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An Exemplary Application Process for Teaching Universal Values to Students: Activity-Based Learning

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Abstract

This study was conducted to design an activity-based learning process to provide students with universal values. The study also aimed to provide students with universal values through this learning process. The study used action research, one of the qualitative research designs. The study group of this study consisted of a total of 12 students studying in the 7th grade in the fall semester of the 2023-2024 academic year in Tokat, Turkey. The activity-based learning process was continued in the Science course for 16 weeks (64 lesson hours) and 22 activities were carried out with the students during the process. One of the researchers took on the role of researcher and implementer during the study. The data of the study were collected with the word association test and semi-structured interview forms. Content analysis was used in the analysis of the data. When the responses of the students to the word association test were examined at the end of the study, it was seen that the most repeated words were love, respect, family and friend. The study also reached the conclusions that the students learned universal values and associated universal values with the activities carried out in the process. Suggestions have been made that other researchers who will conduct studies on the subject can use the activities developed within the scope of this study to provide values education and that the activities developed within the scope of the study can be adapted to other subjects, units or courses to provide values education to students.

Key words: Universal Values, Activity-Based Learning, Application Process

Introduction

Human beings are social beings by nature and therefore people live in communities. It is an undeniable fact that individuals who make up a society must have certain competencies in order for these communities to continue to live and ensure their continuity (Yazoğlu, 2014). These competencies appear before us as the concept of value. Value has been an effective concept in the formation of cultures for centuries, shaping the relationships between people and other living things in the societies they live in, enabling them to give meaning to their lives, enabling the continuity of societies (Kağan & Yılmaz, 2021). When the concept of value is considered from a psychological perspective; it is the criteria that people use to describe society and social events, to choose actions according to judgments within the society and to legitimize these actions (Schwartz, 1992).

Especially in the 21st century, different variables such as race, gender, income level, religion, family structure, technological developments, environmental pollution, peer bullying, and addiction are listed as some factors that disrupt the social order among societies (Yıldırım Aykurt, 2020). Values education implemented in schools comes into play in coping with these problems. Values education is defined as a lifelong education process that takes place inside or outside the school and is offered for the individual to acquire the necessary values, adopt them, and transform these values into behavior by making them a valuable part of their character (Calışkan, Kapkın, & Sağlam 2018). The concept of values education first emerged in America in the 1990s and entered the literature with moral and character education studies, which began to be used to prevent social problems affecting the peace and functioning of society (Elbir & Bagci, 2013). Considering that individuals start their education in the family and continue in their school life, it is seen that values education enters the lives of students at a very young age and this education continues throughout life (Balat & Dağal, 2009; Tatlılıoğlu, 2015). However, at this point, the real work falls on educational institutions (Özden, 2008; Yavuz, 2016). Because the educational environment created for the individual in the family takes a more formal form when the individual starts school and this situation continues for many years. The values education of individuals that starts in the family continues uninterruptedly in schools thanks to teachers and individuals become successful in their social lives thanks to this (Öz, 2019). It can be said that the fact that children of working parents are away from their families at an early age or children spend long hours in nurseries or study centers, and the increase in internet and computer use have an effect on the process of values education and the acquisition of these values. For this reason, it is stated that the importance of values education in schools has increased even more today, where the use of technology has become widespread and changes and transformations are experienced in many areas (Tulunay Ateş, 2017).

When we look at the applications of values education at the international level, it is seen that various teaching methods and techniques are used in values education. Examples of these are direct teaching of values, value analysis, literature-centered value education, value explanation, moral dilemma negotiations, service learning and public service, and integration of the curriculum (Ekşi, 2003). Researchers emphasize that abstract concepts should be taught to students using activity-based

in-class teaching activities such as stories, fairy tales, games, case studies, trips, experiments, panels, group work, and movies, and it is stated that this activity-based teaching can help students concretize abstract concepts (Aktepe, 2014). Activity-Based Learning is a learning method in which students are actively together with all kinds of materials, observe and experiment through their five senses to increase their level of understanding, and use tools and equipment (Laçin Şimşek, 2014). Activity-based teaching is research-based and can be enriched with experiments, is based on learning by doing and experiencing, and the activities are easy, understandable, cost-free and fun, allowing activity-based learning to be used in science education (Saylan Kırmızıgül, 2019). For this reason, this research was conducted to provide students with value education within the scope of the 7th grade Science course.

