Science Teachers' Views Regarding Support and Training Courses *

Fen Bilimleri Öğretmenlerinin Destekleme ve Yetiştirme Kursları Hakkında Görüşleri

Zeliha Gökçe¹ ,   **Hasan Gökçe²** ,   **Oktay Kızkapan³** ,   **Oktay Bektaş⁴**

Abstract: This research aims to determine the evaluations of science teachers regarding support and training courses. The research is conducted by using a case study design of the qualitative research method. The data of the research is collected in six state secondary schools in the Melikgazi district of Kayseri from six science teachers who gave science lessons at support and training courses. The semi-structured interview is used as a data collection tool. The interview form is created by the researchers and examined by a science teacher and a Turkish teacher before it is used in the study. Recordings of the interview were transcribed. Then data is analyzed by the researchers. Findings are presented with direct quotations from the participants. As a result of the study, it is concluded that although there are problems in terms of insufficient materials and student attendance, the participants are satisfied with the support and training courses. In the light of these results, suggestions regarding the diversification of resources and optimization of the courses were made.

Anahtar Kelimeler: Support and training courses, science education, science teachers' views

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Öz: Bu araştırma, fen bilgisi öğretmenlerinin destekleme ve yetiştirme kurslarına ilişkin değerlendirmelerini belirlemeyi amaçlamaktadır. Araştırmada nitel araştırma yöntemi desenlerinden birisi olan durum çalışması deseni kullanılmıştır. Araştırmanın verileri, Kayseri'nin Melikgazi ilçesindeki altı devlet ortaokulunda, destekleme ve yetiştirme kurslarında fen bilimleri dersi veren altı fen bilimleri öğretmeninden toplanmıştır. Veri toplama aracı olarak yarı yapılandırılmış görüşme kullanılmıştır. Araştırma kapsamında yapılan yarı yapılandırılmış görüşmelerde kullanılan görüşme formu, araştırmacılar tarafından oluşturulmuş ve çalışmada kullanılmadan önce bir fen bilimleri öğretmeni ve bir Türkçe öğretmeni tarafından kapsam ve anlaşılırlık açısından incelenmiştir. Yapılan görüşmeler ses kayıt cihazı ile kayıt altına alınmış, daha sonra ses kayıtlarının transkripsiyonu yapılmıştır. Hazırlanan transkriptler araştırmacılar tarafından analiz edilmiştir. Araştırmadan elde edilen bulgular, katılımcı ifadelerinden doğrudan alıntılarla desteklenmiştir. Çalışma sonucunda, destekleme ve yetiştirme kurslarında materyal yetersizliği ve öğrenci katılımı açısından sorunlar yaşanmasına rağmen, katılımcıların genel olarak destekleme ve yetiştirme kurslarından memnun olduğu görülmüştür. Bu sonuçlar ışığında kurslarda kullanılabilecek kaynakların çeşitlendirilmesi ve fen derslerinin verimliğinin artırılmasına ilişkin ilgili paydaşlara yönelik önerilerde bulunulmuştur.

Keywords: Destekleme ve yetiştirme kursları, fen eğitimi, fenbilimleri öğretmenlerinin görüşleri

¹ Zeliha Gökçe, zelihab.3837@gmail.com, ORCID: https://orcid.org/0000-0003-0640-1879

² Dr. Hasan Gökçe, Milli Eğitim Bakanlığı, hasangokce3838@gmail.com, ORCID: https://orcid.org/0000-0002-1518-2295

³ Sorumlu Yazar: Dr., Oktay Kızkapan, Nevşehir Hacı Bektaş Veli Üniversitesi, Eğitim Bilimleri, okizkapan@nevsehir.edu.tr, ORCID: https://orcid.org/0000-0001-6781-9879

⁴ Doç. Dr., Oktay Bektaş, Erciyes Üniversitesi, Matematik ve Fen bilimleri Eğitimi, obektas@erciyes.edu.tr, ORCID: https://orcid.org/0000-0002-2562-2864

1. INTRODUCTION

Education can be practiced almost everywhere and by anyone in our daily life such as in family, school, and friend groups (Akkaya, 2017). Among these, educational institutions could organize various activities to give certain qualities to the students throughout the educational process. However, additional activities are needed when the students cannot accomplish specific goals due to environmental or personal factors. Support and training courses could be one of the aforementioned additional activities (Aküzüm & Saraçoğlu, 2018).

Taking its origin from the French word, "course" the Turkish word "Kurs" is defined as "an educational activity with a certain duration, based on the lessons organized by public and private institutions to gain knowledge, skills, and behavior on a certain subject" by Turkish Language Institution, (2022). To increase the academic accomplishments, develop certain skills, prepare for high school and university exams, and resolve issues such as knowledge deficiency of the students, the Ministry of Education opened training courses in 1987, 1995, and 2004 (İdin & Tozlu, 2012). The latest one of these courses named the support and training courses (STC) began in 2014. Being a free additional educational service, support, and training courses have first taken place in the 2013-2014 academic years by the Ministry of Education (MoNE, 2016).

According to the instruction of STC, middle school (excluding the 8th grade), and high school students (excluding the 12th grade) are allowed to take courses from 5 different lessons up to 12 hours a week. On the other hand, 8th and 12th grades can take courses from a maximum of six different lessons. Also, the total amount of courses can be a maximum of 18 hours for 8th grades and 24 hours for 12th grades and graduates for fall and spring semesters (MoNE, 2016).

Studies in the literature indicate that lecturers have difficulty practicing their educational services, resulting in them falling behind the teaching schedule (Baştürk, 2012; Denizli & Uzoğlu, 2016; Günal & Kaya, 2016). Hence, additional educational activities are essential as compensation for the time lost (Göksu & Gülcü, 2016). Additional educational activities are mostly consisting of private lessons and courses (Kaya & Kaya, 2018). However, private lessons are not an alternative, especially for low-income families. In line with the principle of equality of opportunity a social state must provide quality education opportunities that especially low-income students can benefit from. Due to this necessity and the sociological events that Turkey has experienced in recent years, the ministry of national education offer courses in state schools to eliminate the gap of institutions called "dershane" that were closed in the recent past.

