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STUDENT AND TEACHER PERSPECTIVES ON INTERDISCIPLINARY STATION TECHNIQUE

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ABSTRACT

This study aims to examine the views of students and teachers on the application process of the station technique based on the interdisciplinary approach. A case study method of qualitative research designs was used in the study. The study group was determined by the criterion sampling method of purposeful sampling methods. In this context, the participants consisted of two classroom teachers and 71 third-grade students in two different classes. Semi-structured and structured interview forms and teacher diaries were used as data collection tools. The collected data were analyzed by content analysis. During the application, students were divided into four groups, where they conducted four different activities at four different stations and organized a bulletin with the resulting products. The results suggested that the interdisciplinary station technique contributes to students' cognitive, affective, and kinesthetic learning, enriches the teaching process, enables students to participate in the process actively, makes the lesson enjoyable, and improves students' ability to cooperate, produces original and creative ideas, design and create products, take responsibility and help each other. However, it requires a lot of labor and time in the preparation phase and problems may arise in classroom management due to the crowded classrooms during the implementation.

Keywords: Active learning; student-centered teaching; teaching technique.

DİSİPLİNLER ARASI YAKLAŞIMA DAYALI İSTASYON TEKNİĞİNE YÖNELİK ÖĞRENCİ ve ÖĞRETMEN GÖRÜŞLERİ

ÖZET

Çalışmanın amacı disiplinler arası yaklaşıma dayalı istasyon tekniğinin uygulama sürecine yönelik öğrenci ve öğretmen görüşlerinin incelenmesidir. Araştırmada nitel araştırma desenlerinden durum çalışması yöntemi kullanılmıştır. Çalışma grubu amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi ile belirlenmiştir. Bu bağlamda katılımcılar, iki farklı sınıfta iki sınıf öğretmeni ve 71 üçüncü sınıf öğrencisinden oluşmuştur. Veri toplama aracı olarak yarı yapılandırılmış ve yapılandırılmış görüşme formu ile öğretmen günlüğü kullanılmıştır. Toplanan veriler içerik analizi ile analiz edilmiştir. Uygulamada öğrenci grupları dört gruba ayrılmış, dört farklı istasyonda dört farklı etkinliği yapmış ve ortaya çıkan ürünlerle bir pano düzenlemiştir.

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Sonuçta disiplinler arası istasyon tekniğinin öğrencilerin bilişsel, duyuşsal ve devinişsel alanda öğrenmelerine katkı sağlamakta, öğretim sürecini zenginleştirmekte, öğrencilerin aktif olarak sürece katılmalarını sağlamakta, dersi eğlenceli hale getirmekte, öğrencilerin işbirliği yapma, özgün ve yaratıcı yeni fikirler üretme, ürün tasarlama ve oluşturma, sorumluluk alma ve yardımlaşma becerilerini geliştirmektedir. Ancak hazırlık aşamasında çok fazla emek ve zaman gerektirmekte ve uygulama sırasında sınıfların kalabalık olması nedeniyle sınıf yönetimi konusunda sıkıntılar da yaşanabilmektedir.
Anahtar Kelimeler: Aktif öğrenme; öğrenci merkezli öğretim; öğretim tekniği.

1. INTRODUCTION

Rapid and continuous advancements and changes are taking place in technological fields nowadays. These developments and changes are also influencing the fields of economy, health, law, politics, and education. As such, the needs of individuals who make up society are diversifying due to these advancements. One of the functions and obligations of education is to satisfy these diversifying needs of individuals. This function is fulfilled in formal and non-formal educational institutions of different types and levels. Formal educational institutions provide individuals with the knowledge, skills, attitudes, and values they need for social life, as well as the competencies required for higher education. Additionally, they teach skills and competencies utilized in professional contexts in the future (Sağlam, 2011).

For education systems to fulfill their functions, curriculums are developed and implemented. Regardless of the level, all curriculums consist of purpose (objective, learning outcome), content, teaching-learning process, and assessment elements. The *purpose* element of a curriculum serves as the answer to the question "why" and indicates the goals planned to be achieved through the implementation of the curriculum. The *content* element serves as the answer to the question "what" and consists of the subjects addressed to achieve the objectives. The *teaching-learning process* answers the question "how" and determines the approach followed in teaching the subject matter to achieve the objectives. In this process, the strategies, methods, or techniques to be used, the examples to be given, the questions to be asked, the feedback and hints to be provided are all addressed in the teaching-learning process. The *assessment* element serves as the answer to the question "to what extent" and is carried out to measure the extent to which the objectives are achieved and make decisions accordingly.

There are numerous approaches, strategies, methods, and techniques that can be used in teaching-learning processes, depending on the purpose and content. The interdisciplinary teaching approach is one of the approaches that can be employed in the teaching process. According to Jacobs (1989), in the interdisciplinary approach, knowledge and methods from multiple disciplines are utilized to examine a theme, situation, problem, topic, or experience. In the interdisciplinary approach, a specific problem, topic, or concept is focused upon, and knowledge and skills from relevant disciplines are integrated to shed light on this concept, topic, or problem from different perspectives. In this context, the general purpose is to examine the concept that constitutes the course content and to teach the knowledge and skills in subject areas derived from different disciplines involved in this process. Put differently, in an interdisciplinary instructional process, both knowledge and skills from specific

disciplines are taught, and assistance is provided in integrating and using them in a meaningful way (Yıldırım, 1996). The interdisciplinary approach reduces fragmentation by facilitating connections between different disciplines. Thereby, it promotes in-depth learning and teaching and helps prevent knowledge overload. Students focus on teaching-learning processes through critical concepts and higher-order generalizations derived from the content. This approach enables students to use abstract concepts and generalizations and develop their thinking skills at the levels of analysis and synthesis. With this approach, students can transfer knowledge to different domains as they see the connections between facts and events (Erikson, 1995).

Many teaching methods and techniques can be used.in an instructional activity designed based on an interdisciplinary approach. One of the instructional techniques that can be used is the station technique. Learning stations are a model that emerged in the 1960s and 1970s, influenced by Montessori in the early 1900s, later shaped by Dewey's educational philosophy, and then influenced by Piaget and Vygotsky's constructivist views (Bulunuz & Jarret, 2010). The learning station technique is a method of conducting lessons in educational settings (inside or outside the classroom) with designated areas where students perform a series of individual or group learning activities to learn or review a particular topic, following specific guidelines prepared in advance by the teacher or by both the teacher and students (Benek & Kocakaya, 2012). Furthermore, the station technique is a student-centered approach that enables students to enhance their communication skills and creativity while having fun and learn to comply with rules through collaboration and interaction (Üstündağ, 2005). In addition to being student-centered, this technique involves students working in groups and each group contributing to the work done by the previous group, and teaches them how to complete an activity that has been initiated and left unfinished (Gözütok, 2007). This technique provides engaging learning environments for students and includes activities that match their success, appeal to their emotions, and help develop their skills (Fehrle & Schulz, 1977). In this technique, students move through the designated stations sequentially and attempt to complete unfinished activities. This way, all students contribute to the activities at each station.

When using the station technique, the whole class is divided into 3, 4, or 5 groups, and stations are created according to these numbers. Different activities such as writing slogans, making posters, and writing poems or stories are conducted at each station with equal durations. At the end of the allocated time, groups move to other stations, leaving unfinished tasks behind, and contribute to the tasks at the next station. If teachers desire, they can assign a chief or observer to each station to ensure order and collection of products. After visiting all stations and collecting the products, the activities of each station are presented and discussed in the class. Through this technique, students develop various skills such as collaboration, creativity, adding or finishing a task already started, following rules, improving communication skills, and showcasing their special abilities (Tok, 2009).

1.1. Problem

In the modern education system, the learning station technique is employed as an instructional tool that addresses individual differences. Differentiation in teaching is flexible and diverse through the learning station technique. It is also possible to organize teaching based on the station technique by differentiating, elaborating, or generalizing the level of specific instructions in station tasks through answer sheets (Pho, Nguyen, Nguyen, & Nguyen, 2020).

One of the important features of the station technique is the presence of independent tasks in instruction. Therefore, it can be used in teaching courses with closely related units of knowledge, concepts, or generalizations. Stations can be organized through interdisciplinary approaches by associating the selected content with multiple courses. In interdisciplinary approaches, a concept, topic, or problem is focused on, and in the process, attempts are made to create meaningful wholes by integrating the knowledge from different disciplines related to that concept, topic, or problem. In other words, the selected content is prepared for teaching by combining it with content derived from different disciplines. In this context, teaching activities prepared based on an interdisciplinary approach can be given in the form of different tasks using the station technique. In such an instruction approach, each station can include tasks related to a different subject to which the selected content is relevant. Having different stations in the station technique coincides with the interdisciplinary approach, integrating knowledge from different disciplines around a concept, topic, or theme. In this design, students can learn different aspects of the selected concept or topic at each station by employing knowledge from different courses. In this study, the station technique, one of the instructional techniques in the literature, was designed and implemented based on an interdisciplinary approach. In this context, the study aims to examine student and teacher perspectives on the application process of the station technique based on the interdisciplinary approach. To achieve this purpose, answers were sought to the following questions:

1. How do students perceive the application process of the interdisciplinary station technique?
2. How do teachers perceive the application process of the interdisciplinary station technique?