It is emphasized that values are the criteria that individuals take into account when evaluating their behaviors, characteristics, needs, and desires, and that these criteria can vary from person to person and from society to society (Şentürk & Arslan, 2020). Therefore, values may differ in the curriculum of each country depending on the characteristics of that society. However, it has been seen that some values that are considered common in various value classifications in the relevant literature are accepted as universal regardless of nation (Lickona, 1991; MoNE, 2017; Rokeach, 1973; Schwartz, 1992), and these values classified as universal (friendship, love, respect, helpfulness, justice, honesty, self-control, patience, responsibility) are included in this study. In this study, it was aimed to design an activity-based learning process for students to gain universal values and to gain universal values in students.

Method

Research Model

Action research design, one of the qualitative research designs, was used in this study. Action research is the process of a researcher or research team understanding known problems, identifying problems experienced in the implementation process, and systematically collecting and analyzing data aimed at solving problems (Yıldırım & Şimşek, 2018). Action research is conducted by one or more people to provide information about a local application or to solve a problem (Fraenkel & Wallen, 2006). In this study, the students were first asked the question "What are the first 10 words that come to mind when you hear the word Value?" and the answers given to the question showed that the students did not fully know universal values. Then, a 16-week activity-based implementation process was prepared, and the aim was for the students to gain universal values at the end of this process.

Study Group

The study group of this research consisted of a total of 12 students studying in the 7th grade in the fall semester of the 2023-2024 academic year in Tokat, Turkey. The study group was determined using the convenience sampling method (Cohen, Manion, & Morrison, 2007). In the convenience sampling method, the researcher who conducted the application process selected the participants from whom the data

would be collected from individuals who were easy to reach, suitable for the research and volunteered (Gravetter & Forzano, 2012).

Data Collection Tools

The word association test and semi-structured interview form prepared by the researchers were used as qualitative data collection tools of the study. The aim of the word association test was to reveal the key concepts that the students had about the process at the end of the application. In the word association test, the students were asked to list the first ten words that came to their minds when they heard the word value. Another data collection tool is the semi-structured interview form. Before creating the semi-structured interview form, the researcher conducted a literature review on the subject and prepared the interview questions using this review (Çağlar, 2019; Gömleksiz & Kılınç, 2015). The draft form included eight questions about values and the application process. In order to increase the internal validity of the study, expert opinions were sought for the semi-structured interview form prepared by the researcher before the application (Arslan & Elma, 2022). Opinions were received from two experts regarding the prepared interview form. In line with the opinions received from the experts, the form was re-evaluated in terms of clarity, appropriateness, adequacy and understandability of the questions and necessary corrections were made. In line with the feedback from the experts, one more question was added to the form, increasing the number of questions to nine. The final form included one-word association test question and nine semi-structured interview questions. The word association test and interview questions are listed below:

• What are the first 10 words that come to mind when you hear the word value?
• Which of our activities can you associate with the concept of friendship?
• Which of our activities can you associate with the concept of love?
• Which of our activities can you associate with the concept of respect?
• Which of our activities can you associate with the concept of helpfulness?
• Which of our activities can you associate with the concept of justice?
• Which of our activities can you associate with the concept of honesty?
• Which of our activities can you associate with the concept of self-control?
• Which of our activities can you associate with the concept of patience?
• Which of our activities can you associate with the concept of responsibility?

No time limit was applied in the interviews with the students, and care was taken to ensure that the answers given by the students to the questions were clear and understandable.

Data Collection Process

In accordance with the purpose of the study, the data collection process was carried out within the scope of the 7th grade Science course. Before the application began, a word association test was applied to 12 students selected as the study group in the form of "list the first 10 words that come to mind when you hear the word value". It was determined that the students' knowledge about universal values was incomplete and then the application process was started. Since the application included all the units in the Science course content in the 7th grade fall semester, the

application was continued throughout the entire fall semester, i.e. for 16 weeks and 64 class hours. In the application process, the lessons were processed with activities designed by the researchers in the teaching of nine universal values (love, respect, responsibility, patience, helpfulness, friendship, justice, honesty, self-control). The 22 activities prepared by the researchers were first examined by three science educators and an assessment and evaluation expert, and some activities were rearranged and some were changed in line with the feedback from the experts. The application process was started after the activities were finalized. The distribution of implemented activities by week is given in the table below (Table 1).