Ministry of Education aims to develop students' abilities, increase their interests and desires, and prepare them for the future when their profession requires them to be a part of society. Being smart or getting support from family is not enough for individuals to be successful. Hence, not only in Turkey but all around the world, educational institutions are necessary for the success of individuals. Intending to eliminate the expenses for the sake of individuals with low income to be able to get a high level of education, "support and training courses" are opened at schools (Canpolat & Köçer, 2017).

Ministry of Education works with a high level of effort for support and training courses to be as effective as possible (Ercan & Kürkçü, 2021). Ministry of Education has consulted city/district representatives and school principals by organizing a workshop regarding the STC (Bozbayındır & Kara, 2017). Additionally, consulting the lecturers' ideas is extremely crucial since the teachers and students have the main role in support and training courses. Teachers are presumably the most prominent figures in these courses since they are the main operators that determine the quality of the educational practices (Yıldırım, et al. 2011).

In previous studies, the affective aspects of STCs and some problems encountered in STCs were examined. For example, Aküzüm and Saraçoğlu (2018) reported that STCs improve the academic achievement of students. Uğurlu and Aylar (2021) reported that teachers have positive perceptions of STCs. Similarly, Canpolat and Köçer (2017) stated that STCs provide students self-confidence. Demir Başaran and Narinalp

Yıldız (2017) stated that STCs provide a flexible learning environment and Nartgün and Dilekçi (2016) state that STCs enable students to socialize and improve their communication skills. In addition, it is understood that the fact that STCs provide additional income is the most prominent reason for teachers to take part in these courses (Demir Başaran & Narinalp Yıldız, 2017; Göksu & Gülcü, 2016; Ünsal & Korkmaz, 2016). On the other hand, some problems related to STCs are also reflected in the results of the previous research. For example, according to Canpolat and Köçer (2017), the indifference of parents and students, the start of the courses without proper planning, the late start of the courses, and the fact that the courses are to free reduce the participation and interest in the course are main problems encountered in STCs. In addition, Bozbayındır and Kara (2017) and Göksu and Gülcü (2016) pointed out the material problems, Timur et al. (2020) reported problems regarding absenteeism, and Canlı (2019) drew attention to the transportation problems. The results of these studies suggest that STCs which aim to provide equal opportunities, especially for students from low-income families (Canlı, 2019; Nartgün & Dilekçi, 2016), have an important potential, but besides this potential, they also have important problems during the implementation process.

1.1. Significance of the Study

It's crucial to point out that STCs are an educational service that concerns about 4.5 million students and 300 thousand teachers regarding the data taken from the Ministry of Education. Since these courses had been put into practice not so long time ago (Uğurlu & Aylar, 2021), the lack of information regarding the courses made it crucial to research them.

STCs have been examined in various studies. Akkaya's (2017) study focuses on the purposes of the courses, methods used, quantification, and consideration practices alongside the problems that occurred during the process of the course. Biber et al. (2017a) examined the student opinions regarding these courses. Bozbayındır and Kara (2017), Demir Başaran and Narinalp Yıldız (2017) have looked into the benefits of the courses and problems that students and teachers encounter. Nartgün and Dilekçi (2016) focused on the effects of the courses on student motivation. They also looked into the benefits and negative aspects while examining the methods and materials used. Biber et. al. (2017a) and Göksu and Gülcü (2016) examined whether the courses fulfill the required goals. Canpolat and Köçer (2017) focused on the opinions of participating teachers to improve the overall effectiveness of the courses.

When we divide the research regarding the courses into disciplines, it can be seen that Biber et. al. (2017b) and Ercan and Kürkçü, (2021) studied mathematics. Additionally, Canpolat and Köçer (2017) focused on social sciences. Other studies did not make a distinction between the branches (Akkaya, 2017; Bozbayındır & Kara, 2017; Demir-Başaran & Narinalp Yıldız, 2017; Nartgün & Dilekçi, 2016; Göksu & Gülcü, 2016; Uğurlu & Aylar, 2021). It is seen that there is not any research on the opinions of science teachers. Teaching is almost always a domain-specific activity because academic disciplines differ from each other in standards of evidence and justification, the structure of knowledge, and the probability of certainty. Likewise, the methods of obtaining and verifying information have domain-specific features. Science has its unique nature in fields such as biology, chemistry, and physics (Hofer, 2006). For this reason, science teachers' evaluations of STCs may have some domain-specific dimensions. In addition, it is known that students need additional studies in the science course, which is one of the courses in which they have academic difficulties (Tuncel & Fidan, 2018). STCs emerged as a result of an attempt to meet this need. Thus, the evaluations of the effectiveness of STCs based on the opinions of teachers, who have the primary role in the success of these courses, should be revealed through research.

1.2. Purpose of the Study

This study aims to explain the operational principles of STCs, examine the positive and negative aspects based on the opinions of the teachers, and try to suggest solutions to problems. With the potential contribution of this research regarding the support and training courses, program makers may produce solutions to certain problems encountered in support and training courses. In this context, the main

purpose of the study is to contribute to these courses to become more efficient and effective. Based on this purpose, the research question of the study is formulated as follows;

1- What are the science teachers' opinions regarding the support and training courses?

2. METHOD

2.1. Research model

This study was conducted using the case study design of qualitative research. The case study is a research design that is used to present a multifaceted perspective in which a situation or event is examined in real-life (Crowe et al., 2011). The research aims to examine the views of science teachers about support and training courses. Therefore, the case study design is considered to be the most appropriate research design for this study.

2.2. Study group of the research

The current research was conducted with six science teachers who had worked at STCs in six state secondary schools in the Melikgazi district of Kayseri. Criterion sampling which is a type of purposeful sampling was used to select the participants. In criterion sampling, people, events, and objects that fulfill certain qualifications are selected (Büyüköztürk et al. 2016). The main reason why criterion sampling was used in this research relies on the fact that teachers who previously worked on STCs are the main contributors to the research.

Since the number of science teachers in one school may not be enough for the research, researchers worked with six teachers from six different state schools. For the confidentiality of the identities of the participants, their names were kept confidential and coded as P1 (participant 1), P2 (participant 2), and so on. Personal information regarding the participants is given in Table 1.

Table 1.

Personal Information About the Participants

Participants	Gender	Support and training Course Experience (Years)
P1	Female	5
P2	Female	5
P3	Female	5
P4	Female	2
P5	Female	3
P6	Male	3

Table 1 includes information about participants' experiences regarding the STCs. The participants mostly consist of women and show the participants' experiences.