1.1. Significance

The station technique is one of the instructional techniques that can be used in many courses. According to the literature, numerous studies have been conducted on the use of this technique in science (Bekerci, Şimşek, Hamzaoğlu, & Yazıcı, 2020; Benek, 2012; Benek & Kocakaya, 2012; Çakmak & Demir, 2018; Demir, Kartal, Ekici, Öztürk, & Bozkurt, 2011; Önel, 2015; Güneş, 2009; Koca & Türkoğlu, 2019; Solak, 2020), mathematics (Güç, Korkmaz, Çakır, & Bacanak, 2016; Hall & Zentall, 2000; Kartal & Arslan, 2022; Tercan, 2019), social studies (Alacapınar, 2009; Mergen, 2011; Şenyurt, 2022; Şenyurt & Şahin, 2022; Taşdemir, 2015), Turkish (Arslan, 2017; Maden & Durukan, 2010; Yaman & Aydemir, 2018), Vietnamese (Pho, Nguyen, Nguyen, & Nguyen, 2020), English (Avcı, 2015), visual arts (Tedik, 2021; Tekin, 2022), life science (Demir, 2008), and physical education (Özbal, Sağlam & Cavkaytar, 2019) courses. Likewise, there are also studies focusing on the use of the station technique in teaching higher education level courses (Batdı & Semerci, 2012; Bulunuz & Jarrett, 2010;

Kodaman, 2021). These studies have determined that the station technique contributes to academic achievement, makes the lessons more enjoyable, provides positive contributions to students' attitudes toward the courses, and enhances various cognitive and affective skills. Unlike the studies above in the literature, this study does not focus on any specific course but adopts an interdisciplinary approach by selecting a concept and integrating information related to that concept from the contents of different courses. Then, stations are created based on these courses.

In this study, stations were implemented using an interdisciplinary approach to establish connections between different courses on a concept or theme based on students' existing courses. This way, an instructional approach and an instructional technique were integrated in the literature, bringing about an innovation by introducing a different application of the technique. In this context, adding innovation to the station technique used in the instructional process, differentiating the technique, and enriching teaching by connecting different disciplines make the research unique and significant. This study would contribute a new way of applying a well-known technique to the literature. Based on the perspectives of teachers and students regarding the restructured station technique used in the research, the technique can be developed further. The results obtained in this study could be effective in differencing teachers' instructional process, increasing students' participation in the instructional process, and increasing the application of different methods and techniques.

2. METHOD

A case study method of qualitative research designs was employed in the research, considering the application process of an interdisciplinary-based station technique as a case. In the research, it was tried to determine how the teachers and students who experienced the application process of the station technique based on the interdisciplinary approach perceived the process. Case study is a research method that explores a current phenomenon within its own reality and is used in situations where the boundaries between the content within the phenomenon are unclear and there are multiple sources of data (Yin, 1984, as cited in Yıldırım & Şimşek, 2005). A holistic single-case design was used since a comprehensive analysis of a single unit was undertaken to understand the changes and processes in the mentioned case. In case studies, multiple data collection tools are used to collect more in-depth information (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2011). In the holistic single-case design, there is a single unit of analysis, such as an individual, an institution, a program, or a school (Yıldırım & Şimşek, 2005). In this research, the activities implemented were considered as a holistic single case.

2.1. Study Group

The study group was determined using a criterion sampling method of purposive sampling methods. When selecting participants, a list of public schools attended by students with a medium socioeconomic level in a city center located in the Black Sea Region was obtained from official institutions, and a school having six grade 3 classes was randomly chosen. When selecting students to

participate in the study, the criterion of having previously applied the station technique as a class was considered, and two classes meeting this criterion were identified. There were a total of 71 students in these classes, with 32 students in one class and 39 students in another. Of these students, 27 were girls and 44 were boys. One of the male teachers in the study group had 20 years of experience as a classroom teacher, while the other teacher had 22 years of experience. Both teachers graduated from different universities' faculties of education, majoring in elementary education.

2.2. Data Collection Tools

In this study, a structured interview form consisting of six open-ended questions was used to determine students' views on the application of the station technique, and their responses were collected in written form. However, a semi-structured interview form consisting of five open-ended questions was used to determine the views of teachers. The semi-structured and structured interview forms were prepared by the researcher and then revised based on the review of two experts with Ph.D. degrees in educational sciences. The participating teachers who implemented the station technique were asked to keep a journal to record their observations about the process. Interviews with the teachers were conducted and audio-recorded in a suitable part of the school, and the interviews lasted 18 minutes on average.

2.3. Data Analysis

A content analysis technique was employed to analyze the data collected from teachers and students. The audio recordings of the interviews conducted with teachers were transcribed into written documents. Afterward, the teachers' journals and interview data were subjected to an overall reading, and then line-by-line readings were conducted. Content analysis was conducted using an inductive approach. Codes were initially identified during the line-by-line reading of the data. Subsequently, the codes were grouped under sub-themes. Finally, the sub-themes were also grouped under themes, and tables consisting of codes, sub-themes, and themes were created. In addition, the frequencies of the codes were counted and added to the tables. To ensure the reliability of the data analysis, an expert with a Ph.D. degree in educational sciences coded the data as a second coder alongside the researcher. The codes of the two coders were compared, and any discrepancies were discussed and reorganized accordingly. The inter-coder reliability was calculated using Miles and Huberman's (1994) reliability formula (i.e., Reliability = Agreement / (Agreement + Disagreement)), resulting in a reliability coefficient of 0.89 for the analysis of student opinions and 0.92 for the analysis of teacher opinions.

2.4. Application of the Interdisciplinary Station Technique

The interdisciplinary station technique was applied in three stages: preparation, application, and evaluation.

2.4.1. Preparation Stage

Initially, a literature review was conducted to examine existing research and applications related to the station technique. As a result of this review, it was found that there were no studies in the literature

using the application approach employed in this study. The learning outcomes and scope of the curriculum for the selected grade level were examined. Along with classroom teachers, it was decided to consider the concept of recycling, and relevant learning outcomes were selected from the curriculum. The reason for selecting this concept is that it has a broad scope to be linked to other courses. At the same time, it is also suitable for students' development and age. Subsequently, the decision was made on which stations to create. In this context, it was decided to create stations for science, Turkish, mathematics, and visual arts. Since there were four stations, the application was carried out in four cycles. Four different activities were prepared for each station. After the activities were prepared, they were reviewed by a team consisting of two classroom teachers and two educational science experts, and necessary refinements were made. To ensure the smooth application of the cycles without experiencing any issues, an application guideline was prepared for the teachers.

2.4.2. Application Stage

At this stage, teachers were requested to apply the technique according to the prepared guideline. The application guideline is as follows:

- The teacher draws a picture of a trash bin on the board and asks the students what kind of waste they throw in it. After the students write their answers on the trash bin, the teacher asks, 'Are humans the only living beings that produce these wastes?' and points out that other living beings also produce some waste, but they are organic wastes. Then the teacher asks the students, "What can people do to reduce the waste written over the trash bin I drew on the board?" After receiving their answers, the teacher states that one of the most effective ways to reduce waste, prevent environmental pollution, and prevent the depletion of natural resources is *recycling*.
- Then, the teacher plays a video called "Zero Waste" (TEMA Vakfı, 2020) and asks for the meanings of some terms mentioned in the video (e.g., waste, reconsidering, recycling, packaging, separating, and natural resources). After evaluating the video, an explanation is provided to the students about the station technique.
- Application of the Station Technique: Students in the class are divided into four groups. The class is organized into four stations. A paper indicating the name of each station is placed on top of each station. The students are then informed about the order in which the groups will visit each station. The teacher states that there are four different activities for each group at the four stations, and each station has a duration of 15 minutes. Afterward, the student groups are directed to the stations in the following order. The instructions at each station are explained to the students. Guidance is provided to those who need assistance. The students move to the stations according to the order specified in Table 1 below.

Table 1. The Order in which Student Groups Visit the Stations

	Science Station	**Turkish Station**	**Mathematics**	**Visual Arts**
Cycle 1	GROUP 1 Task 1: I see, I think, I am curious	GROUP 2 Task 1: Writing a story	GROUP 3 Task 1: Creating a table	GROUP 4 Task 1: Designing a puppet
Cycle 2	GROUP 4 Task 2: Finding an alternative product	GROUP 1 Task 2: Acrostics	GROUP 2 Task 2: Reading graphics	GROUP 3 Task 2: Drawing caricature
Cycle 3	GROUP 3 Task 3: Drawing a diagram	GROUP 4 Task 3: Creating news text	GROUP 1 Task 3: Coding	GROUP 2 Task 3: Designing a waste bin
Cycle 4	GROUP 2 Task 4: Classifying by waste type	GROUP 3 Task 4: Puzzle	GROUP 4 Task 4: Sudoku	GROUP 1 Task 4: Designing a poster

According to Table 1, in Cycle 1, the first group goes to the science station, the second to the Turkish station, the third to the mathematics stations, and the fourth to the visual arts station. In Cycle 2, the fourth group goes to the science station, the first to the Turkish station, the second to the mathematics station, and the third to the visual arts station. In Cycle 3, the third group goes to the science station, the fourth to the Turkish station, the first to the mathematics station, and the second to the visual arts station. In Cycle 4, the second group goes to the science station, the third to the Turkish station, the fourth to the mathematics station, and the first to the visual arts station. Herewith, all groups visit all stations and participate in all activities.

2.4.3. Evaluation Stage

After the cycles are over, a circle is formed with the students, and they discuss the products they created at the stations. The written news articles and stories are read, and a bulletin board is created using these products. Then, in order to determine the students' opinions about the process, a structured feedback form is distributed to them, asking them to write down their opinions.