Table 1. Research process

Week	Unit/ Topic	Activity number	Activity name	Target value
Week 1	The Solar System and Beyond/ Earth and the Universe	Activity 1	Scientists role cards activity	Patience
		Activity 2	Sky observation activity	Patience
Week 2	The Solar System and Beyond/ Earth and the Universe	Activity 3	6 thinking hats for space exploration	Respect
Week 3	The Solar System and Beyond/ Earth and the Universe	Activity 4	Hidden Figures movie	Respect, Patience
Week 4	The Solar System and Beyond/ Earth and the Universe	Activity 5	Creating a scenario for light pollution	Helpfulness, Responsibility
		Activity 6	Preparing a poster on the subjects of telescope types, observatories, light pollution, astronomers	Helpfulness, Responsibility
Week 5	The Solar System and Beyond/ Earth and the Universe	Activity 7	Five-stop station technique on telescope construction, star formation process, types of stars, types of galaxies, and the concept of the universe	Responsibility, Helpfulness, Patience
Week 6	Cell and Divisions /Living Things and Life	Activity 8	Jigsaw technique for cell, cell structure, technological developments, cell-tissue-organ-system-organism relationship	Friendship, Responsibility,
		Activity 9	Analogy technique for plant and animal cells	Friendship
Week 7	Cell and Divisions /Living Things and Life	Activity 10	Mitosis stories	Love, Responsibility, Honesty
		Activity 11	Grass man activity	

Week 8	Cell and Divisions /Living Things and Life	Activity 12	Flipped learning on meiosis	Self-control, Responsibility,
		Activity 13	Meiosis concept map	Self-control
Week 9	Force and Energy/ Physical Events	Activity 14	Space Journey story	Love
Week 10	Force and Energy/ Physical Events	Activity 15	Work-energy-force visuals	Respect, Love, Helpfulness
Week 11	Force and Energy/ Physical Events	Activity 16	Race tracks	Justice
Week 12	Force and Energy/ Physical Events	Activity 17	Knowledge contest	Justice, Responsibility, Friendship
Week 13	Pure Substances and Mixtures/ Matter and Its Nature	Activity 18	Atomic model creation	Respect, Helpfulness
Week 14	Pure Substances and Mixtures/ Matter and Its Nature	Activity 19	Elements Bingo game	Honesty, Patience
Week 15	Pure Substances and Mixtures/ Matter and Its Nature	Activity 20	Mixtures prediction-observation-explanation technique	Helpfulness, Patience
Week 16	Household Waste and Recycling	Activity 21	Recycling: waste bin construction	Self-control, Responsibility,
		Activity 22	Protect nature, love nature activity	Love

Data Analysis

Content analysis was used in the analysis of the data obtained as a result of the research. After the data was converted into text, codes were created from the texts in order to decide on the themes. The codes were placed under the themes according to their frequency of repetition, and this process was carried out independently by two field experts. After the independent coding, the themes were compared and the themes were finalized with the necessary adjustments. The codes and themes created by the two field experts were examined by a third researcher and the consistency coefficient between the experts was calculated. The Miles and Huberman (2019) formula was used in the calculation of the consistency coefficient and the consistency between the experts was calculated as .83. For example; while examining the answers given to the 4th and 7th questions, two different codes were

detected in the coding keys created by the experts and these codes were determined as disagreements. Since it was stated that at least 80% reliability should be sought for consensus between the coders (Miles & Huberman, 2019), this value was accepted as sufficient.

Findings

In this section of the study, the findings obtained as a result of the qualitative analyses and the interpretations of the findings are included.

Findings and Comments Regarding the Word Association Test

The students were first given the word association test in the form of "What are the first 10 words that come to your mind when you hear the word value?" The frequency distribution of the students' responses to the word association test is given in Table 2.