2.3. Data collection tool and process

The interview is used as a data collection tool in this study. The current study aims to examine the experiences of science teachers regarding the support and training courses by collecting data through a semi-structured interview. The semi-structured interview method is chosen to provide more flexibility in in-depth data collection. Based on the literature review, the researchers prepared the interview form. Then, an interview form is examined by an expert in qualitative research and a Turkish teacher.

The interview form took its final shape after these corrections were pointed out by the expert and Turkish teacher. The final version of the interview form consists of two main parts. Demographic information about the participants is given in the first part. The second part includes questions about science teachers' opinions regarding STCs. The form involves twenty open-ended questions.

In the process of data collection, the researchers' priority was to determine the interview dates. The researchers met with participants at schools for the interviews on pre-determined dates, sparing one day for each of them. Meetings were arranged according to participants' availability. The school counselor's office was used to create a calm and quiet environment for the interviews. Due to ethical concerns, the participants asked for permission before using voice recording during the interviews. Participants listened to the recordings after interviews and approved. Interviews took about 20 to 25 minutes.

2.4. Validity and reliability

Reliability and validity of research have been considered under two dimensions: internal and external validity-reliability. Yıldırım and Şimşek (2016) suggest that internal validity should be clearly explained starting from the data collecting process up to the data analysis and interpretation. Thus, some precautions were taken to ensure the internal validity of the study. In this regard, the interview form prepared by the researchers was shown to a science educator and a Turkish teacher for expert opinions. The interview form was rearranged in terms of the readability of the questions, being clear and understandable, suitable for science teachers, and sufficient for the research based on the feedback. Also, a calm and quiet environment has been created for the comfort of the participant during interviews. The researcher created alternative questions for those that were not understood by the participants. The researchers summarized the participants' responses to each question to avoid misunderstandings. To prevent data loss, the interviews made by the researchers were recorded. All recordings were confirmed after interviews with the participants. After transcription of the audio recordings, the participants confirmed that the copies were complete or accurate. Direct quotations are included in the findings. During the content analysis, codes and categories were determined and irrelevant parts were removed. Codes and categories are reviewed by two science experts. However, the lack of data triangulation has limited the internal validity of the research.

According to Yıldırım and Şimşek (2016), external validity is the generalizability of the results of research. To ensure the external validity of the study, the design of the study, study group, data collection tools, data collection process, and data analysis were explained in detail. The confidentiality of the participants' identities was given importance and codes were used instead of names. Since the case study design was used in the research, purposive sampling was preferred to get detailed information from the participants.

Internal reliability is about finding out if the same result is obtained with the use of the same data (Yıldırım & Şimşek, 2016). To ensure the internal reliability of the research, the findings obtained from the interviews are presented as they are by including direct quotations from the participants. The aim and result of the research are clearly stated. The researchers agreed with the study's findings.

External reliability of research is defined as acquiring similar results under similar conditions (Yıldırım & Şimşek, 2016). To increase the external reliability of the research, the findings, results, and discussion section are clearly stated.

2.5. Data analysis

After conducting interviews, qualitative data were transcribed and content analysis was used in analyzing these transcripts. According to Büyüköztürk et al. (2016), content analysis is a more systematic technique in which certain concepts are summarized by being divided into smaller categories. The content analysis enables readers to make more sense of the data (Yıldırım & Şimşek, 2016). In this regard, content analysis is executed by making in-depth examinations and defining the data.

The researchers created codes to get a deeper analysis of the answers of the participants. These codes are collected under certain categories. Finally, categories are combined under themes. After this analysis, all of the researchers examined the codes, categories, and themes, and came to a consensus. In this context, codes summarize the answers of the participants and the categories outline the questions of the research. Statements created by the determination of the codes and categories formed the theme.
The process of determining codes, categories, and themes could be summarized by the following example.

For instance, the question: "What do you think about the attendance of the students in science classes in the support and training courses?" could be summarized as the category of "attendance". One of the answers regarding this category is "Student attendance depends on the time of the course. For instance, the courses are either held on weekends or weekdays after school. On weekdays, attendance is higher since the course is right after school. But the students start skipping the weekend classes after a while." This part of the interview is summarized as "Depending on time", which is defined as one of the codes in the study. Similar to the aforementioned example, there are multiple codes and categories related to other questions of the research. Table 2 shows these codes and categories.

Table 2.

The Theme, Category and Codes

Theme	Category	Code
Support and training courses	Teachers' opinions regarding the courses	Beneficial, free, convenient, insufficient
	Status of the course compared to similar courses	Appealing to all students, free
	Reasons of absenteeism	Family and friends' effects, irresponsibility, disregard, transportation problems
	Suggestions to prevent absenteeism	Weekday courses, providing transportation opportunities, voluntary attendance, cultural and art activities, increasing the number of practicing tests
	Student opinions regarding the courses	Positive
	Techniques and methods used in the courses	Question-Answer, Direct Instruction, Drama
	Teachers' opinions regarding the courses	Beneficial, free, convenient, insufficient
	Techniques and methods used in the courses	Question-Answer, Direct Instruction, Drama
	Materials used during the courses	Smartboard, Computer, EBA, Morpa, z-book, Tests, Photocopy
	Differences between school and STC science courses	Problem-solving oriented, Activity oriented.
	The success of the STCs	Yes, partially
	Benefits of the courses	Being free, question-solving oriented, revision the subjects, contributes to the social development of the students, Increases success rates.
	Challenges	Student absenteeism, lack of class materials, Process of preparation for the class, Transportation, Time
	Reasons for the challenges	Irresponsible students, Difference in student standards
	Solution for the challenges	Creating classes for different student types, providing transportation opportunities, Increasing the quality of class materials, Weekday courses, Guidance studies
	Suggestions to increase efficiency	Providing transportation opportunities, social activities, diversification of teaching materials, regular practicing tests

2.6. Ethical approval

In this study, all rules stated to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions specified under the title of "Actions Violating Scientific Research and Publication Ethics", which is the second part of the directive, have not been carried out.

Ethics Committee Approval Information

Ethical committee = Nevşehir Hacı Bektaş Veli University ethic committee

Data of ethical approval= 16 November 2020

Number of ethical approvals= 2020.20.289

3. FINDINGS

Under this heading, it is aimed to give in-depth information regarding the codes and categories of the study. The categories of the research findings are listed under titles. Codes belonging to the participant are marked with "X". The codes participant did not answer were left unmarked.