3. FINDINGS

This study aimed to examine student and teacher opinions on the application process of the station technique based on an interdisciplinary approach. To achieve this aim, first, the written opinions of students were analyzed to find the answer to the question, "How do students perceive the application process of the interdisciplinary station technique?" The findings reached regarding student opinions are presented below.

3.1. Interdisciplinary Station Technique According to Student Opinions

Six open-ended questions were asked to determine students' opinions on the interdisciplinary station technique. The first question was, "What did you learn in today's station activity?" The codes and themes obtained from the analysis of the students' answers are presented in Table 2.

Table 2. What Students Learned in Station Activities

Theme	Sub-Theme	Codes	f
Learning Outcomes	**Cognitive learning**	Benefits of recycling	16
		Importance of recycling	13
		The concept of waste	12
		Types of wastes	4
		The concept of recycling	4
		The duration of waste decomposition in nature	3
		Separating wastes by their types	2
	Affective learning	Environmental conservation and awareness	7
		Collaboration and assistance	4
	Kinesthetic learning	Making puppets and caricatures	2

According to Table 2, students have learned the benefits of recycling (16), the importance of recycling (13), the concept of waste (12), waste types (4), the concept of recycling (4), the duration of waste decomposition in nature (3), waste separation by types (2), environmental conservation and awareness (7), collaboration and assistance (4), making puppets and caricatures (2). These learnings were consolidated under the sub-themes of cognitive, affective, and kinesthetic learning domains, and these sub-themes were further grouped under the theme of learning outcomes. Some students expressed their views as follows:

"Not every waste is garbage. For example, with some effort, a plastic bottle can turn into a beautiful puppet, and medicine boxes can transform into recycling bins. And remember, 'No pain, no gain.'" (S20)

"I learned about collaboration, I learned about recycling, and I also learned that some wastes are not garbage." (S25)

"I learned not to pollute the environment and how to recycle things that can be recycled." (S5)

The second question asked to determine students' opinions on the station technique was, "How did you feel while doing the station activities?" The codes and themes obtained from the analysis of the students' answers are presented in Table 3.

Table 3. Students' Feelings in Station Activities

Theme	Codes	f
Affective learning outcomes	Find them enjoyable	24
	Feel happy	23
	Feel excited	13
	Like group work	11
	Become curious	2
	Change	1

According to the findings in Table 3, students found the station technique enjoyable (24). Additionally, they felt happy (23), felt excited (13), liked group work (11), were curious about other activities (2), and experienced a sense of change (1) during the activities conducted using this technique.

These codes were grouped under the theme of affective learning outcomes. Some students expressed their views as follows:

"I had a lot of fun and felt very happy while doing it." (S11)

"I had a great day with my teammates." (S15)

"I felt very happy and excited." (S18)

The third question asked to determine students' opinions on the station technique was, "How was it like to teach with the station technique? How was it different from other courses?" The codes and themes obtained from the analysis of the students' answers are presented in Table 4.

Table 4. Students' Opinions According to the Station Technique

Theme	Sub-Theme	Codes	f
Enriched instructional process	**Student-centered teaching**	More enjoyable	47
		Student-centered	21
		Active learning	21
		More exciting	5
		Not taking notes	4
		Intriguing	2
		Rotation between stations	2
		Include different activities	1
	Meta-cognitive learning	Self-learning	21

According to Table 4, students found the station technique to be more enjoyable (47), student-centered (21), promoting active learning (21), more exciting (5), not requiring note-taking (4), intriguing (2), involving rotation between stations (2), and including different activities (1). These codes were grouped under the sub-theme of student-centered teaching. Students mentioned that the station technique is different from other courses in terms of promoting self-learning. The code of self-learning was placed under the sub-theme of meta-cognitive learning. The sub-themes of student-centered teaching and meta-cognitive learning were grouped under the theme of enriched instructional process. Some students expressed their views as follows:

"Studying with the station technique was great. I learned on my own." (S19)

"While studying in regular classes, we used to remain in our seats, but during the station activity, we changed our places." (S22)

"Studying with the station technique was very enjoyable. The difference from other lessons was that we did it on our own." (S13)

"In other lessons, the teacher teaches us, but in this lesson, we learned on our own." (S18)

The fourth question asked to determine the opinions of students regarding the station technique was, "Which station did you like the most and enjoy participating in? Why?" The codes and themes obtained from the analysis of the students' answers are presented in Table 5.

Table 5. Student Opinions on the Most Liked Station and Activity

Theme	Sub-Theme	Codes	f
Most Liked Station	**Turkish**	Writing stories	6
		Writing poems	4
		Puzzles	3
	Science	Designing alternative products	13
	Visual Arts	Making recycle bins	12
		Making puppets	9
		Drawing caricatures	2
	Mathematics	Coding	10
		Sudoku	5
	All of them	Like them all	2

In Table 5, under the theme of the students' most liked station, 13 students liked Turkish, 13 liked Science, 23 liked Visual Arts, 15 liked Mathematics, and two liked all stations. Regarding why students liked these stations more, they responded that it was due to activities such as writing stories (6), writing poems (4), and puzzle activities in the Turkish station. They provided this response due to the activity of designing alternative products (13) in the science station. For the visual arts station, they provided this response because of the activities of making recycling bins (12), making puppets (9), and drawing caricatures (2). Some students expressed their opinions as follows:

"It was the mathematics station. The coding activity was great." (S10)

"It was the visual arts station. Because we made puppets and I learned how to make puppets." (S15)

"It was the puppet station because we were able to create new things by integrating objects." (S21)

"Recycle bins. The reason: because I was curious about them." (S27)

The fifth question asked to determine the opinions of students regarding the station technique was, "Which station did you find the most challenging and did not want to do? Why?" The codes and themes obtained from the analysis of the students' answers are presented in Table 6.

Table 6. Student Opinions on the Most Challenging Station and Activity

Theme	Sub-Theme	Codes	f
Most Challenging Station	**I did not struggle**	All of them were easy. I like all of them.	13
	Turkish	Writing poems	5
		Writing stories	3
	Visual Arts	Making puppets	14
		Preparing posters	1
		Drawing caricatures	1
	Mathematics	Coding	1
		Sudoku	1

In Table 6, under the theme of the station that students found most challenging, 13 students stated that all stations were easy for them and they did not encounter any problems. However, 8 students experienced challenges in the Turkish station, 15 students in the Visual Arts station, and 2 students in the Mathematics station. Those who faced challenges in the Turkish station stated that writing poems and stories were challenging, and in some groups, their writings were erased. Those who experienced challenges in the Visual Arts station mentioned that they had limited materials left, especially for making puppets, and struggled with cutting and gluing. Those who encountered challenges in the mathematics station mentioned that they had not done coding before, had not solved Sudoku puzzles, and did not enjoy these activities, which is why they found them challenging. Some students expressed their opinions as follows:

"I didn't like the mathematics station because I don't like Sudoku." (S2)

"I couldn't find rhyming words at the poetry station and struggled a lot." (S19)

"It was the puppet because sticking, cutting, and designing were too difficult." (S36)

The last question asked to determine the opinions of students regarding the Station technique was, "Would you like to use the station technique in other activities? Why?" The codes and themes obtained from the analysis of the students' answers are presented in Table 7.

Table 7. Student Opinions on Using the Station Technique in Other Activities

Theme	Sub-Theme	Codes	f
Using the Station Technique in Other Activities	**Those who wanted to use it**	Enjoyable	38
		Informative	4
		Student-centered	4
		Different from other lessons	2
		Teamwork	2
	Those who did not want to use it	Tiring	3

In Table 7, under the theme of using the station technique in other activities, the codes were grouped under the sub-themes of those who wanted to use it and those who did not want to use it. Fifty

students who expressed a desire for the station technique to be used in other activities stated that they wanted to use this technique again because it was enjoyable, informative, student-centered, different from other lessons, and promoted teamwork. Three students who did not want to use the station technique in other activities stated that they did not want to use this technique again because they found it tiring. Some students expressed their views as follows:

"I want to. Because I understood the lesson better and had more fun." (S11)

"Yes, I want to. Because it teaches us information and also makes us have fun." (S21)

"I wouldn't want to. Because it would be tiring." (S30)

3.2. Teachers' Opinions Regarding the Station Technique

The observations made by the teachers during the application process, their journals, and the responses they provided in the semi-structured interview form were analyzed to find an answer to the second research question, "How do teachers perceive the application process of the interdisciplinary station technique?" The codes obtained through content analysis were grouped under the themes of "Contributions to the Learning-Teaching Process" and "Criticisms." Since interviews were conducted with two teachers, no frequency is provided. The sub-themes and codes under these two main themes are given in Figure 1.