Table 2. Codes and themes related to word association test and frequency values of answers

Themes	Code	f
Values and Attitudes	Love	8
	Respect	7
	Honesty	3
	Tolerance	3
	Kindness	2
Living Things	Family	5
	Friends	5
	Loved Ones	3
Objects	Money	2
	Gift	1

Table 2 shows the responses given by the students to the word association test in the form of "What are the first 10 words that come to mind when you hear the word "Value"?". The responses given by the students are grouped under three themes as values and attitudes, living beings and objects. While the most frequent responses from the students under the theme of values and attitudes were love (f=8), respect (f=7), honesty (f=3), tolerance (f=3) and kindness (f=2), the most frequent responses from the students in the theme of living beings were family (f=5), friend (f=5) and loved ones (f=3). In the last theme, objects, the students reported the codes money (f=2) and gift (f=1).

Findings and Comments Regarding the First Interview Question

The frequency table regarding the distribution of the responses given by the students to the question "Which of the activities we do can you associate with the concept of friendship?" in the semi-structured interviews is given below (Table 3).

Table 3. Codes and themes regarding the first question and frequency values of the answers

Theme	Code	f
Physics topic activity	Station technique	4
	Work-power-energy visuals	1
Chemistry topic activity	Separation of mixtures	3
	Molecular model	3
Biology topic activity	Jigsaw technique	1

When Table 3 is examined, it is seen that when students think of "friendship", the first thing that comes to mind is the station technique (f=4) used in teaching the Earth and Universe unit. The second activities that come to mind are the activities of separating mixtures (f=3) and designing a molecular model (f=3) used in teaching chemistry subjects. Although less frequent, students associated the concept of friendship with the activity where work-power-energy visuals were used (f=1) and the jigsaw technique used when explaining cells and their divisions (f=1). Examples of students' explanations regarding the question are given below:
S3: "This activity, where there are different stops and we work as a group at each stop, reminds me of the value of friendship because I work with my friends."
S8: "We went to different groups for our groups and learned different things, and we went back to our groups and told our friends what we learned, then we competed for our group. I had made an effort for my friends, so when you mentioned friendship, I remembered that activity"

Findings and Comments Regarding the Second Interview Question
The frequency table regarding the distribution of the answers given by the students to the question "Which of the activities we did can you associate with the concept of love?" is given below (Table 4).

Table 4. Codes and themes regarding the second question and frequency values of the answers

Theme	Code	f
Biology topic activity	Grass man activity	5
	Mitosis division stories	3
Physics topic activity	Work-power-energy visuals	4

When Table 4 is examined, it is seen that students associate the value of "love" with the activities used in teaching Biology and Physics. When answering the question, students mentioned the grass man activity the most (f=5). The most common answer was then the work-power-energy visuals prepared for teaching Physics subjects (f=4) and mitosis stories (f=3) activities. Examples of students' explanations regarding the question are given below:

S2: “I showed great love for the grass man you gave us to grow, so that activity comes to my mind”
S11: “In the work-power-energy visuals you prepared, students were playing in the garden and taking their disabled friends with them. I chose this activity because I remembered him”

Findings and Comments Regarding the Third Interview Question
The frequency table regarding the distribution of students’ responses to the question “Which of the activities we do can you associate with the concept of respect?” is given below (Table 5).

Table 5. Codes and themes regarding the third question and frequency values of the answers

Theme	Code	f
Physics topic activity	6 Thinking Hat Technique	6
	Movie	5
	Quiz	1

When Table 5 is examined, it is seen that the students associate the value of "respect" with only the activities used in teaching Physics subjects. When the value of respect is mentioned, the activity that comes to the mind of the students the most is the activity (f=6) that includes scenarios prepared in accordance with the 6 thinking hats technique used in teaching the unit of Earth and Universe. The most frequently given answer was the movie Hidden Figures (f=5) that was shown to the students in teaching the subject of Earth and Universe. One student stated that the knowledge contest themed on force and energy (f=1) held in class was the activity that reflects the value of respect. Examples of students’ explanations regarding the question are given below:
S1: “We had a quiz between groups and everyone was trying to collect points for their group, we as a group did not get angry with our friend who got the question wrong and we respected her even if she got the question wrong”
S3: “Women doing space research at NASA struggled with many difficulties both because they were women and because of their skin color, but in the end everyone saw their success and learned to respect them”

Findings and Comments Regarding the Fourth Interview Question
The frequency table regarding the distribution of students’ answers to the question “Which of the activities we do can you associate with the concept of charity?” is given below (Table 6).