3.1. Science Teachers' General Evaluations

Science teachers were asked about their opinions on support and training courses. Answers to regarding the question are shown in Table 3.

Table 3.

Answers Regarding the Opinions of Teachers About the Courses

Codes	Participants					
	P1	P2	P3	P4	P5	P6
Beneficial	X		X			X
Free	X			X	X	
Convenient		X				
Insufficient				X		

Table 3 shows that teachers have different opinions regarding the courses. For example, P1 stated: *"...I think it's beneficial. STCs are state-funded, free courses at which the students obtain the chance of preparing for certain exams."* On the other hand, P4 said: *"To be honest, I don't find it that sufficient since the students do not care much about a course that they do not pay for."*

3.2. Comparison of STCs and other similar courses

Science teachers' opinions regarding the comparison of the STCs with similar courses were asked. Table 4 shows the codes determined from the answers to the question.

Table 4.

STCs Compared to the Similar Courses

Codes	Participants					
	P1	P2	P3	P4	P5	P6
Appealing to all students						X
Free			X			
No idea	X	X		X	X	

As seen in Table 4, P6 said: "the participation of students in support and training courses is higher since they appeal to all students. P3 stated: *"These are the courses from which students benefit without paying."*

3.3. Reasons for Student Absenteeism

Science teachers' opinions were asked about the reasons for absenteeism. Answers to regarding the question are shown in Table 5.

Table 5.

Codes Regarding the Reasons for Absenteeism

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Family and friends' effects	X		X	X	X	
Irresponsibility	X	X		X	X	
Disregard			X	X		
Transportation problems						X

As it is seen in Table 5, there are different reasons for students' absenteeism. P1 and P5 stated that the absenteeism was caused by family and friends. For example, P5 stated: "*I think this is due to family and friends. Their friends call students for games. The child does not come to school when he has such friends.*" In addition, P1 stated that the reason for absenteeism was the students' unconsciousness. P2, P4, and P5 also expressed their views in this direction. For example, P4 said: "*I think that it is caused by the unconsciousness of the students. My hardworking and conscious students come to the courses regularly. But some of the students come to the courses to have fun with their friends.*"

Teachers were asked about their suggestions to prevent absenteeism. Table 6 was created according to the answers given.

Table 6.

Codes Regarding the Suggestion to Prevent Absenteeism

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Weekday courses						X
Providing transportation opportunities						X
Voluntary attendance			X			
Cultural and art activities		X		X	X	
Increasing the number of practicing tests	X					

Table 6 shows the fact that there are different suggestions to prevent absenteeism. P2, P4, and P5 defend the idea of increasing the amount of cultural and art activities as a solution to the problem. P4 stated: "*If the supporting courses rely more on activities, experiments, and workshops, then students would be more active during the classes. It would be more efficient to have some classes outside and to ensure that students participate physically.*" On the other hand, another participant P6 said: "*In my opinion, to solve the absenteeism problem, the transportation problem of the students should be solved first. How can this problem be solved? I think the services can be arranged for students who want to come to the course on the weekend or the courses should be held after the lesson on weekdays.*"

3.4. Student Opinions about the Courses

The question "What are your thoughts about the students' approach to science classes during the courses?" was asked to the teachers. Table 7 contains the answers to the aforementioned question.

Table 7.

Student Opinions Regarding the STCs

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Positive	X	X	X	X	X	X

When Table 7 is examined, it is seen that all teachers participating in the study have positive opinions about the science lesson taught in the courses. For example, P1 expressed: *"This year I am given science lessons to eighth grades in support and training courses. Students learn science from different teachers at the course and in a normal school. In this way, they can compare. They can also complement the missing points. So, I think the courses change the way students view the science lesson."* Similarly, P6 stated that *"students feel different at courses, they are more comfortable. If you ask why; firstly, the student does not come to courses wearing a school uniform. Also, there is more time for relaxation. The breaks are a little longer, compared to the normal class time. The student feels a little more comfortable since the science topics are reviewed and they solve questions in the courses."*

3.5. Techniques, Methods, and Material Used in STCs

Teachers were asked about their way of teaching science, the methods, and the techniques they used during the courses. Tables 8 and 9 show the codes obtained from teachers' answers.

Table 8.

Codes Regarding the Techniques and Methods Used at Science Lessons of STCs

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Question-answer	X	X	X		X	X
Direct instruction				X		
Drama		X		X		

Table 8 shows that most of the teachers used the question-answer method during their science classes. P5 explained: "... *I mean, I usually use the question-answer method. I prefer doing problem-solving sessions in weekend courses because I do the teaching part in weekday classes."* On the other hand, P2 stated: *"I used drama as a means of revision of the previous classes."*

Table 9.

Codes Regarding the Materials Used at Science Lessons of STCs

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Smartboard	X		X	X	X	X
Computer						X
EBA	X					
Morpa	X					
Z-Book		X				
Tests	X	X				X
Photocopy			X		X	

According to Table 9, teachers used similar materials during their teaching sessions. For example, P1 stated: *"Yes, I use EBA, the smartboard, and Morpa. We benefit from written materials such as practicing tests."* Similarly, P6 explained the materials he used by saying: *"Our materials are the smartboard, computer, textbooks, and tests that Ministry of Education published."* Finally, P2 said: *"It's more about tests. Additionally, I tried to perform the activities from the z-book with students."*

3.6. Differences between School and STCs in Terms of Science Lessons

Teachers were asked if there were any differences between their science lessons in the support and training courses and regular school lessons. Table 10 shows codes obtained regarding these differences.

Table 10.
Codes Regarding the Differences Between School and STC Science Lessons

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Problem-solving oriented	X	X	X		X	X
Activity oriented		X		X		

Table 10 shows that two approaches came to the fore in STCs. In this regard, P2 stressed: *"The regular school curriculum is a little dense in terms of the number of objectives. So, it becomes difficult to cover everything in detail. This leads me to do supplementary activities during the support and training courses. Such as solving tests, while the regular school lessons rely heavily on lecturing."*

3.7. Success of the STCs

Science teachers were asked if they think that STCs fulfilled their goals. Table 11 includes the codes obtained from the answers given to this question.