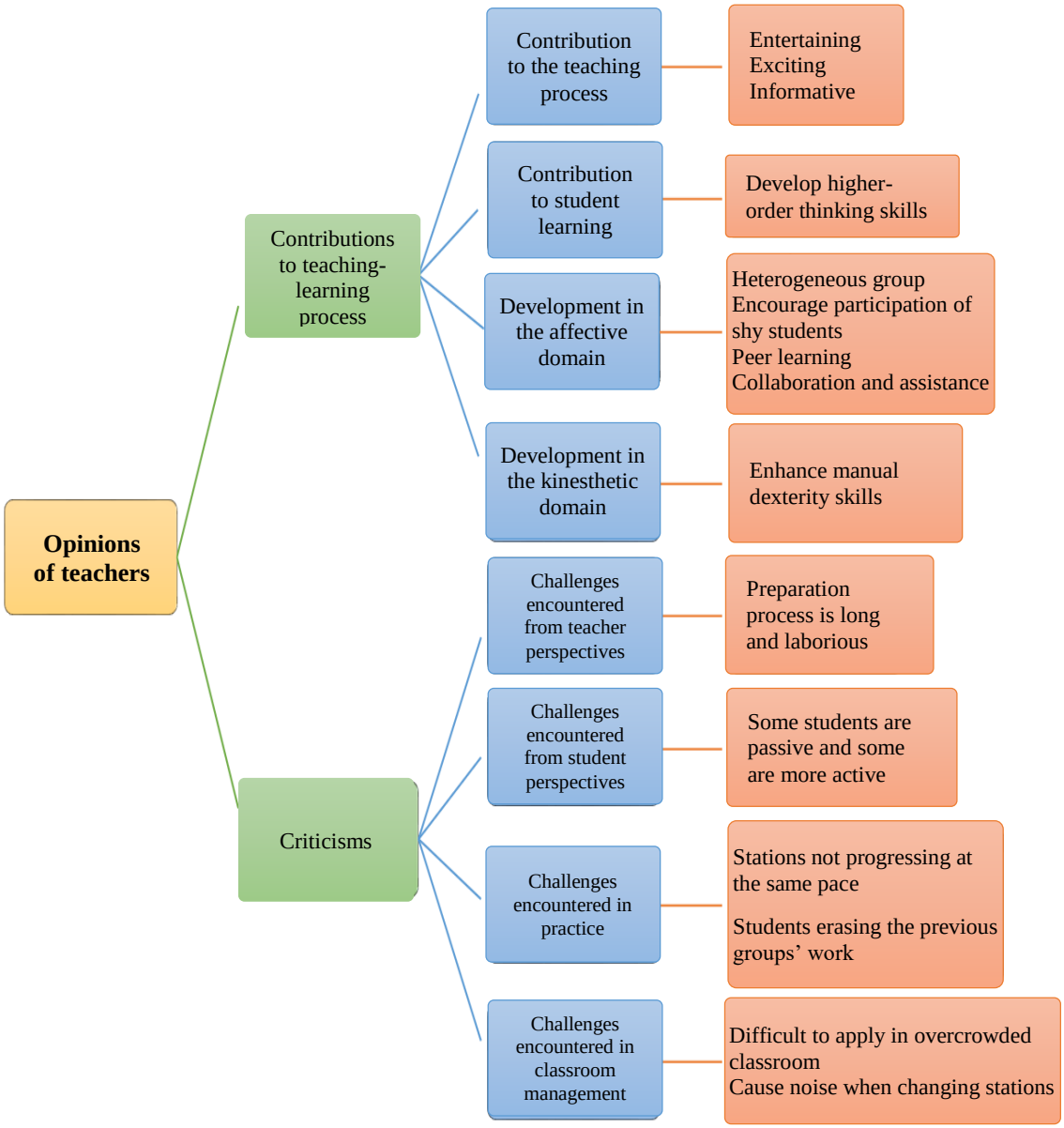

Figure 1. Opinions of Teachers on the Interdisciplinary Station Technique

The theme of "Contributions to the Learning-Teaching Process" in Figure 1 includes the sub-themes of contribution to the teaching process, contribution to student learning, development in the affective domain, and development in the kinesthetic domain. The sub-theme of contributions to the teaching process includes the following codes: entertaining, exciting, and informative. The sub-theme of contributions to student learning the code of developing higher-order thinking skills. The sub-theme of development in the affective domain includes the codes of heterogeneous group, encouraging participation of shy students, peer learning, assistance, and collaboration. The sub-theme of development in the kinesthetic domain includes the code of enhancing manual dexterity skills. Some examples related to the views of teachers are given below:

"The relocation of groups is interesting, entertaining, and informative. It allows them to complete unfinished activities, look from different perspectives, and produce different products. Random selection of groups creates an environment where shy students can express themselves." (T1)

"Completing unfinished activities is both entertaining and informative for students. Having heterogeneous groups contributes to peer learning. Collaboration and mutual assistance are some of the advantages of this technique. Exploring different dimensions of a specific topic is both enjoyable and informative. This technique enhances students' higher-order thinking and manual dexterity skills." (T2)

Besides having positive views regarding the interdisciplinary station technique, teachers also had criticisms regarding this technique. Teachers' views and criticisms are grouped under the sub-themes of challenges encountered from teacher perspectives, challenges encountered from student perspectives, challenges encountered in practice, and challenges encountered in classroom management. Under the sub-theme of challenges encountered from teacher perspectives, teachers stated that the preparation process for this technique is long and laborious. Under the sub-theme of challenges encountered from student perspectives, teachers expressed that in group work, some students tend to take the lead and be more active, while others may remain passive and stay in the background. Under the sub-theme of challenges encountered in practice, teachers stated that they faced difficulties in switching stations due to stations not progressing at the same pace. In addition, they noted that some students erased the work of the previous group when switching stations, causing problems. Sample statements regarding the views of teachers are given below:

"It is difficult to apply in crowded classrooms. It requires extensive preparation and is laborious. There are difficulties when students change their positions. Students who hold leadership positions in their groups tend to stand out, causing others to lag. While the science, Turkish, and mathematics stations progress quickly, the visual arts station depends on the abilities of a few students. Other students get bored." (T1)

"It is necessary to plan everything before starting the application. It requires a considerable amount of time and effort. The classroom becomes very noisy when applying it. All students cannot participate in the activity. Some students remain passive. It is challenging to apply it in crowded classrooms. In the activities conducted, students may sometimes dislike the work of other groups and erase it." (T2)

4. DISCUSSION, CONCLUSION, AND IMPLICATIONS

This study examined student and teacher perspectives regarding the station technique prepared based on an interdisciplinary approach. One of the findings indicated that the interdisciplinary station technique contributes to students' cognitive, affective, and kinesthetic domains of learning. In the cognitive domain, through this technique, students learned about the concepts of recycling and waste, types of waste, the duration of waste decomposition in nature, separating wastes by their type, and the importance and benefits of recycling. The station technique is one of the techniques that can be used in teaching many courses and subjects. Numerous studies have proved that this technique facilitates active learning, improves academic achievement, and makes learning easier and lasting (Arslan, 2017; Avcı,

2015; Bekerci, Şimşek, Hamzaoğlu, & Yazıcı, 2020; Benek, 2012; Benek & Kocakaya, 2012; Bulunuz & Jarrett, 2010; Çakmak & Demir, 2018; Demir, 2008; Demir, Kartal, Ekici, Öztürk, & Bozkurt, 2011; Erdağı & Önel, 2015; Furutani, 2007; Kodaman, 2021; Korkmaz, Çakır, & Bacanak, 2016; Hall & Zentall, 2000, Güneş, 2009; Kartal & Arslan, 2022; Koca & Türkoğlu, 2019; Maden & Durukan, 2010; Mergen, 2011; Özbal, Sağlam, & Cavkaytar, 2019; Pho, Nguyen, Nguyen, & Nguyen, 2020; Şenyurt & Şahin, 2022; Taşdemir, 2015; Tercan, 2019). Alacapınar (2009) emphasizes that the station technique is an effective technique for achieving cognitive, affective, and kinesthetic learning outcomes. Alacapınar also states that this technique promotes knowledge, emotion, and skill sharing among students and helps students to apply this knowledge, emotion, and skills by relating them to real-life experiences. Kartal and Arslan (2022) concluded in their application of the station technique at the preschool level that this technique can be used to achieve learning outcomes in various developmental domains, and this technique supports different developmental domains. Kartal and Arslan's finding, which indicates that the station technique enhances cognitive, social, affective, and psychomotor skills, is parallel to the findings of this research.

The present study found that students developed collaborative and sharing skills in the affective domain and gained awareness of environmental conservation. Additionally, students found the interdisciplinary station technique enjoyable, felt happy, excited, and curious, experienced a sense of change, and liked the group activities. Based on these views regarding the station technique, one could argue that students had a positive attitude toward this technique. In their study, Güç, Korkmaz, Çakır, and Bacanak (2016) examined the secondary school students' views on the station technique in mathematics class. They found that the station technique helps students develop affective skills such as socialization, fostering a sense of responsibility, and developing team consciousness. Similarly, in the application of the station technique in the first-grade life skills course, Demir (2008) determined that the changes between stations and the opportunity for movement in the classroom were effective in helping students acquire social skills. In their research on the use of the station technique in the fifth-grade physical education course, Özbal, Sağlam, and Cavkaytar (2019) found that this technique contributed to students' affective skills, such as fostering a sense of responsibility and respecting differences. In a study with sixth-grade students, Taşdemir (2015) determined that using the station technique in social studies created a difference in students' attitudes toward the course and increased their willingness to participate in the course. Similarly, in Tercan's study (2019) with seventh-grade students, it was found that using the station technique in mathematics lessons improved students' communication skills, increased their self-confidence, and enhanced their interest in the course. In the station technique applied in the visual arts class, it has been found that the interest and motivation of grade 8 students increased toward the course (Tekin, 2020).