Table 6. Codes and themes regarding the fourth question and frequency values of the answers

Theme	Code	f
Physics subject activity	Work-power-energy visuals	5
	Station technique	3
Chemistry subject activity	Molecule model	3
	Separation of mixtures	1

As seen in Table 6, the activity that students associated the value of "helpfulness" the most is the work-power-energy visuals (f=5). Other answers were as follows: molecule model (f=3) and station technique (f=3). One of the students said that the activity of separating mixtures (f=1) reminded him of helping. Examples of students' explanations regarding the question are given below:
S11: "In the visuals you showed us about work-power-energy, a student was helping his teacher carry his books. The student's behavior was very helpful."
S12: "Since our time at each stop was limited in the activity with stops, my groupmates and I helped each other. That's why I thought of this activity."

Findings and Comments Regarding the Fifth Interview Question
The frequency table regarding the distribution of student responses to the question "Which of the activities we did can you associate with the concept of justice?" is given below (Table 7).

Table 7. Codes and themes regarding the fifth question and frequency values of the answers

Theme	Code	f
Physics subject activity	Competition mechanisms	6
	Knowledge contest	2
Chemistry subject activity	Bingo game	2
	Separation of mixtures	2
	Molecular model	1

When Table 7 is examined, it is seen that the majority of the students stated the competition mechanism activity (f=6) when the value of "justice" was mentioned. This activity is followed by the quiz (f=2) used in teaching Physics subjects and the bingo (f=2), separation of mixtures (f=2) and molecule model (f=1) activities used in teaching Chemistry subjects. Examples of students' explanations regarding the question are given below:
S6: "There were easy and difficult questions in the quiz you prepared and we were able to choose questions according to our own level and earn points for our group. Therefore, I think the quiz was a fair activity."
S7: "We saw that there was injustice in the competition mechanisms you prepared in the class in the competitions that were not held under equal conditions. For

example, the marble of the person who cheated and used a flexible spring went farther and this was unfair. Therefore, this activity comes to my mind."

Findings and Comments Regarding the Sixth Interview Question

The question directed to the students, "Which of the activities we did can you associate with the concept of honesty?" The frequency table regarding the distribution of student responses to the question by codes and themes is given below (Table 8).

Table 8. Codes and themes regarding the sixth question and frequency values of the answers

Theme	Code	f
Chemistry topic activity	Bingo game	8
Biology topic activity	Grass man activity	3
	Mitosis division stories	1

When Table 8 is examined, it is seen that the students associate the concept of "honesty" with the activities used in teaching Chemistry and Biology subjects. The students mentioned the bingo activity the most (f=8) when answering the question. The most common answer was the grass man (f=3) and mitosis stories (f=1) activities prepared for teaching Biology subjects. Examples of the students' explanations regarding the question are given below:

S8: "While playing bingo, I saw one of my friends covering up the element on his card as if it had come out of the box even though you had not mentioned it, and I warned him. I wanted him to be honest while playing the game, so I thought of the bingo game."

S9: "While playing bingo, I did not act as if the elements on my card that did not come out had come out, and I think I was honest. That is why I thought of the bingo game."

Findings and Comments Regarding the Seventh Interview Question

The question "Which of the activities we have done can you associate with the concept of self-control?" The frequency table regarding the distribution of student responses to the question by codes and themes is given below (Table 9).

Table 9. Codes and themes regarding the seventh question and frequency values of the answers

Theme	Code	f
Biology topic activity	Grass man activity	4
	Recycling-waste bins	4
	Concept map	4

When Table 9 is examined, it is seen that the activities chosen by the students are only the activities used in teaching Biology subjects and the responses have equal frequencies. According to the students, the activities that provide them with the value of "self-control" are the recycling waste bin (f=4), grass man (f=4) and creating a concept map (f=4). Examples of the students' explanations regarding the question are given below:
S1: "When you were growing the grass men, you asked us to take care of it for a week, if I had not taken care of it, my grass man would not have lived, so I took care of it enough every day and filled in the necessary spaces on the form you distributed to us every day"
S3: "You asked us to work at home on the papers you distributed about Cell Divisions and when we came to school, you asked us to draw a concept map about divisions. I had worked on the notes you gave us at home, so I had no difficulty drawing the concept map. If I hadn't studied, I would have had difficulty, so this activity comes to my mind"

Findings and Comments Regarding the Eighth Interview Question
The frequency table regarding the distribution of the answers given by the students to the question "Which of the activities we have done can you associate with the concept of patience?" is given below (Table 10).