Table 11.
Codes Regarding the Success of the STCs

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Yes	X	X			X	X
Partially			X	X		

As seen in Table 11, P1, P2, P5, and P6 think that STCs fulfill their goals. However, P3 and P4 reported that they have doubts. P3 explained: *"My way of evaluation of the courses changes from student to student. There are times when it's effective for one student but not for others. I deliver my lectures in the same way for every student, so it's their responsibility to appreciate what they see during the lesson. These courses are called support and training courses but training themselves is up to the students."* On the other hand, P6 mentioned: *"I think that my lessons fulfilled their goals. You may ask why. The thing is, when students take practicing tests, they always complain about the time issues which are being caused by the lack of knowledge about the test techniques. The support and training courses allow us to teach our students about these techniques, leading them to increase their achievements in their exams."*

3.8. Benefits of the STCs

The teachers were asked if they find the courses beneficial or not. Table 12 contains the answers of the teachers.

Table 12.

Codes Regarding the Benefits of the Courses

Codes	Participants					
	P1	P2	P3	P4	P5	P6
Free		X				
Question-solving						X
Revision						X
Improvement of the social skills						X
Increase in success rates	X		X	X	X	

As seen in Table 12, teachers find the courses beneficial for various reasons. For example, P6 explained: *"Children may not use their spare time to improve their skills. However, when they join the courses, we do revisions, solve tests and improve their skills. These benefits do not only apply to science lessons but to other lessons too. These courses allow students to study within a plan."*

3.9. Challenges during the Courses and Solution Proposals

The question "What are the difficulties you have encountered throughout your lectures in the support and training courses, what may be the reason for those problems, and what are your opinions about the solution of these issues?" was asked to science teachers. Table 13, Table 14, and Table 15 show the codes obtained from the answers given to these questions.

Table 13.

Codes Regarding the Challenges Encountered in the STCs

Codes	Participants					
	P1	P2	P3	P4	P5	P6
Student absenteeism	X	X	X	X	X	X
Lack of material	X	X	X		X	X
Process of preparation for the class			X			
Transportation		X				X
Time		X				X

As can be seen from Table 13, teachers encountered several problems regarding the STCs. For example, P2 expressed: *"It's attendance, for sure. Students do not follow the courses regularly. It makes it harder for them to keep up with the topics of lessons."* Similarly, P6 stated: *"students' absenteeism is a point that makes me sad. Even calling the parents of the students did not work out for us to be honest."*

Table 14.

Codes Regarding the Reasons for Challenges

Codes	Participants					
	P1	P2	P3	P4	P5	P6
Irresponsible student		X	X		X	X
The difference in student standards	X	X		X		

Regarding the reasons for encountering challenges, P4 stated, "*As I mentioned before, there are students who cause trouble. I want them to follow the lessons but they don't. Some problems emerge when both hard-working and irresponsible students come together in the same classroom.*" Similarly, P3 stated: *"In general, fifth and sixth graders may act irresponsibly since they have not developed certain skills. It's not the same for seventh and eighth-grade students. If they attend the course, they listen. If they don't want to listen to the class, they don't come to the course at all."*

Table 15.
Codes Regarding the Solutions for the Challenges

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Creating classes for different student types		X	X	X		
Providing transportation opportunities						X
Increasing the quality of class materials	X					
Weekday courses						X
Guidance studies			X		X	

Regarding the proposals for the solutions to the challenges, P3 expressed: *"I think there should be different classes for different student-types. It's not something that I would suggest for school classes but here in STCs, different-level classes should be created. Therefore, we may be able to solve harder questions in one class, while just lecturing in the other."* On the other hand, P2 suggested: *"We should find a way to make our students interested in lessons."*

3.10. Suggestions to Increase the Efficiency of STCs

The question "What are your suggestions for support and training courses to become more efficient in upcoming years?" is asked to participants. Table16 includes codes obtained from teachers' answers to this question.

Table16.
Codes Regarding the Suggestions to Increase the Efficiency of STCs

Codes	Participants					
	P1	**P2**	**P3**	**P4**	**P5**	**P6**
Providing transportation opportunities						X
Social activities					X	
Diversification of the teaching materials	X			X		X
Regular practicing tests	X	X	X			

To increase the efficiency of STCs, P1 defended the idea of practicing tests. To explain her opinions, she stated: *"There should be classes for students with different levels of attitudes towards the lessons. This allows us to compensate students for missing learning. Students with higher levels of accomplishments have the opportunity to solve more tests."* On the other hand, P6 suggested that *"Governorship or municipality would be able to arrange a shuttle for the courses. One shuttle would be able to transport the students."*

4. DISCUSSIONS AND RESULTS

Within the scope of the research, teachers concluded that support and training courses have been beneficial. In this respect, the views of science teachers are similar to previous studies. The results of the studies conducted with teachers from different disciplines in the literature also show that teachers find STCs beneficial for different reasons and they have positive perceptions and attitudes towards STCs (Aküzüm & Saraçoğlu, 2018; Kozikoğlu & Özcanlı, 2020; Uğurlu & Aylar, 2021). It is seen that many issues are reported in the literature as the reasons why STCs are beneficial. In this manner, previous studies reveal that STCs contribute to the academic development of students (Aküzüm & Saraçoğlu, 2018; Canpolat & Köçer, 2017; Ünsal & Korkmaz, 2016), provide additional income for teachers (Demir Başaran & Narinalp Yıldız, 2017; Göksu & Gülcü, 2016; Ünsal & Korkmaz, 2016), provide a flexible learning environment (Demir Başaran & Narinalp Yıldız, 2017), contribute to the academic development of teachers (Aküzüm & Saraçoğlu, 2018; Canlı, 2019; Demir Başaran & Narinalp Yıldız, 2017), improve students' ability to use

different question-solving strategies (Biber et al., 2017a; Canlı, 2019; Nartgün & Dilekçi, 2016; Ünsal & Korkmaz, 2016), develop students' communication skills (Nartgün & Dilekçi, 2016), develop students' social skills (Aküzüm & Saraçoğlu, 2018; Canpolat & Köçer, 2017; Nartgün & Dilekçi, 2016), increase confidence (Canpolat & Köçer, 2017; Nartgün & Dilekçi, 2016), and enhance the equality of opportunities (Demir Başaran & Narinalp Yıldız, 2017; Nartgün & Dilekçi, 2016, Timur et al., 2020). All of these issues can be reported as underlying reasons why science teachers found STCs useful in the present study.