One of the findings of this study was that the implementation of the station technique contributed to the development of students' manual dexterity skills and small muscles related to the kinesthetic domain through activities such as making puppets and drawing caricatures. Similar to the

finding of this study, Alacapınar (2009) also reports that the station technique is an effective technique for achieving cognitive, affective, and kinesthetic learning outcomes. Additionally, Kartal and Arslan (2022) also state that the station technique develops cognitive, social, affective, and psychomotor skills.

Another finding reached based on student views is that the interdisciplinary station technique enriches the instructional process. The interdisciplinary station technique created a more enjoyable, exciting, and intriguing learning environment, encouraging students to move around and actively participate in student-centered learning processes through various activities. Furthermore, students constructed their own learning with this technique and became aware of it. These positive views regarding the station technique are in parallel with many other studies in the literature (Alacapınar, 2009, Avcı, 2015; Batdı & Semerci, 2012; Bekerci, Şimşek, Hamzaoğlu, & Yazıcı, 2020; Benek & Kocakaya, 2012; Demir, 2008; Demir, Kartal, Ekici, Öztürk, & Bozkurt, 2011; Hall & Zentall, 2000; Mergen, 2011; Özbal, Sağlam, & Cavkaytar, 2019). Similar to these findings, in the application of the station technique in fifth-grade physical education and sports class, it has been determined that students enjoyed participating in the lesson, actively participated in the learning process, and learned at their own pace (Özbal, Sağlam, & Cavkaytar, 2019). In the station technique applied in the science and technology class, seventh-grade students expressed their enjoyment in participating in activities conducted with this technique. They found the application useful and stated that the group activities contributed to their learning (Benek & Kocakaya, 2012). In an application conducted by Batdı and Semerci (2012) in a grade 7 science and technology class, it was revealed that through this technique, students developed skills in working collaboratively in groups, presenting different ideas, and completing unfinished tasks. The students were also active participants in their learning process.

In this study, students mostly liked the visual arts station, followed by the mathematics, science, and Turkish stations. Students liked activities such as making recycle bins and puppets and drawing caricatures at the visual arts station, coding and Sudoku activities at the mathematics station, and designing alternative products at the science station. At the Turkish station, they mostly liked activities such as writing stories and poems and solving puzzles. Although the visual arts station was the one that students liked the most, it was also the station where they experienced challenges the most. Some students expressed that there was a shortage of materials in the visual arts station, especially in puppet making, and they had difficulties in cutting and gluing. At the Turkish station, some students found it challenging to write poems and stories, while others struggled with the Sudoku and coding activities at the mathematics station because they were doing them for the first time. Writing poems and stories are considered higher-order learning activities in the cognitive domain. In this context, in the station technique, students are required to quickly use their imagination, generate ideas, express them in writing, and demonstrate a creative performance. That is why students may have struggled. In parallel with this finding, Yaman and Aydemir (2018) conducted a study on teaching punctuation marks using the station technique with fifth-grade students. They found that students easily applied the story writing, drawing,

and information stations, but struggled with the slogan creation and poetry writing stations. These results are similar to the findings of this study.

One of the findings obtained in the research is that students desired the interdisciplinary station technique to be used in other activities and courses since it is fun, informative, student-centered, diverse, and teamwork-oriented. Seventh-graders who experienced the station technique in science and technology classes expressed their desire to use this technique in all science and technology lessons, as well as in other subjects (Benek & Kocakaya, 2012). Fifth-grade students who used the station technique in social studies also expressed their views that the lesson they studied with this technique was different from all other lessons (Alacapınar, 2009). In line with these views, regarding the station technique applied in the Turkish language class by Arslan (2017), sixth-graders expressed their desire to use the station technique not only in teaching Turkish but also in different instruction levels and various grade levels.

The study also obtained results based on the views of teachers. According to the observations and opinions of the two classroom teachers who applied the technique, the interdisciplinary station technique positively contributes to the teaching-learning process. An entertaining, exciting, and informative teaching environment was created through this technique. The technique enabled students to acquire higher-order thinking skills, participate in peer learning, and encouraged shy students to engage in the learning process. It has also facilitated collaboration and mutual assistance among students and enhanced their manual dexterity skills. Kartal and Arslan (2022) examined the views of teachers and parents regarding the station technique in their study. They found that this technique was effective in acquiring skills such as providing assistance, learning to share, taking responsibility, and learning to help others. Similarly, in a study, Kodaman (2021) employed the station technique in Basic Art Education and Painting classes at a higher education level. As a result, Kodaman determined that this technique enhances students' creativity, fosters collaboration through group work, improves the ability to complete an unfinished task, encourages generating original and creative ideas, and develops the skills to produce a product. Kartal and Arslan's (2022) and Kodaman's (2021) research findings support the results of this study.

Teachers who participated in the study also had criticisms regarding the interdisciplinary station technique. According to the teachers, the preparation process for this technique is long and laborious. Some students are more active while others remain passive. In practice, the stations not progressing at the same pace and some activities being longer create problems. It also poses a challenge when some students coming to a station dislike the work of the previous group and erase it. Furthermore, the use of this technique also causes problems in classroom management. Applying this technique in crowded classrooms is challenging. The noise and disorder that occur when switching stations make it difficult to control the class. These views of teachers indicate the limitations of the station technique, which can also be encountered in other studies on the application of this technique. Similar to the findings of this study, Yaman and Aydemir (2018) expressed that there was noise and chaos in the classroom during the

application of the station technique, making it difficult for students to focus on their work. Unless detailed planning is made considering the learning outcomes, student characteristics, and their needs in order to use time effectively and efficiently during the application of this technique, difficulties may arise in the process (Sears, 2007). The difficulties in applying the technique in the whole class, challenges in ensuring the active participation of students in groups, and the presence of chaos and noise in the classroom are among the limitations of the station technique (Tok, 2009).

To conclude, the interdisciplinary station technique contributes to students' learning in cognitive, affective, and kinesthetic domains. It enriches the instruction process, enables active participation of students, makes the lessons enjoyable, and enhances students' skills in collaboration, generating unique and creative ideas, designing and creating products, taking responsibility, and mutual assistance. However, it requires significant effort and time during the preparation stage, and challenges may arise in classroom management during the application due to crowded classrooms.

The following recommendations are presented in line with the conclusions reached in the study:

- The interdisciplinary station technique could also be used in teaching concepts at different grade levels.
- Teachers and students could be encouraged to use this technique more frequently to eliminate the problems encountered during the application. Reusing the technique in other lessons may increase the experience of both students and teachers, reducing classroom chaos or noise in subsequent applications.
- This study was conducted as a case study. Similar studies could be carried out experimentally.

REFERENCES

Alacapınar, G. F. G. (2009). Student views on teaching lessons with the station technique. *Abant İzzet Baysal University Journal of the Faculty of Education, 9*(1), 137-147.

Arslan, A. (2017). *The effect of using station technique in Turkish teaching on students' academic achievement, attitude and permanence.* (Master's thesis, Cumhuriyet University, Institute of Educational Sciences).

Avcı, H. (2015). *The effect of using station technique in English teaching on academic achievement, attitudes and permanence.* [Unpublished masters' thesis]. Fırat University, Institute of Educational Sciences, Elazığ.

Batdi, V., & Semerci, Ç. (2012). Reflective inquiry of station technique application in lessons. *Bartın University Journal of Faculty of Education, 1*(1), 190-203.

Bekereci, Ü., Şimşek, F., Hamzaoğlu, E., & Yazıcı, M. (2020). The effect of using station technique in science lesson on students' academic achievement and science attitudes. *Anemon Mus Alparslan University Journal of Social Sciences, 8*(6), 1779-1786.

Benek, İ., & Kocakaya, S. (2012). Student views on learning technique at stations. *Journal of Education and Training Research, 1*(3), 8-18.

Benek, İ. (2012). *The effect of the learning technique at the stations on the achievement of the 7th grade students in the science and technology course.* [Unpublished masters' Thesis]. Yüzüncü Yıl University, Institute of Science, Van.

Benek, İ. & Kocakaya, S. (2012). Student views on learning technique at stations. *Journal of Education and Training Research, 1* (3), 2146-9199.

Bozpolat, E., & Arslan, A. (2018). A qualitative study on the use of station technique in Turkish teaching. *Balıkesir University Journal of Social Sciences Institute, 21*(39), 55-97.

Bulunuz, N., & Jarrett, O. S. (2010). The effects of hands-on learning stations on building American elementary teachers' understanding about earth and space science concepts. *Eurasia Journal of Mathematics, Science and Technology Education, 6*(2), 85-99.

Büyüköztürk, Ş., Çakmak, E.K., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2011). *Scientific research methods.* Pegem.

Çakmak, M., & Demir, C. (2018). Investigation of the effect of the station technique on the academic achievement of the students in the 6th grade science course matter and heat unit. *Electronic Turkish Studies, 13*(19), 445- 458.

Demir, M. R. (2008). *The effect of the learning model at the stations on the achievement of high-level skills in the life studies course.* [Unpublished master's thesis]. Hacettepe University, Institute of Social Sciences, Ankara.

Demir, R., Kartal, T., Ekici, G., Öztürk, N., & Bozkurt, E. (2011). Station technique: a sample lesson activity on cells. *Western Anatolia Journal of Educational Science, Special Issue, 383-390.*

Erdağı, S., & Önel, A. (2014). İstasyon tekniğinin fen ve teknoloji dersinin akademik başarısına etkisi. *Caucasian Journal of Science*, *2*(1), 57-64.