Table 10. Codes and themes regarding the eighth question and frequency values of the answers

Theme	Code	f
Biology topic activity	Grass man activity	7
Physics topic activity	Sky observation	3
	Station technique	3
Chemistry topic activity	Separation of mixtures	1

Table 10 shows the students' responses to the ninth question. When Table 24 is examined, it is seen that the grass man (f=7) activity comes first among the activities that the students associate with the value of "patience". This activity is followed by sky observation (f=3), station technique (f=1) and separation of mixtures (f=1). Examples of students' explanations regarding the question are given below:
S2: "You asked us to observe the sky in the evenings for a week with one of our elders, I couldn't see anything in the sky for a few days, but when I continued to look patiently every evening, I started to see different celestial bodies"
S5: "Although I watered my grass man every day, it didn't grow for 6 days, but I continued to water it patiently every day and at the end of a week, my grass man's hair started to grow. If I hadn't been patient, my grass man wouldn't have grown at all"

Findings and Comments Regarding the Ninth Interview Question
The question directed to the students, "Which of the activities we did can you associate with the concept of responsibility?" The frequency table regarding the

distribution of student responses to the question by codes and themes is given below (Table 11).

Table 11. Codes and themes regarding the ninth question and frequency values of the answers

Theme	Code	f
Biology topic activity	Jigsaw technique	6
	Grass man activity	4
	Recycling-waste bins	1
Theme	Knowledge contest	1

When Table 11 is examined, it is seen that the activity that students associate most with the value of "responsibility" is the cell division activity designed with the jigsaw technique (f=6). After this activity, the activity most associated with the value of responsibility was the grass man (f=4). Although less frequent, students also associated the activities of recycling-waste boxes (f=1) and quiz (f=1) with the value of responsibility. Examples of students' explanations regarding the question are given below:
S3: "Since the question I would answer in the quiz would be added to the score of the entire group, I was very happy to take responsibility for my friends."
S8: "When we created recycling boxes, I always checked whether the waste was separated correctly by the people in my family because I created the boxes. That's why this activity came to my mind when I said responsibility."

Conclusion and Discussion

In line with the objectives of the study, the data of the study was collected from 12 students. First, a word association test was given to these students and then 9 semi-structured interview questions were asked to the students. In the study, the students were first asked the question, "What are the first 10 words that come to your mind when you hear the word value?" When the students' responses to the word association test were examined, it was seen that the answers were love, respect, honesty, tolerance, kindness, family, friends, loved ones, money and gifts. When the answers given to the question were examined, it was seen that most of the answers were not related to universal values, therefore, it was determined that the students did not have knowledge about universal values before the application process. Again, in parallel with the results obtained from this study, in the study conducted by Önder and Coşkun Keskin (2018), all of the students who participated in the study answered family to the question, "How did you acquire your values and what was effective in acquiring these values?" In the study conducted by Balçık and Taşkesen (2022), it was found that the students defined love, which is the expression of value, as family and friends. In another study conducted by Tay, Durmaz and Sanal (2013), it was determined that students associated the concept of value with values such as love, respect, family, friendship, money and diligence the most, but they expressed very few opinions about values such as aesthetics,

reliability, cultural heritage and faith. In another study conducted by Ziebert (2007), 16-17-year-old students living in Germany, the Netherlands, Austria and England were asked to list the values that were important to them. According to the answers to the question, it was seen that the most important values for the students were those that would make them feel free and happy. It was determined that students emphasized social elements and earning money as second in importance, similar to the results obtained in this study.

