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Science Teachers' Mentoring Roles for Parents from the Parents' Perspective

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Abstract: In this study was to determine the opinions of parents about the mentoring process of science teachers to parents. In order to achieve this aim, a descriptive survey model, one of the qualitative research designs, was used within the scope of the study. The sample of this study consisted of 120 parents whose children were enrolled in public or private schools affiliated with the Ministry of National Education during the 2022–2023 academic year, in both central and district areas of a city in western Turkey. This qualitative research aimed to explore parents' perspectives on the mentoring roles of science teachers directed toward them. Data were collected through an interview form administered to the participants. The findings indicated that parents believed they should be mentored by science teachers. Furthermore, they thought that such mentoring would have a positive impact on students' academic and personal development. It is recommended that science teachers receive in-service training and regularly engage in mentoring activities with parents to enhance the effectiveness of their mentoring roles.

Velilerin Gözünden Fen Bilimleri Öğretmenlerinin Velilere Yönelik Mentorluk Rolleri

Anahtar Kelimeler:
Fen bilimleri öğretmeni,
Mentorluk,
Veli

Özet: Bu çalışmada velilerin, fen bilimleri öğretmenlerinin velilere yapmış oldukları mentorluk süreci ile ilgili görüşlerini belirlemek amaçlanmıştır. Bu amaca ulaşmak için çalışma kapsamında nitel araştırma desenlerinden betimsel tarama modeli kullanılmıştır. Çalışmanın örneklemi, Türkiye'nin batısındaki bir şehrin merkez ve ilçelerinde 2022-2023 eğitim-öğretim yılında MEB'e bağlı özel veya kamu kuruluşunda öğrenim gören 120 öğrencinin velisinden oluşturmaktadır. Çalışmanın verileri katılımcılara uygulanan görüş formu yardımıyla toplanmıştır. Çalışmanın sonucunda velilerin kendilerine mentorluk yapılması gerektiğini düşündükleri belirlenmiştir. Ayrıca, velilere mentorluk yapılmasının öğrencilerin akademik ve kişisel gelişimi üzerinde olumlu etki yaratacağını düşündükleri sonucuna da varılmıştır. Fen bilimleri öğretmenlerinin daha verimli mentorluk yapabilmeleri için kendilerine hizmet içi eğitimlerin verilmesi ve veliler ile düzenli aralıklarla mentorluk faaliyetleri gerçekleştirmeleri önerilmektedir.

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1.INTRODUCTION

Throughout history, people have always needed a wiser and more experienced mind than their own. This wise mind sometimes represents an older person or someone who can guide them in terms of education, talent, and skills. Mentoring is the process of guiding individuals by sharing their knowledge and experience, and it is not only a short-term process but also a process that covers the entire lifespan (Paçalı, 2019; Efe, 2019). Within this process, mentors may take on various roles and appear in different contexts (Miller, 2005). Initially, this role is assumed by the mother and father from birth (Hatipoğlu & Kavas, 2016). As the individual begins school, teachers and peers also begin to share in this role previously held by the family (Gülşen Çelik, 2010). Over time, as individuals move toward different paths and directions in life, they may feel the need to choose a new mentor. In this case, even if the mentor is chosen from different individuals, their role is always the same and is to provide the guidance and support that the individual needs (Avcı, 2019).

Teachers are undoubtedly the ones who assume the role of mentor in the academic process of the individual. In addition to ensuring the effectiveness and continuity of the process, teachers also provide guidance to the society in which they live. While preparing their students for life in pedagogical, academic, and social terms, they also support parents, who are indirectly involved in this process and who sometimes feel helpless or inadequate, with their knowledge, skills, and experience (Avcı, 2019). By assuming this mentoring role, teachers enable parents to take a more active part in the educational process and contribute to their children's academic success. In addition, thanks to the positive communication between parents and teachers, they can get to know their children better, recognize their needs, and deal more closely with their needs (Hatipoğlu & Kavas, 2016). Additionally, teachers can enhance the overall quality of the educational process by properly managing student-parent interactions (Dinler & Hacıfazlıoğlu, 2020). Similarly, Avcı (2019) states in his study that since parents are an important part of the education process, science teachers should mentor them with their knowledge, skills, attitudes, behaviors, and experiences. He also states that science teachers should guide the education and training process with mentoring practices. Effective and accurate guidance stands out as a determining factor in increasing the efficiency and quality of the educational process. When teachers effectively structure and implement communication between students and parents, it fosters the development of qualified and productive individuals, thereby contributing significantly to the future of society (Canlı, 2023). The mentoring offered by science teachers to parents contributes to the development of healthy relationships between students, parents, and the school and supports the positive progress of the educational process. Teachers should always adopt a constructive and solution-oriented approach to leave a lasting, positive impact on both students and parents (Avcı, 2019).