While almost all of the participants found STCs beneficial, one participant stated that STCs were insufficient. Results parallel to this participant's view are also available in the literature. For example, Canpolat and Köçer (2017) pointed out the negative sides of the support and training courses with the opinions of social studies teachers. The researchers reported that the reasons such as indifference of parents and students, the start of the courses without proper planning, the late start of the courses, and the fact that the courses are free to reduce the participation and interest in the course. These reasons can be considered as the reasons why the participant found STCs insufficient in the present study because participant science teachers reported similar problems regarding the STCs. Among these difficulties, student absenteeism, the process of preparation for the class, transportation, time issues, and lack of material are reported as the main problems regarding STSc. Science teachers' solutions regarding the aforementioned issues can be listed as creating classes for different student types, providing transportation opportunities, and increasing the number of class materials. Similarly, Canpolat and Köçer (2017) reported similar results in terms of transportation and material issues. In addition, Bozbayındır and Kara (2017) and Göksu and Gülcü (2016) pointed out the material problems as a significant issue to be solved. Also, Ercan and Kürkçü (2021), defended the idea of creating different classes for different student types.

Another finding of the study is about the students' absenteeism in STCs. The result showed that students do not attend STCs regularly due to some reasons such as family and friends, personal reasons such as irresponsibility, and transportation problems. Thus, absenteeism is a phenomenon to consider in STCs as also reported in previous research (Demir Başaran & Narinalp Yıldız, 2017; Göksu & Gülcü, 2016; Timur et al. 2020). Dialogs with the participants showed that absenteeism is not watched regularly by the administrators and teachers in STCs. The most important reason for this is that the courses are closed if the number of students falls under a certain number. Teachers and administrators do not want to close the STCs because when the courses are closed, the teachers and administrators in charge of the course cannot earn additional income. Previous studies state that the first factor that motivates teachers to work in STCs is its economic return (Demir Başaran & Narinalp Yıldız, 2017; Göksu & Gülcü, 2016; Ünsal & Korkmaz, 2016). For this reason, the fact that teachers and administrators do not monitor students' absenteeism is not a situation that is overlooked or neglected, but a deliberate choice most of the time.

Another difficulty encountered at STCs is the lack of materials and resources. Previous studies on STCs have shown that required teaching resources and materials are not provided to teachers in these courses (Canpolat & Köçer, 2017; Göksu & Gülcü, 2016; Ünsal & Korkmaz, 2016). In this context, it is understood that there has been no change since the opening of the courses. Timur et al. (2020) reported that the most commonly used materials in the courses are smart boards, test books, and textbooks. Smartboards are effective materials provided to most of the schools in Turkey within the scope of the FATIH project and are used both in lectures and courses. Other resources can be complemented by increasing the number of contents published by the Ministry of National Education and by additional resources that the ministry will provide to the students participating in the STCs.

The transportation problem is also reported as another problem regarding STCs. As in this study, Canlı (2019) and Nartgün and Dilekçi (2016) reported problems with transportation in STCs. Since participation in STCs is not compulsory, only some of the students attend these courses. In addition, since the courses are held on weekends, students who go to the school by a school bus cannot find a shuttle for the courses. In addition, students who get transported education have problems in participating STCs. The lack of

sufficient opportunities for the students living in the village to reach the school prevents these students from benefiting from the courses. As another finding of the research, STCs are differentiated from their alternatives in that all students can participate and participation is free of charge. In this respect, although it is stated that STCs aim to ensure opportunity equality (Canlı, 2019; Nartgün & Dilekçi, 2016), it is known that problems arise because it is open to everyone and free of charge (Biber et al., 2017b; Canlı, 2019; Demir Başaran & Narinalp Yıldız, 2017). When considered in this context, it is understood that inequality of opportunity emerges differently in STCs. At this point, the ministry, municipalities, and non-governmental organizations should support schools and students.

It is found that science teachers generally conduct test-oriented activities and generally use traditional teaching methods such as lecturing, question and answer, and drama during their classes in support and training courses. Additionally, teachers use materials such as smartboards, computers, EBA, Morpa, z-book, tests, and photocopies during their teaching. The literature review also shows that teachers from different disciplines use similar methods and materials in support and training courses (Akkaya, 2017; Biber et. al, 2017b; Canpolat & Köçer, 2017; Ünsal & Korkmaz, 2016). In this regard, it is understood that STCs are similar to private institutions called "dershane". "Dershane" was a private educational institution that prepared students for certain exams. However, some of these institutions were closed due to different sociological reasons, and some of them were turned into private schools (Bozbayındır, & Kara, 2017; Göksu & Gülcü, 2016). With the closure of "dershanes", the Ministry of National Education decided to open STCs to support and train students (İncirci et al., 2017). Therefore, STCs were perceived as "dershane" by both students, parents, and teachers (Kozikoğlu & Özcanlı, 2020). In Turkey, there is a belief that the way to school achievement is about becoming familiar with and answering multiple-choice questions in a certain type of central exams rather than understanding the subject conceptually. As a result of this belief, teachers tend to use techniques and strategies in their lessons that will enable students to answer a certain type of question correctly, rather than the ones that will provide conceptual understanding. In parallel to this belief, it is seen that participants of this study do not take science courses in STCs as an opportunity to teach nature and natural phenomena, but as a tool to teach various tactics that will enable students to be successful in central exams. As a result of this practice, students tend to memorize rather than conceptualize and cannot transfer what they have learned to their daily lives. To be able to prevent this and improve the quality of STCs and enable teachers to use constructivist, student-centered teaching methods, first of all, students and teachers should be released from pressure due to the central exams.

After these discussions, some recommendations can be made regarding the findings and for further studies. Recommendations regarding the findings can be listed as follows;

- Transportation opportunities should be arranged for the transported students.

- Ministry of Education would increase the number of tests that they publish.

- Social and cultural activities would take a bigger role in support and training courses.

- In this study, the semi-structured interview method is chosen as a means of data collection. Further studies using different types of data such as document analysis and observation can be conducted.

- Case study is the main design of this study. The action research could be used in further studies to get solutions for the issues of support and training courses.

- This research includes teacher opinions about the support and training courses. Further studies would add student opinions alongside teacher arguments.