When the answers given by the students to the question "Which of the activities we have done can you associate with the concept of friendship?" were examined, it was seen that the answers were gathered under three sub-themes. When answering this question, the students associated the activities related to Physics such as station technique and work-power-energy visuals, the activities related to Chemistry such as separation of mixtures and molecule model, and the activities related to Biology such as jigsaw technique with the concept of friendship. The fact that the activities that come to the students' minds when friendship is mentioned are diverse and not limited to a single theme shows that the value of friendship can be taught to students through various activities. As a result of this study, various activities that can be used to teach students the value of friendship have been added to the relevant literature. When the answers given by the students are examined, it is seen that the answers are especially concentrated on activities based on cooperative learning. There are studies in the literature indicating that cooperative learning contributes to the increase of students' social interactions and strengthens their communication with other students (Aydın, 2011; Çinici & Demir, 2010; Demir, 2012; Özden, 2008; Yılar & Şimşek, 2016).

The students were then asked the question, "Which of the activities we did can you associate with the concept of love?" It was observed that the answers from the students were divided into themes and codes as the grass man activity from the activities related to Biology, mitosis division stories and work-power-energy visuals from the activities related to Physics. When the answers of the students were examined, it was found that the highest frequency answer was the grass man activity. As a result of the research, it was revealed that the activities that the researcher aimed to impart the value of love while designing the activities were beneficial for the students to gain the value of love. In a study conducted by Yiğittir and Öcal (2010), it was determined that the students easily adopted the value of love of nature, among other values. In a study conducted by Tahiroğlu (2011), it was aimed to impart the values of "love of nature, giving importance to cleanliness and being healthy" to the students in the 4th grade Social Studies course and to determine the students' attitudes towards these values. As a result of the 18-week application process, it was concluded that there was a positive and significant difference in the attitudes of the students in the experimental group, who were exposed to activities including nature, trees and the environment, towards the determined values.

The answers from the students to the third question, "Which of the activities we have done can you associate with the concept of respect?" were limited to the activities carried out in the subjects of Physics. The students associated the 6 thinking hats technique, the movie watching activity, and the quiz activity on the

subject of Force and Motion with the value of “respect”. Similar results were reached in the relevant literature. In the study conducted by Altunsoy and Basçı Namlı (2021), it was aimed to provide students with the value of “respect for feelings and thoughts” in the curriculum within the scope of the 4th grade Social Studies course through activity-based teaching. During the application, various activities aimed at providing students with the value of respect were carried out in the experimental group. As a result of the application, a statistically significant difference emerged between the post-test scores of the respect value levels of the two groups in favor of the experimental group students. When the students' views on the value of respect were examined, it was determined that they were more enthusiastic about gaining the value of respect thanks to the activities designed by the researcher, and that they became conscious about understanding the importance of values for the individual and society and being respectful.

When the answers given by the students to the fourth question, “Which of the activities we have done can you associate with the concept of helpfulness?” were examined, it was seen that the answers given to the question were gathered under two themes as activities related to the subjects of Physics and Chemistry. The students associated the activities of work-power-energy visuals and station technique carried out in the subjects of Physics and designing molecular models and separation of mixtures carried out in the subjects of Chemistry with the value of helpfulness. When the answers given by the students to the questions were examined, it was seen that the activities in which the value of helpfulness was gained were mostly activities that required group work and it was concluded that the activities that came to the minds of the students when the value of friendship was mentioned were similar to the activities that came to the minds of helpfulness. A similar result was reached in the study conducted by Aktepe (2014). In response to the question “What do you understand by helpfulness?” asked to the students, the students gave the answers of friendship, respect and love. When the answers of the students were examined, it was seen that the values could not be considered separately and were related to each other.

Another question was asked to the students: “Which of the activities we have done can you associate with the concept of justice?” The answers from the students showed that competition mechanisms and quiz activities regarding the subjects of Physics and bingo game, separation of mixtures and molecule model activities regarding the subjects of Chemistry were associated with the value of justice. When the answers from the students were examined, it was seen that the students associated the value of justice with activities based on competition and cooperative learning. This study contributed to the literature by developing various activities for the teaching of the value of justice as well as for the teaching of other values. When the literature was examined, a study conducted by Izgar (2013) examined the effect of the activity-based values education program applied to 8th grade students on the democratic attitudes and behaviors of the students. When the results of the study were examined, it was observed that there were positive changes in the attitudes and behaviors of the students. In addition to the change in attitudes and behaviors, it was determined that there was a positive change in the values of respect, friendship, equality, responsibility and justice of the students.