Within the scope of the study, it was aimed to examine parents' views on the mentoring roles of science teachers for student parents. Although there are numerous studies in the literature on the concept of mentoring, no research has been found that specifically addresses science teachers' mentoring practices directed at parents. The research has an important place in terms of trying to reveal the mentoring levels of science teachers in line with the views of parents. In addition, considering the benefits of mentoring, it is thought that it is important to reveal the mentoring of science teachers to parents from the perspective of parents. Through this study, science teachers can have the opportunity to examine the views of parents about the mentoring done by their colleagues. In addition, science teachers can also have the opportunity to evaluate themselves by considering these views. In this respect, it is thought that the study will contribute to the literature, raise awareness about mentoring for science teachers, help parents understand mentoring better, and provide a basis for future research. In this context, the problem statement of the study was determined as "What are the views of parents on the mentoring role of science teachers for parents?". In addition, hypotheses are given below in line with the purpose of the study.

- Parents think that science teachers are unable to mentor them.
- Parents think that science teachers should only mentor students.

2. MATERİALS AND METHODS

2.1. Research Design

In order to achieve the aim of the study, the opinions of the parents were collected with a semi-structured interview form developed by Avcı (2019). In this context, the descriptive survey model, one of the qualitative research approaches, was used in the study. In this model, the main purpose is to present an ongoing situation or a past situation as it is (Karasar, 2015). Descriptive studies are studies aimed at understanding the current status of events, objects, institutions, and various fields. Büyüköztürk (2005) defines these studies as describing a given situation as completely and carefully as possible.

2.2. Participants

The data of the study were collected from 120 parents of students in the center and districts of a city in western Turkey during the 2022-2023 academic year. The study employed the simple random sampling method, which is one of the probability sampling techniques. Simple random sampling is generally preferred to ensure impartiality in the selection of the sample and to increase the likelihood that the sample represents the population (Kaptanoğlu, 2013). In this method, the participants to be included in the sample are randomly selected, which makes the results more generalizable and reliable (Çepni, 2010).

2.3. Data Collection

Within the scope of the study, it was planned to use the open-ended interview form developed by Avcı (2019) to determine parents' views on the mentoring role of science teachers towards parents (Form title: Questionnaire on the Mentoring Role of Classroom Teachers on Parents). Before this open-ended interview form was applied to the sample group, the questions in the form were reorganized to suit the purpose of the study.

Question 1 on the original form: Do you think that classroom teachers act as mentors to you?

Question 1 in the revised form: Do you think science teachers act as mentors to you?

The revised form was reviewed in collaboration with three science educators and one linguist, all specialists in their respective fields, and was finalized accordingly. In this context, the interview form, which originally consisted of 19 questions, was reduced to 15 questions by removing the 7th, 8th, 11th, and 18th questions. Open-ended questions enable participants to respond freely and in detail and are generally referred to as unstructured questions (Bahar et al., 2010). These types of questions allow the respondent to freely express their views, thoughts, and experiences, thus deeper and more qualified data can be obtained (Büyüköztürk, 2005).

2.4. Data Collection Process

Within the scope of the study, the form developed by Avcı (2019) was designed for parents of students taught by science teachers and was administered individually over a period of four weeks during the spring semester of 2023. During the implementation process, participants completed the form either online or face-to-face, depending on their preference.

2.5. Data Analysis

The descriptive statistics method was used to analyze the data collected within the scope of the study. This method helps researchers gain a general perspective on different phenomena and events they aim to investigate and allows data to be summarized in terms of basic trends, distributions, and averages (Büyüköztürk et al., 2008). The data collected in the study were presented in tables using frequencies and percentages. The answers given by the participants were also analyzed by different researchers, and reliability was calculated according to the Miles and Huberman (1994) formula. For example, the reliability values were calculated as 93% for the parent-coded V1, 90% for the parent-coded V2, and 87% for the parent-coded V3. According to Miles and Huberman (1994), reliability calculations greater than 70 % indicate that the analysis is reliable. In this context, it can be stated that the analysis of the data obtained from semi-structured interviews is reliable.