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GENİŞLETİLMİŞ ÖZET

1. GİRİŞ

Millî Eğitim Bakanlığı, öğrencilerin yeteneklerini geliştirmeyi, ilgi ve isteklerini artırmayı, toplumun bir parçası olmalarını sağlayacak meslekleri yapabilecek şekilde onları geleceğe hazırlamayı amaçlamaktadır. Bireylerin başarılı olması için zeki olmak veya aileden destek almak tek başına yeterli değildir. Dolayısıyla sadece Türkiye'de değil, tüm dünyada eğitim kurumları bireylerin başarısı için gereklidir. Türkiye'de düşük gelirli ailelerde yetişen çocukların da nitelikli düzeyde destek eğitimi alabilmeleri ve eğitimde fırsat eşitsizliğinin giderilmesi hususunda bir adım olarak okullarda "destekleme ve yetiştirme kursları" açılmıştır. Destekleme ve yetiştirme kurs yönergesine göre birinci ve ikinci dönem açılan kursları ortaokul seviyesindeki öğrenciler (sekizinci sınıflar hariç) ile ortaöğretim seviyesindeki öğrencilerin (12. sınıflar hariç) maksimum beş dersten haftada toplam 12 saate kadar, ortaokul sekizinci sınıftaki öğrencilerin maksimum altı ayrı dersten haftada 18 saate kadar, ortaöğretimin 12. sınıfındaki öğrenciler ve mezun durumdakilerin ise en fazla altı ayrı dersten haftada 24 saate kadar alabilme imkânları vardır. Yaz döneminde açılan kurslarda ise bir üst sınıfın müfredat programı uygulanır.

Millî Eğitim Bakanlığı, destekleme ve yetiştirme eğitim kurslarının olabildiğince etkili olması için büyük çaba sarf etmektedir. Bu kapsamda destekleme ve yetiştirme kursları ile ilgili çalışmalar yapılarak il / ilçe temsilcileri ve okul müdürlerinin değerlendirmeleri alınmıştır. Ayrıca öğretmenlerin ve öğrencilerin destekleme ve yetiştirme kurslarında ana role sahip olması nedeniyle öğretmenlerin fikirlerini belirlemek de son derece önemlidir. Öğretmenler, eğitim uygulamalarının kalitesini belirleyen ana paydaş oldukları için destekleme ve yetiştirme kurslarının başarısında da çok önemli bir role sahiptirler.

Alan yazındaki destekleme ve yetiştirme kurslarına yönelik araştırmaları branş bazında inceleyecek olursak matematik alanında (Biber vd., 2017b; Ercan ve Kürkçü, 2021), sosyal bilgiler alanında (Canpolat ve Köçer, 2017) çalışmalar yapıldığı görülmekteyken çalışmaların çoğunda branş ayrımı yapılmadığı görülmektedir (Akkaya, 2017; Bozbayındır ve Kara, 2017; Demir-Başaran ve Narinalp Yıldız, 2017; Nartgün ve Dilekçi, 2016; Göksu ve Gülcü, 2016; Uğurlu ve Aylar, 2021). Bu durumdan yola çıkılarak fen bilimleri öğretmenlerinin destekleme ve yetiştirme kurslarına yönelik görüşlerinin alındığı bir çalışmaya rastlanmamıştır. Dolayısıyla bu araştırma fen bilimleri branşında yapılacağından alana yönelik örnek teşkil etmesi açısından önemlidir. Bu araştırma, destekleme ve yetiştirme kurslarında ortaya çıkan sorunlara sunduğu çözüm önerileri ile alanyazına ve fen bilimleri öğretmenlerine katkı sağlayacağından dolayı önemlidir. Ayrıca araştırma sonuçlarının destekleme ve yetiştirme kursları kapsamındaki fen bilimleri derslerinin daha etkili ve nitelikli yürütülmesine katkı sağlayacağı düşünülmektedir. Bu gerekçelerle yürütülen çalışmada destekleme ve yetiştirme kurslarının işleyişini açıklamak, öğretmenlerin görüşlerine dayalı olarak olumlu ve olumsuz yönlerini incelemek, sorunlara çözüm önerileri getirmek amaçlanmıştır. Destekleme ve yetiştirme kurslarına ilişkin bu araştırmanın bulgularından hareketle program yapıcılar, okul yöneticileri ve öğretmenler destekleme ve yetiştirme kurslarında karşılaşılan bazı sorunlara çözüm üretebilirler. Bu bağlamda çalışmanın fen bilimleri derslerinin daha verimli ve etkili hâle gelmesine katkı sağlaması beklenmektedir. Bu amaç doğrultusunda araştırmanın araştırma sorusu, "Fen bilimleri öğretmenlerinin destekleme ve yetiştirme kurslarına ilişkin görüşleri nelerdir?" şeklinde ifade edilmiştir.

2. YÖNTEM

Araştırma nitel araştırma desenlerinden birisi olan durum çalışması deseni kullanılarak yürütülmüştür. Durum çalışması bir durum veya olayı tüm yönleriyle derinlemesine incelemek için kullanılan bir desendir. Bu çalışmada da fen bilimleri öğretmenlerinin destekleme ve yetiştirme kursları kapsamında verilen fen bilimleri derslerine ilişkin görüşlerini derinlemesine ve çok yönlü olarak belirlemek istendiği için bu desen kullanılmıştır. Araştırmanın katılımcıları Kayseri ili Melikgazi ilçesindeki devlet okullarında açılan destekleme ve yetiştirme kurslarında görev yapan altı fen bilimleri öğretmenidir. Bu öğretmenler araştırmaya amaçlı örnekleme türlerinden ölçüt örnekleme kullanılarak seçilmişlerdir. Ölçüt örneklemede