Erickson, H. L. (1995). *Stirring the Head, heart, and soul: redefining curriculum and ınstruction.* California: Corwin Press, INC. A Sage Publications Company. Thousand Oaks.

Fehrle, C. C. & Schulz, J. (1977). *Guidelines for Learning Stations*. Colombia: Missouri University Publishing.

Gözütok, F. D. (2007). *Teaching principles and methods.*Ekinoks.

Güç,F., Korkmaz, Ö., Çakır, R., & Bacanak, A. (2016). The effect of the station technique on the academic success of the mathematics course and students' opinions. *Journal of Mehmet Akif Ersoy University Faculty of Education, 1*(40), 171-190.

Güneş, E. (2009). *The effect of teaching with station technique on achievement and permanence in science and technology lesson.* [Unpublished master's thesis]. Hacettepe University, Institute of Social Sciences, Ankara.

Hall, A. M., & Zentall, S. S. (2000). The effects of a learning station on the completion and accuracy of math homework for middle school students. *Journal of Behavioral Education, 10(*2-3), 123-137.

Jacobs, H. H. (1989). *Interdisciplinary Curriculum: Design and Implementation*. Alexandria: Association for Supervision and Curriculum Development.

Kartal, S., & Arslan, A. (2022). The effect of mathematical pattern workshops constructed with material aided station technique in preschool education on children's visual perception skills, e-*International Journal of Educational Research, 13*(3), 113-136. https://doi.org/10.19160/10.19160/e-ijer.1083907

Koca, M., & Türkoğlu, İ. (2019). The effect of station technique application on the academic achievement, permanence and attitudes of the students in the teaching of the sixth grade science lesson cell subject. *Firat University Journal of Social Sciences*, *29*(1), 91-106.

Kodaman, L. (2021). A workshop on the application of station technique in basic art education and painting class. *Journal of Art Education, 9*(1), 1-9.

Maden, S., & Durukan, E. (2010). The effect of the station technique on gaining creative writing skills and attitude towards the lesson. *Turkology Studies*, (28), 299-312.

Mergen, H. H. (2011). *The effect of learning stations application on academic success and permanence in primary school 5th grade social studies course* (Unpublished doctoral dissertation). Afyon Kocatepe University, Institute of Social Sciences, Afyonkarahisar.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage Publications.

Özbal, A. F., Sağlam, M., & Cavkaytar, S. (2019). Application of differentiated teaching approach in Physical Education and Sports course. *Education and Science, 44*(200), 291-312.

Pho, D. H., Nguyen, H. T., Nguyen, H. M., & Nguyen, T. T. N. (2021) The use of learning station method according to competency development for elementary students in Vietnam, *Cogent Education, 8* (1), 1870799, DOI: 10.1080/2331186X.2020.1870799

Sears, M. E. (2007). Designing and delivering learning center instruction. *Intervention in School and Clinic, 42*(3), 137-147.

Sağlam, M. (2011). Structural arrangements and curriculum development studies in Turkish education system and teacher education. S. A. Kilimci (Ed.), in *Teacher Training in Turkey* (p. 138). Pegem Academy.

Solak, M. (2020). *The effect of station technique applied in primary school first grade fourth grade science course on students' self-efficacy and course success in science course* [Unpublished master's thesis]. Balıkesir University, Institute of Social Sciences, Balıkesir.

Şenyurt, Y. S. (2022). *The effect of the use of station technique in the 4th grade social studies course on the academic achievement and attitudes of the students.* [Unpublished master's thesis]. Çanakkale Onsekiz Mart University, Institute of Postgraduate Education, Çanakkale.

Şenyurt, Y. S., & Şahin, Ç. (2022). The effect of the use of station technique in the 4th grade social studies course on the academic achievement and attitudes of the students. *EDUCATIONE, 1*(2), 259-278.

Taşdemir, D. (2015). *The effect of teaching the 6th grade national resources unit of social studies course with station technique on students' academic success and attitude towards the course.* [Unpublished master's thesis]. Fırat University, Institute of Educational Sciences, Elazığ.

TEMA Foundation, (2020). Zero Waste (Video) Youtube. https://www.youtube.com/watch?v=ijkOwRCtBkg

Tedik, T. (2021). *The effect of station technique on academic achievement, attitude and permanence in visual arts lesson.* [Unpublished master's thesis]. Atatürk University, Institute of Educational Sciences, Erzurum.

Tekin, E. (2022). *The effect of station technique on academic achievement, attitude and permanence in visual arts lesson.* [Unpublished master's thesis]. Atatürk University, Institute of Educational Sciences, Erzurum.

Tercan, M. A. (2019). *The effect of station technique on gaining high-level cognitive skills in mathematics.* [Unpublished master's thesis]. Necmettin Erbakan University, Institute of Education Sciences, Konya.

Tok, T. N. (2009). Methods and Techniques for Effective Teaching. A. Doğanay (Ed.). in *Teaching Principles and Methods* (162-230). Pegem.

Üstündağ, T. (2005). *Journey to Creativity.* 3rd Ed. Pegem.

Yaman, Y. E., & Aydemir, M. (2018). Students' views on the process of teaching punctuation marks with station technique. *Section Academy Journal,* (13), 258-270.

Yıldırım, A. (1996). The concept of interdisciplinary teaching and its consequences in terms of programs. *Journal of Hacettepe University Faculty of Education, 12,* 89-94.

Yıldırım, A., & Şimşek, H. (2005). *Qualitative research methods in the social sciences.* Seçkin.

APPENDIX 1

Samples of students' works created during the application and the bulletins they created with these works are presented in pictures 1, 2, and 3.

Picture 1. Application process

Picture 2. Application process

Picture 3. Application process

GENİŞLETİLMİŞ TÜRKÇE ÖZET

DİSİPLİNLER ARASI YAKLAŞIMA DAYALI İSTASYON TEKNİĞİNE YÖNELİK ÖĞRENCİ ve ÖĞRETMEN GÖRÜŞLERİ

GİRİŞ

Disiplinler arası yaklaşıma dayalı olarak tasarlanan bir öğretim etkinliğinde birçok öğretim yöntemi ve tekniği kullanılabilir. Kullanılabilecek öğretim tekniklerinden birisi de istasyon tekniğidir. İstasyon tekniği öğrenci merkezli bir teknik olmakla beraber, öğrencinin eğlenerek iletişim kurma becerilerini ve yaratıcılığını geliştirebileceği, kurallara uymayı işbirliği ve etkileşim ile öğrenebileceği bir tekniktir (Üstündağ, 2005). Bu teknik öğrenci merkezli olmasının yanı sıra, öğrencilerin grupla çalışarak ve her grubun önceki grubun yaptığı çalışmalara katkı sunduğu, başlanan ve yarım bırakılan bir etkinliği tamamlamayı öğrendiği bir tekniktir (Gözütok, 2007). Bu teknik öğrenciler için çekici öğrenme ortamları sağlamakla beraber, öğrencilerin seviyesine uygun başarılı olabileceği etkinlikleri içeren, onların duygularına hitap eden, öğrencilerin becerilerini geliştiren etkinlikleri kapsayan bir tekniktir (Fehrle & Schulz, 1977). Bu teknikte öğrenciler oluşturulan istasyonları sırayla gezerek yarım kalan etkinlikleri tamamlamaya çalışır, böylece her istasyondaki etkinliğe tüm öğrenciler katkı sağlamış olur.

İstasyon tekniğinin önemli özelliklerinden biri öğretimde birbirinden bağımsız görevlerin olmasıdır. Bu nedenle, yakından ilişkili bilgi birimlerine, kavramlara ya da genellemelere sahip derslerin öğretilmesinde kullanılabilir, seçilen içeriğin birden fazla dersle ilişkilendirilerek disiplinler arası yaklaşımla istasyonlar düzenlenebilir. Disiplinler arası yaklaşımda bir kavram, konu ya da problem merkeze alınarak süreçte bu kavram konu ya da problem farklı disiplinlerin konu alanlarındaki bilgilerle anlamlı bütünler oluşturulmaya çalışılır. Yani seçilen içerik farklı disiplinlerden alınan içerikle birleştirilerek öğretim için hazır hale getirilir. Bu bağlamda disiplinler arası yaklaşıma dayalı olarak hazırlanan öğretim etkinlikleri, istasyon tekniği ile farklı görevler şeklinde verilebilir. Böyle kurgulanan bir öğretimde her istasyon seçilen içeriğin ilgili olduğu farklı bir derse yönelik görevleri içerebilir. İstasyon tekniğinde farklı istasyonların olması disiplinler arası yaklaşımın farklı disiplinlerdeki bilgileri bir kavram, konu ya da tema etrafında bütünleştirmesi ile örtüşmektedir. Bu tasarımda öğrenciler her istasyonda seçilen kavram ya da konunun farklı bir yönünü farklı derslerin bilgilerinden yararlanarak öğrenebilir. Bu çalışmada literatürde yer alan öğretim tekniklerinden biri olan istasyon tekniği disiplinler arası yaklaşıma dayalı olarak tasarlanmış ve uygulanmıştır. Bu bağlamda çalışmanın amacı disiplinler arası yaklaşıma dayalı istasyon tekniğinin uygulama sürecine yönelik öğrenci ve öğretmen görüşlerinin incelenmesidir. Bu amaca ulaşmak için aşağıdaki sorulara cevap aranacaktır.