2.6. Research Ethics

This research was carried out with the approval of the Ethics Committee of the Kafkas University Social and Human Sciences Scientific Research and Publication Ethics Board, dated April 21, 2022. The research was also conducted following the 'Scientific Research and Publication Ethics' guidelines of Higher Education Institutions.

3. RESULTS AND DISCUSSION

The form prepared for the problem sentence "What are the opinions of parents about the mentoring role of science teachers on parents?" was applied to the participants, and the data obtained were analyzed by experts. The findings obtained within the scope of this analysis are given below in order.

3.1. Findings related to the first question in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Do you think science teachers act as mentors to you?" are presented in Table 1.

Table 1. The themes and codes obtained from the answers to the first question in the parent interview form

Theme	Code	f	%
Thinking	Education issues	36	30
	About LGS	18	15
	About the developmental process	12	10
I don't think so	Not being able to meet with the teacher	24	20
	Only academic information	22	18,3
Partially	Academic subjects	8	6,7
Total		**120**	**100**

When Table 1 was examined, it was seen that 55% of the parents answered the question "Do you think that science teachers mentor you?" as "thinking", 38.3% as "ı don't think so", and 6.7% as "partially". In addition, it was determined that 30% of the parents who answered the question as "thinking" stated that science teachers mentored them on "educational issues", 15% on "about LGS", and 10% on "about the developmental process". Sample parent answers in which these themes and codes were identified are presented below.

A sample statement from participant V6 (parent 6) indicating that science teachers mentor parents on “educational issues”:

"On every subject related to the student's education.”

A sample statement from participant V25, who indicated that science teachers provide mentoring to parents "about LGS":

"Especially because the student is in 8th grade, the teacher helps with LGS-related subjects."

It was determined that 20% of the parents who answered with "ı don't think so" to the relevant question in the interview form believed that science teachers could not mentor them due to "not being able to meet with the teacher" and 18.3% believed that teachers could not mentor them because they provided "only academic information" to parents.

A sample statement from participant V36, who indicated that science teachers do not provide mentoring to parents due to "not being able to meet with the teacher":

"The teacher works very hard. We only meet when there are problems."

It was determined that parents who answered "partially" to the question "Do you think that science teachers mentor you?" believed that science teachers partially provide mentoring in "academic subjects". Below is an example answer from the parents to the interview question where this theme and code were identified.

A sample statement from participant V35, who indicated that science teachers have the responsibility to

mentor parents on "academic issues":

"She only provides information about the student's academic progress. For other matters, she advises us to speak with the guidance counselor."

3.2. Findings related to question 2 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Do you think science teachers have a mentoring responsibility towards parents?" are presented in Table 2.

Table 2. The themes and codes obtained from the answers to question 2 in the parent interview form

Theme	Code	f	%
Yes	There should be teacher-parent cooperation	26	21,7
	Education is a whole.	22	18,3
	Academic information	17	14,2
No	The age of technology	24	20
	The role of the guidance counselor	12	10
	Excessive workload	7	5,8
Partially	Academic subjects	8	6,7
	The development of the student	4	3,3
Total		**120**	**100**

When Table 2 was examined, it was seen that 54.2% of the parents answered the question "Do you think science teachers have a mentoring responsibility towards parents?" as "yes", 35.8% as "no", and 10% as "partially". Furthermore, it was determined that 21.7% of the parents who answered the question as "yes" stated that science teachers mentored them on "there should be teacher-parent collaboration", 18.3% on "education is a whole", and 14.2% on "academic information". Sample parent answers in which these themes and codes were identified are presented below.

A sample statement from participant V6, who indicated that science teachers have a responsibility to mentor parents, based on the idea that "there should be teacher-parent cooperation":

"The teacher should always cooperate with the parents."

A sample statement from participant V1, who indicated that science teachers have a responsibility to mentor parents, based on the idea that "education is a whole":

"Education should support the students' development in every aspect; therefore, it is a whole."

It was determined that 20% of the parents who answered with "no" to the relevant question in the interview form believed that science teachers did not mentor them because we are in the "the age of technology", 10% believed that it was the "the role of the guidance counselor" and 5.8% believed that it required "excessive workload". Below is an example answer from the parents to the interview question where these themes and codes were identified.