belirli nitelikleri karşılayan kişi, olay ve nesneler seçilerek araştırmaya dâhil edilir. Bu araştırmada ölçüt örneklemesinin kullanılmasının temel nedeni, daha önce destekleme ve yetiştirme kurslarında görev yapmış öğretmenlerin araştırmaya dâhil edilmiş olmasıdır. Katılımcıların isimleri araştırmada kodlanarak kullanılmıştır. Araştırma verileri yarı yapılandırılmış görüşmeler yoluyla toplanmıştır. Bu yarı yapılandırılmış görüşmelerde kullanılan görüşme formu araştırmacılar tarafından hazırlanmıştır. Daha sonra ise nitel araştırmalarda uzman bir araştırmacı ve bir Türkçe öğretmeni tarafından incelendikten sonra araştırma verilerinin toplanması amacıyla kullanılmıştır. Görüşme formu, soruların okunabilirliği, açık ve anlaşılır olması, fen bilgisi öğretmenlerine uygun ve araştırma için yeterli olması açısından alınan dönütlere göre yeniden düzenlenmiştir. Görüşme formu hazırlandıktan sonra katılımcılardan randevu alınarak yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Yarı yapılandırılmış görüşmeler katılımcı fen bilimleri öğretmenlerinin görev yaptıkları okullarda yapılmıştır. Her bir görüşme 20-25 dakika sürmüştür. Görüşme sürecinde katılımcıların rahat olabilmeleri için sakin ve sessiz bir ortam oluşturulmuştur. Görüşmelere demografik sorularla başlanmıştır. Araştırmacı, katılımcılar tarafından anlaşılamayan sorular olduğunda alternatif sorular oluşturmuştur. Yanlış anlamaları önlemek için araştırmacılar katılımcıların her soruya verdiği cevabı özetlemiştir. Çalışmanın geçerlik ve güvenilirlik kontrolleri nitel araştırmanın doğasına uygun olarak iç geçerlik (inandırıcılık), dış geçerlik (aktarılabilirlik), iç güvenilirlik (tutarlık) ve dış güvenilirlik (teyit edilebilirlik) bağlamlarında ayrı ayrı yapılmıştır. Araştırmadan elde edilen ses kayıtlarını transkripsiyon yapıldıktan sonra analiz edilmiştir. Verilerin analizinde içerik analizi tekniğinden yararlanılmıştır. İçerik analizi, belirli kavramların daha küçük kategorilere bölünerek özetlendiği daha sistematik bir tekniktir ve okuyucuların verileri daha fazla anlamlandırmasını sağlar. Bu bağlamda derinlemesine incelemeler yapılarak ve veriler tanımlanarak içerik analizi yapılmıştır. Araştırmacılar, katılımcıların cevaplarından daha derin bir analiz elde etmek için kodlar oluşturmuşlardır. Bu kodlar belirli kategoriler altında toplanmıştır. Son olarak, kategoriler temalar altında birleştirilmiştir. Bu analizin ardından tüm araştırmacılar kodları, kategorileri ve temaları inceleyerek fikir birliğine varmıştır. Belirlenen kodlar katılımcıların cevaplarını özetler şekildedir. Kategoriler ise araştırmanın sorularını ana hatlarıyla belirtmektedir. Kodların ve kategorilerin belirlenmesi ile oluşturulan ifadeler ise araştırmanın temasını oluşturmuştur.

3. BULGULAR, TARTIŞMA VE SONUÇ

Araştırma kapsamında fen bilimleri öğretmenlerinin çoğunun destekleme ve yetiştirme kurslarının öğrencilere faydalı olduğunu düşündükleri görülmüştür. Bazı öğretmenler ise destekleme ve yetiştirme kurslarının yetersiz olduğunu ifade etmişlerdir. Fen bilimleri öğretmenlerinin destekleme ve yetiştirme kurslarında genellikle sınavlara yönelik etkinlikler yaptıkları tespit edilmiştir. Ayrıca, fen öğretmenlerinin destekleme ve yetiştirme kurslarındaki derslerinde kullandıkları öğretim yöntemlerinin başında düz anlatım, soru-cevap, drama gibi yöntemlerin geldiği anlaşılmıştır. Araştırma kapsamında fen bilimleri öğretmenlerinin destekleme ve yetiştirme kurslarında bazı zorluklarla karşılaştıkları da tespit edilmiştir. Bu zorluklara öğrenci devamsızlığı, derse hazırlık süreci, ulaşım, zaman sorunları, materyal eksikliği örnek olarak verilebilir. Öğretmenlerin yukarıda belirtilen sorunlara yönelik olarak farklı öğrenci türleri için sınıflar oluşturmak, ulaşım imkânları sağlamak, sınıf materyallerinin miktarını artırmak gibi çözüm önerilerinde bulundukları görülmüştür.

Araştırma sonuçlarından hareketle taşımalı öğrenciler için ulaşım olanakları ayarlanması, Millî Eğitim Bakanlığının yayınladığı testlerin sayısının arttırılması, destekleme ve yetiştirme kurslarında sosyal ve kültürel faaliyetlere daha fazla yer verilmesi önerilmiştir. Ayrıca farklı veri toplama araçları kullanılarak, farklı örneklem grupları üzerinde yeni araştırmalar yapılması önerilmiştir.

ARAŞTIRMANIN ETİK İZNİ

Bu çalışmada "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında uyulması gerektiği belirtilen tüm kurallara uyulmuştur. Yönergenin ikinci bölümü olan "Bilimsel Araştırma ve Yayın Etiğine Aykırı Eylemler" başlığı altında belirtilen eylemlerden hiçbiri gerçekleştirilmemiştir.

Etik kurul izin bilgileri

Etik değerlendirmeyi yapan kurul adı: Nevşehir Hacı Bektaş Veli Üniversitesi Etik Kurulu

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ARAŞTIRMACILARIN KATKI ORANI

Araştırmada 1. yazarın araştırmaya katkı oranı %35, 2. yazarın araştırmaya katkı oranı %25, 3. yazarın araştırmaya katkı oranı %20 ve 4. yazarın araştırmaya katkı oranı %20'dır. Araştırmacıların çalışmaya sundukları katkılara ait bilgiler aşağıda verilmiştir:

Yazar 1: Araştırmanın tasarlanması, literatür taraması, veri analizi, raporlaştırma.

Yazar 2: Literatür taraması, veri analizi, geçerlik ve güvenirlik çalışmaları.

Yazar 3: Yöntemin belirlenmesi, danışmanlık, geçerlik ve güvenirlik çalışmaları.

Yazar 4: Araştırmanın tasarlanması, danışmanlık, veri analizi, raporlaştırma.

ÇATIŞMA BEYANI

Araştırmada herhangi bir kişi ya da kurum ile finansal ya da kişisel yönden bağlantı kurulmamıştır. Araştırmada çıkar çatışması bulunmamaktadır.