1. Disiplinler arası yaklaşıma dayalı istasyon tekniğinin uygulama süreci öğrenciler tarafından nasıl algılanıyor?

2. Disiplinler arası yaklaşıma dayalı istasyon tekniğinin uygulama süreci öğretmen tarafından nasıl algılanıyor?

YÖNTEM

Araştırmada nitel araştırma desenlerinden durum çalışması yöntemi kullanılmıştır. Disiplinler arası yaklaşıma dayalı istasyon tekniğinin uygulama süreci durum olarak kabul edilmiştir. İlgili durumda meydana gelen değişimleri ve süreçleri anlamak için tek bir analiz birimi bütüncül olarak ele alındığı için bütüncül tek durum deseni kullanılmıştır. Çalışma grubu amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi ile belirlenmiştir. Çalışmaya katılacak öğrenciler seçilirken, sınıf olarak daha önce istasyon tekniğini uygulamış olma özelliği ölçüt olarak kabul edilmiş ve bu ölçüte uyan iki şube belirlenmiştir. Bu şubelerde 32 ve 39 öğrenci olmak üzere toplam 71 öğrenci bulunmaktadır. Çalışma grubunda yer alan iki erkek öğretmenden biri 20, diğeri 22 yıllık sınıf öğretmenidir. İki öğretmende farklı üniversitelerin eğitim fakültelerinin sınıf öğretmenliği bölümünden mezun olmuştur.Bu çalışmada istasyon tekniğinin uygulamasına yönelik öğrenci görüşlerini belirlemek amacıyla açık uçlu altı sorudan oluşan bir yapılandırılmış görüşme formu kullanılmış ve öğrencilerin görüşleri yazılı olarak toplanmıştır. Öğretmen görüşlerini belirlemek amacıyla açık uçlu beş sorudan oluşan yarı yapılandırılmış görüşme formu kullanılmıştır. Yarı yapılandırılmış ve yapılandırılmış görüşme formu araştırmacı tarafından hazırlanmıştır.Öğretmen ve öğrencilerden toplanan verilerin analizinde içerik analizi tekniğinden yararlanılmıştır.

BULGULAR

Öğrenci Görüşlerine Göre İstasyon Tekniği

Öğrencilerin Disiplinler Arası İstasyon Tekniğine ilişkin görüşlerini belirlemek için 6 açık uçlu soru sorulmuştur. Öğrenciler istasyon tekniği ile geri dönüşümün faydalarını, geri dönüşümün önemini, atık kavramını, atık türlerini, geri dönüşüm kavramını, atıkların doğada kaybolma sürelerini, atıkları türlerine göre ayırmayı, çevreyi korumayı ve duyarlı olmayı, işbirliği ve yardımlaşmayı, kukla yapmayı, karikatür yapmayı öğrenmişlerdir. Öğrenciler istasyon tekniğini eğlenceli bulmuşlardır. Bunun yanı sıra bu teknik ile yapılan etkinliklerde kendilerini mutlu hissetmiş, heyecan duymuş, grup çalışmalarını beğenmiş, diğer etkinlikleri merak etmiş ve değişim hissetmişlerdir. Öğrenciler istasyon tekniğini daha eğlenceli, öğrenci merkezli, aktif öğrenmeyi sağlayıcı, daha heyecan verici, not almaya gerek duymama, merak uyandırıcı, istasyonlar arası yer değiştirilmesi ve farklı etkinleri içermesi açısından farklı bulmuşlardır. Öğrencilerin en çok sevdiği istasyon teması altında 13 öğrenci Türkçe, 13 öğrenci fen, 23 öğrenci görsel sanatlar, 15 öğrenci matematik ve iki öğrenci tüm istasyonları sevdiğini belirtmiştir. Bu istasyonları neden daha çok sevdikleri ile ilgili olarak öğrenciler Türkçe istasyonundaki, hikâye yazma, şiir yazma ve bulmaca etkinliklerinden dolayı bu cevabı vermişlerdir. Fen istasyonundaki, alternatif ürünler tasarlama etkinliğinden dolayı bu cevabı vermişlerdir. Görsel sanatlar istasyonu için, geri dönüşüm kutusu yapma, kukla yapma ve karikatür çizme etkinliklerinden dolayı bu cevabı vermişlerdir.

Öğrencilerin en çok güçlük yaşadığı istasyon teması altında 13 öğrenci bütün istasyonların kolay olduğunu ve hiç sorun yaşamadığını belirtirken, 8 öğrenci Türkçe, 15 öğrenci görsel sanatlar, 2 öğrenci matematik istasyonunda güçlük yaşadığını belirtmiştir. Türkçe istasyonunda güçlük yaşayanlar şiir ve hikâye yazmanın zor olduğunu; bazı gruplarda yazılanların silindiğini; görsel sanatlar istasyonunda güçlük yaşayanlar özellikle kukla yapmak için kendilerine az malzeme kalmasından ve kesme-yapıştırmada zorlandıkları için sorun yaşadıklarını; matematik istasyonunda güçlük yaşayanlar ise daha önce kodlama yapmadıkları, su doku çözmedikleri ve bu etkinlikleri sevmedikleri için zorlandıklarını belirtmişlerdir. Öğrencilerin istasyon tekniğinin diğer etkinliklerde kullanımı teması altında isteyenler ve istemeyenler alt temalarında kodlar toplanmıştır. İstasyon tekniğinin başka etkinliklerde de kullanılmasını isteyen 50 öğrenci, bu tekniği eğlenceli, öğretici, öğrenci merkezli, diğer derslerden farklı ve ekip çalışması nedeniyle tekrar kullanmak istediklerini belirtmişlerdir. İstasyon tekniğini başka etkinliklerde kullanmak istemeyen üç öğrenci yorucu olduğu için bu tekniği tekrar kullanmak istememiştir.

Öğretmen Görüşlerine Göre İstasyon Tekniği

Öğretmenlerin istasyon tekniğine ilişkin görüşleri bu tekniğin "Öğrenme-Öğretme Sürecine Katkıları" ve bu tekniğe ilişkin eleştiriler temalarında incelenmiştir. Öğretmenler disiplinler arası yaklaşıma dayalı istasyon tekniğinin öğrenme öğretme sürecini zenginleştirdiği, eğlenceli hale getirdiği, öğrencilere üst düzey düşünme beceri kazandırdığı, heterojen gruplar sayesinde çekingen öğrencilerin de derse katıldığını, akran öğrenmesi sağladığını, yardımlaşma ve işbirliği yapmayı sağladığını ve devinişssel alanla ilgili olarak el becerilerini geliştirdiğini ifade etmişlerdir.

Öğretmenlerin disiplinler arası yaklaşıma dayalı istasyon tekniği ile ilgili olumlu görüşlerinin yanı sıra bu teknikle ilgili eleştirileri de bulunmaktadır. Öğretmenler bu tekniğin hazırlık sürecinin uzun ve zahmetli olduğunu belirtmişlerdir. Öğrenci açısından ise grup çalışmalarında bazı öğrencilerin ön plana çıktığını ve lider olduklarını bazılarının ise arka planda kalarak pasif olduklarını ifade etmişlerdir. Uygulamada karşılaşılan zorluklarda öğretmenler, istasyonların aynı hızda ilerlememesi nedeniyle istasyon değişiminde güçlük yaşadıklarını, ayrıca istasyon değişimlerinde bazı öğrencilerin önceki grubun çalışmasını silmesinin de sorun yarattığını belirtmişlerdir. Sınıf yönetiminde ise özellikle sınıfların kalabalık olmasının bu tekniğin kullanımını zorlaştırdığını ve istasyonların değişimi sırasında oluşan gürültü ve düzensizliğin sınıf yönetimini zorlaştırdıklarını belirtmişlerdir.

TARTIŞMA, SONUÇ ve ÖNERİLER

Disiplinler arası yaklaşıma dayalı olarak hazırlanan istasyon tekniğine ilişkin öğrenci ve öğretmen görüşlerinin incelendiği bu araştırmada ulaşılan bulgulardan biri disiplinler arası yaklaşıma dayalı istasyon tekniğinin öğrencilerin bilişsel, duyuşsal ve devinişsel alanda öğrenmelerine katkı sağladığıdır. Öğrenciler bu teknik sayesinde bilişsel alanda geri dönüşüm ve atık kavramları, atık türleri, atıkların doğada kaybolma süreleri, atıkları türlerine göre ayırmayı, geri dönüşümün önemi ve

faydalarını öğrenmişlerdir. İstasyon tekniğini birçok dersin ve birçok konunun öğretiminde kullanılabilecek tekniklerden biridir. Bu tekniğin aktif öğrenmeyi sağladığı, akademik başarıyı arttırdığı öğrenmeyi kolay ve kalıcı hale getirdiği birçok araştırma ile kanıtlanmıştır (Arslan, 2017; Avcı, 2015; Bekerci, Şimşek, Hamzaoğlu & Yazıcı, 2020; Benek, 2012; Benek &Kocakaya, 2012; Bulunuz & Jarrett, 2010; Çakmak ve Demir, 2018; Demir, 2008; Demir, Kartal, Ekici, Öztürk & Bozkurt, 2011; Erdağı & Önel, 2015; Furutani, 2007; Kodaman, 2021; Korkmaz, Çakır & Bacanak, 2016; Hall & Zentall, 2000, Güneş, 2009; Kartal & Arslan, 2022; Koca & Türkoğlu, 2019; Maden & Durukan, 2010; Mergen, 2011; Özbal, Sağlam & Cavkaytar, 2019; Pho, Nguyen, Nguyen & Nguyen, 2020; Şenyurt & Şahin, 2022; Taşdemir, 2015; Tercan, 2019). Bu çalışmada, öğrencilerin duyuşsal alanda işbirliği ve paylaşma becerileri gelişmiş, öğrenciler çevreyi koruma ile ilgili duyarlılık kazanmışlardır. Bunun yanı sıra öğrenciler disiplinler arası istasyon tekniğini eğlenceli bulmuş, uygulamada kendilerini mutlu hissetmiş, heyecanlanmış, merak etmiş, değişim yaşamış ve grup çalışmalarını beğenmiştir. İstasyon tekniğine yönelik bu görüşlere dayanarak öğrencilerin bu tekniğe yönelik olumlu bir tutuma sahip oldukları söylenebilir. Güç, Korkmaz, Çakır ve Bacanak'ın (2016) matematik dersinde ortaokul öğrencilerinin istasyon tekniğine yönelik görüşlerini inceledikleri araştırmada, istasyon tekniğinin öğrencilerin sosyalleşmesini sağlama, sorumluluk bilinci kazandırma, takım bilinci oluşturma gibi duyuşsal beceriler kazandırdığı sonucuna ulaşmışlarıdır.