The sixth question was asked to the students: “Which of the activities we did can you associate with the concept of honesty?” Students associated the bingo game in Chemistry subjects and the grass man activity and mitosis stories in Biology subjects with the value of honesty. When the students’ answers were examined, it was determined that the value of honesty was more associated with individual work. It was determined that the most difficult value among the values that were tried to be taught to middle school students was the value of honesty (Keskin, Öksuz, Gelen, & Yılmaz, 2012). It was emphasized that student-centered classroom activities should be carried out in order to develop the value of honesty (Uzunkol & Ata, 2023).

Another question was asked to the students: "Which of the activities we have done can you associate with the concept of self-control?" When the answers given to the question were examined, it was seen that all of the activities associated with self-control were activities carried out related to Biology subjects. When answering the question, the students mentioned the grass man activity, recycling-waste bins and concept map activities prepared with the flipped classroom technique. When the structure of these activities was taken into account, it was noticed that the students had to individually monitor themselves and ensure their individual control in all of the activities. When the literature was reviewed, no study was found that aimed to impart the value of self-control to students through a direct activity-based learning process. However, some studies were found that addressed the value of self-control. In addition, in a study conducted by Arslan and Elma (2022), the thoughts of primary school students about core values were examined. When the students were asked about the values, they wanted to see the most in themselves, it was seen that the students gave the most answers to the question as patience and self-control. Another question asked was "What makes a person valuable?" When the answers given to the question were examined, it was determined that the highest frequency answers were patience and self-control values. As a result of this study, it was revealed that students care about the value of self-control and want to gain it.

The students responded to the question, “Which of the activities we did can you associate with the concept of patience?” with the following responses: Grass man activity for Biology subjects, sky observation and station technique activities for Physics subjects, and separation of mixtures for Chemistry subjects. When the responses were examined, it was seen that all of the activities required a certain process. Although it was not directly aimed at value education, a study was found in the literature examining the effect of the activity-based learning process related to STEM on the patience value of students. For example, in the study conducted by Çavdar (2020), the effect of STEM activities on the value levels of students was investigated. After the implementation process of the study, it was revealed that students gained awareness about patience, honesty, helpfulness, environmental awareness, savings, and cultural values, and that value education integrated with STEM activities had a positive effect on students' value gains. Again, some studies were found in the literature investigating the effect of activity-based learning processes applied in different branches on the patience value.

The students were then asked the question, “Which of the activities we conducted regarding the concept of responsibility can you associate with it?” It was observed

that the answers from the students were the jigsaw technique, grass man activity, recycling-waste bin activities regarding the Biology subjects, and the quiz activity regarding the Physics subject. It was determined that some of the activities chosen by the students were cooperative learning activities, and the others were activities related to environmental issues. It was thought that the students chose these activities due to their sense of responsibility towards the environment in environmental activities and their sense of responsibility towards their friends in group activities. In the study conducted by Coşkun (2011), the value levels of 5th grade students were investigated within the scope of the Social Studies course. As a result of the research, it was observed that the students had difficulty in internalizing the value of responsibility and could not put this value into practice in their daily lives. As a result of the study, it was stated that the value of responsibility should be emphasized and that this value should be supported with various applications in order for the students to gain this value. Again, in the studies conducted by Yalçın (2021), Tekin (2019) and Aladağ (2009), it was concluded that the responsibility levels of the experimental and control group students increased in favor of the experimental group after the activity-based values education applications.

Suggestions

This section includes some suggestions based on the results obtained from the data of the study and the experiences gained by the researcher during the study;

• The activities developed within the scope of this study can be used to teach students root values.

• Again, the activities developed within the scope of the study can be adapted to other subjects, units or lessons and used to provide students with values education.

• The study group of the study was determined as 7th grade students. The study can be repeated by designing activities developed for different grade levels and units.

• Within the scope of the study, values education was given to students in the Science course with the activity-based learning process. Different approaches than the activity-based learning approach can also be used in the values education process.

Appendix

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