A sample statement from participant V38, who indicated that science teachers do not have a responsibility to mentor parents, based on the idea that "technology age":

"We live in the age of technology and can access the information we need whenever we want."

It was determined that 6.7% of the parents who answered "partially" to the second question in the interview form believed that science teachers partially mentored them in "academic subjects", while 3.3% believed the mentoring was related to "the development of the student".

3.3. Findings related to question 3 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Do you find science teachers' knowledge, skills, and experience sufficient to fulfill this role?" are presented in Table 3.

Table 3. The themes and codes obtained from the answers to question 3 in the parent interview form

Theme	Code	f	%
Yes	Subject matter expert	50	41,7
	Very interested	20	16,7
	Psychological support	14	11,7
	About development	10	8,3
No	Disinterested	19	15,8
	Intense work schedule	7	5,8
Total		**120**	**100**

When Table 3 is examined, it is seen that 78.4% of the parents responded with "yes" and 21.6% answered "no" to the question, "Do you find science teachers' knowledge, skills, and experience sufficient to fulfill this role?". In addition, it was determined that 41.7% of the parents who responded with "yes" to the question stated that they considered science teachers adequate to undertake the mentoring role because they were "subject matter expert", 16.7% because they were "very interested", 11.7% because they provided "psychological support" and 8.3% because they helped "about development". Below is an example answer from the parents to the interview question where these themes and codes were identified.

A sample statement from participant V6, in which the code "subject matter expert" was identified, indicating that the science teacher's knowledge and skills were sufficient in the mentoring process:

"A teacher who is proficient in their field and continuously works on self-improvement."

Among the parents who responded with "no" to the related question in the interview form, 15.8% stated that science teachers were not sufficient in the mentoring process due to being "disinterested" and 5.8% due to being "an intense work schedule". Below is an example answer from the parents to the interview question where these themes and codes were identified.

A sample statement from participant V26, in which the code "intense work schedule" was identified, indicating that the science teacher's knowledge and skills were insufficient in the mentoring process:

"The teacher has an excessive workload and a high number of classes, which is why."

3.4. Findings related to question 4 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "What additional characteristics should a science teacher with sufficient professional knowledge and skills possess to mentor you?" are presented in Table 4.

Table 4. The themes and codes obtained from the answers to question 4 in the parent interview form

Theme	Code	f	%
Education	Communication skills	21	15,3
	Content Knowledge	19	13,9
	Professional experience	9	6,6
	Mentor	5	3,6
	Psychological	3	2,2
Personality	Empathy	13	9,5
	Interest	7	5,1
	Self-improvement	6	4,4
	Mentor	5	3,6
	Fair	4	2,9
	Patient	4	2,9
	Innovator	3	2,2
	Helpful	1	0,7
	Funny	1	0,7
	Self-confident	1	0,7
	Skill	1	0,7
Adequate	Sufficient	34	24,8
Total		**137**	**100**

When Table 4 is examined, it is seen that 41.6% of the parents responded with “education,” 33.4% “personality,” and 24.8% “adequate” to the question, “What qualities, other than the knowledge and skills of a sufficiently qualified science teacher, do they need to have to mentor you?”. Additionally, 15.3% of the parents who answered with 'education' stated that science teachers should have 'communication skills' and 13.9% emphasized the importance of having 'content knowledge'. Below is an example answer from the parents to the interview question where these themes and codes were identified.

A sample statement from participant V89, who indicated that science teachers should have "communication skills" in addition to the characteristics they should have to mentor parents:

"They should communicate the topic in a way that the listener can understand. They must establish effective communication."

It was determined that 9.5% of the parents who responded with the related question in the interview form "personality" thought that science teachers should have a sufficient level of "empathy", 5.1% "interest", and 4.4% "self-development" abilities in addition to their knowledge and skills. Sample parent answers in which these themes and codes were identified are presented below.

A sample statement from participant V46, who indicated that science teachers should possess the quality of "interest" in addition to the necessary characteristics to mentor parents:

"They should show interest and kindness towards the student."

A sample statement from participant V63, who indicated that science teachers should possess the quality of "self-improvement " in addition to the necessary characteristics to mentor parents:

"It is necessary for them to read books, follow current events, and attend various courses and seminars."