Bu çalışmanın bulgularından biri de istasyon tekniği uygulamasının öğrencilerin devinişsel alanla ilgili olan kukla yaparak ve karikatür çizerek el becerileri ve küçük kasları gelişmiş olmasıdır. Araştırmanın bu bulgusuna benzer olarak Alacapınar (2009) istasyon tekniğinin bilişsel, duyuşsal ve devinişsel alanla ilgili kazanımları kazandırmak için etkili bir teknik olduğunu belirtmektedir.

Öğrenci görüşlerine göre ulaşılan diğer bir bulgu, disiplinler arası istasyon tekniğinin öğretim sürecini zenginleştirdiğidir. Disiplinler arası istasyon tekniği öğrenme sürecinde daha eğlenceli, heyecan verici, merak uyandırıcı bir ortam yaratmış, farklı etkinliklerle öğrencilerin hareket etmesini, öğrenci merkezli olarak öğrenme sürecine aktif katılmayı sağlamıştır. Ayrıca öğrenciler bu teknikle kendi öğrenmelerini yapılandırmış ve bunun da farkına varmışlardır. İstasyon tekniğine yönelik bu olumlu görüşler literatürdeki birçok araştırma ile paraleldir (Alacapınar, 2009, Avcı, 2015; Batdı & Semerci, 2012; Bekerci, Şimşek, Hamzaoğlu & Yazıcı, 2020; Benek & Kocakaya, 2012; Demir, 2008; Demir, Kartal, Ekici, Öztürk & Bozkurt, 2011; Hall & Zentall, 2000; Mergen, 2011; Özbal, Sağlam & Cavkaytar, 2019).

Bu çalışmada öğrenciler en çok görsel sanatlar istasyonunu sevmişlerdir. Bunu matematik, fen ve Türkçe istasyonları takip etmiştir. Görsel sanatlar istasyonunda geri dönüşüm kutusu ve kukla yapma, karikatür çizme; matematik istasyonunda kodlama ve su doku; fen istasyonunda alternatif ürünler tasarlama; Türkçe istasyonunda ise hikâye ve şiir yazma, bulmaca çözme etkinlikleri çok sevilmiştir. Öğrencilerin en çok sevdikleri istasyon görsel sanatlar istasyonu olmasına rağmen en çok güçlük

yaşadıkları istasyon da bu istasyondur. Bazı öğrenciler görsel sanatlar istasyonunda özellikle kukla yapımında malzemelerin az olması ve kesme, yapıştırma yapmada zorlandıklarını ifade etmişlerdir. Türkçe istasyonunda bazı öğrenciler şiir ve hikâye yazmada zorlanmış, bazı öğrenciler ise matematik istasyonunda su doku ve kodlama etkinliklerini ilk defa yaptıkları için güçlük yaşamıştır. Şiir ve hikâye yazma bilişsel alandaki üst düzey öğrenmelerden biridir. Bu bağlamda istasyon tekniğinde öğrencilerin kısa sürede hayal güçlerini kullanmaları, düşünce üretmeleri, bunu yazıya dökmeleri ve yaratma düzeyinde bir performans göstermeleri gerekmektedir. Öğrenciler bu nedenle zorlanmış olabilir. Bu bulguya paralel olarak Yaman ve Aydemir'in (2018) beşinci sınıf öğrencileriyle noktalama işaretlerinin istasyon tekniği ile öğretimi ile ilgili yaptıkları araştırmada öğrencilerin hikâye yazma, resim yapma ve bilgi istasyonlarını kolay uyguladıkları, slogan oluşturma ve şiir yazma istasyonlarında zorlandıkları sonucuna ulaşmışlardır. Bu sonuçlar araştırma bulguları ile benzerdir.

Araştırmada ulaşılan bulgulardan biri öğrencilerin disiplinler arası istasyon tekniğini eğlenceli, öğretici, öğrenci merkezli, farklı ve ekip çalışması nedeniyle diğer etkinliklerde ve derslerde de kullanılmasını istenmeleridir. İstasyon tekniğini fen ve teknoloji dersinde deneyimleyen yedinci sınıf öğrencileri bu tekniği fen ve teknoloji dersinin tüm konularında ve diğer derslerde de kullanmak istediklerini ifade etmiştir (Benek &Kocakaya, 2012).

Araştırmada öğretmen görüşlerine dayalı olarak da sonuçlara ulaşılmıştır. Uygulama yapılan iki sınıf öğretmeninin gözlemleri ve görüşlerine göre disiplinler arası istasyon tekniğinin öğrenme-öğretme sürecine olumlu katkıları vardır. Bu teknikle eğlendirici, heyecan verici ve öğretici bir öğretim ortamı oluşmuştur. Bu teknik, öğrencilerin üst düzey düşünme becerileri kazanmalarını sağlamış, akran öğrenmesine, çekingen öğrencilerin öğrenme sürecine katılmasına, yardımlaşma ve işbirliği yapmalarına yardımcı olmuş, öğrencilerin el becerilerini geliştirmiştir. Kartal ve Arslan'nın (2022) istasyon tekniğine yönelik öğretmen ve velilerin görüşlerini de incelediği çalışmada bu tekniğin işbirliği yapma, paylaşımcılığı öğrenmeyi, sorumluluk almayı ve yardımlaşmayı öğrenme gibi becerilerin kazanılmasında etkili olduğu belirlenmiştir.

Çalışmaya katılan öğretmenlerin disiplinler arası yaklaşıma dayalı istasyon tekniğine yönelik eleştirileri de bulunmaktadır. Öğretmenlere göre bu tekniğin hazırlık süreci uzun ve zahmetlidir. Bazı öğrencileri ön plana çıkarmakta bazıları ise pasif kalmaktadır. Uygulamada istasyonların aynı hızda ilerlememesi, bazı etkinliklerin daha uzun olması sorun yaratmakta, istasyona gelen bazı öğrencilerin önceki grubun çalışmasını beğenmeyip silmesi de güçlüğe neden olmaktadır. Ayrıca bu tekniğin kullanılması sınıf yönetiminde de sorunlara neden olmaktadır. Kalabalık sınıflarda bu tekniği uygulamak güçtür. İstasyonlar değişirken, ortamda oluşan gürültü ve düzensizlik sınıf kontrolünü zorlaştırmaktadır. Öğretmenlerin bu görüşlerin istasyon tekniğinin sınırlılıkları olarak kabul edilmekte ve bu tekniğin uygulaması ile ilgili yapılan başka araştırmalarda da karşımıza çıkabilmektedir. Araştırmanın bu bulgularına benzer olarak Yaman ve Aydemir (2018) istasyon tekniğinin

uygulamasında sınıfta gürültü ve karışıklık çıktığını ve bu nedenle öğrencilerin çalışmaya odaklanmakta zorlandıklarını ifade etmiştir.

Sonuç olarak disiplinler arası istasyon tekniğinin öğrencilerin bilişsel, duyuşsal ve devinişsel alanda öğrenmelerine katkı sağlamakta, öğretim sürecini zenginleştirmekte, öğrencilerin aktif olarak sürece katılmalarını sağlamakta, dersi eğlenceli hale getirmekte, öğrencilerin işbirliği yapma, özgün ve yaratıcı yeni fikirler üretme, ürün tasarlama ve oluşturma, sorumluluk alma ve yardımlaşma becerilerini geliştirmektedir. Ancak hazırlık aşamasında çok fazla emek ve zaman gerektirmekte ve uygulama sırasında sınıfların kalabalık olması nedeniyle sınıf yönetimi konusunda sıkıntılar da yaşanabilmektedir.

Araştırmada ulaşılan sonuçlar doğrultusunda sunulan öneriler şu şekildedir;

- Disiplinler arası istasyon tekniği farklı sınıf düzeylerindeki kavramların öğretiminde de kullanılabilir.

- Uygulama sırasında yaşanan sorunları gidermek için öğretmenlerin ve öğrencilerin bu tekniği daha sık kullanmaları sağlanabilir. Tekniğin başka derslerde tekrar kullanılması öğrencilerin ve öğretmenlerin deneyimlerinin artmasını sağlayacağından, sonraki uygulamalarda sınıfta yaşanan kargaşa veya gürültü azalabilir.

- Bu çalışma durum çalışması olarak yürütülmüştür. Benzer araştırmalar deneysel olarak yapılabilir.