in Turkish lessons. One of the key limitations highlighted by the teachers is the lack of sufficient time dedicated to environmental awareness within mother tongue lessons. This points to a structural limitation in the current educational framework, suggesting that time allocation in the curriculum could impact the effectiveness of values and environmental education integration.

4.2. Recommendations

The present study was conducted with 225 students and six teachers studying in Northern Cyprus in the 2023–2024 academic years. Similar studies can be conducted on a larger sample group, in different primary and secondary schools, and in different countries by increasing the number of participants. Qualitative data can also be obtained from students through open-ended questions. The three-point scale was chosen because it facilitates students in providing simpler and clearer responses, thereby enhancing the validity of the data. Future research involving older age groups may benefit from using more detailed scales. The research results showed that the environmental attitude levels of the students were high. They also show that the Turkish teachers who participated in this study associated environmental attitudes with various mother tongue teaching practices and established a strong relationship between values education and environmental education. It is obvious that values education in Turkish lessons has a positive result within the scope of sustainable practices. For a sustainable environment and sustainable education, more emphasis can be given to mother tongue lessons, and environmental education and mother tongue education can work in collaboration. Values education and environmental awareness help students understand environmental issues and their social responsibilities. This approach supports GOAL 4.1 by providing comprehensive education. Additionally, it promotes sustainable solutions and awareness, aligning with GOAL 4.7, by equipping students with skills for sustainable development.

In light of the data obtained from the sample group of teachers in this research, it was stated that there is not enough time for environmental awareness in mother tongue lessons. In line with this statement, preparing course contents and timelines will be useful in the context of permanent environmental awareness gains for students. At the same time, channeling educators to the cooperation of these two areas can provide long-term benefits for environmental awareness. Taking concrete steps on this issue in Northern Cyprus, where this research was conducted, would also be a suggestion specific to this research.

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