3.5. Findings related to question 5 in the parent interview form

Within the scope of the study, the themes and codes obtained from the analysis of the parents' answers to the questions "Do you think that science teachers should take care of your problems? In which subjects does the science teacher mentor you?" are presented in Table 5.

Table 5. The themes and codes obtained from the answers to question 5 in the parent interview form

Theme	Code	f	%
Thinking	Promoting a love of science	24	20,0
	General topics	8	6,7
	Student development	3	2,5
	Health	2	1,7
I don't think so	Excessive workload	35	29,2
	Not in the job description	11	9,2
I think partially	According to the topic	37	30,8
Total		**120**	**100**

When Table 5 is examined, it is seen that 30.9% of the parents responded with "thinking", 38.4% "I don't think so" and 30.8% "I think so partially" to the question "Do you think that science teachers should take care of your problems? In which subjects does the science teacher mentor you?". In addition, it was determined that 20% of the parents who answered the related question as "thinking" stated that science teachers should mentor them by using the expressions "promoting a love of science" and 6.7% "general topics". Sample parent answers in which these themes and codes were identified are presented below.

A sample statement from Participant V7, who indicated that the science teacher provided mentorship in the about "promoting a love of science":

"In promoting a love of science and encouraging research skills."

A sample statement from Participant V73, who indicated that the science teacher provided mentorship on "general topics":

"They show interest. They provide mentorship in student-parent communication, academic achievement, and communication between school and home."

It was determined that 29.2% of the parents who answered “ı don't think so” to question 5 in the form believed

that science teachers do not attend to parents' problems due to “excessive workload”, and 9.2% due to the perception that it is “not in the job description”.

A sample statement from Participant V97, who indicated that the science teacher did not provide mentorship due to “excessive workload”:

"When we go to school, the teacher is generally busy dealing with student issues and cannot pay much attention to us."

It was determined that 5.4% of the parents who answered "ı think partially" to the relevant question in the interview form believed that science teachers partially attend to their problems, "according to the topic".

A sample statement from Participant V61, from which the code "according to the topic" was identified based on their response to the relevant question:

"They only get involved when there is a problem related to the student's academics or behavior."

3.6. Findings related to question 6 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the questions "In which subjects do you expect help and support from the science teacher? Does the science teacher meet your expectations in this regard?" are presented in Table 6.

Table 6. The themes and codes obtained from the answers to question 6 in the parent interview form

Theme	Code	f	%
Student-related issues	Academic	37	30,8
	Projects	8	6,7
	Developmental	5	4,2
	Health	2	1,7
Not expecting support	Self-sufficient	12	37,5
	Supported by a coach	11	10,0
	Teacher in the family	12	9,2
Total		**120**	**100**

When Table 6 is examined, it is seen that 43.4% of the parents responded to the question "In which subjects do you expect help and support from the science teacher?" with "student-related issues," while 56.7% stated that they "do not expect support". In addition, among the parents who answered the question with "student-related issues," 30.8% requested support from science teachers on "academic" matters, and 6.7% on "projects."

A sample statement from participant V47 in which they indicated that they expected support from their science teacher regarding “projects”:

"We are seeking support in raising children who are interested in science and in learning how to properly complete project assignments."

Among the parents who answered “not expecting support” to the 6th question in the interview form, 37.5% indicated that they are self-sufficient, 10% reported receiving coaching support, and 9.2% stated that there is a teacher in the family, thus expressing that they do not expect help or support from the science teachers.

A sample statement by participant V87 indicates that they do not expect support from science teachers due to the belief that "there is a teacher in the family":

"I do not expect help or support. There is a teacher in the family."

3.7. Findings related to question 7 in the parent interview form

Within the scope of the study, the themes and codes obtained from the analysis of the parents' answers to the questions "What problems do you encounter during the mentoring process? What are the positive or negative situations you encounter?" are presented in Table 7.

Table 7. The themes and codes obtained from the answers to question 7 in the parent interview form

Theme	Code	f	%
No problems encountered	No problems encountered	98	81,6
Problems encountered	Experience	2	1,6
	Time	5	4,6
	Psychology	1	0,8
	Education	10	8,2
	Contact	4	3,2
Total		**120**	**100**

When Table 7 is examined, it is seen that 81.6% of the parents’ responses to the question “What problems do you encounter during the mentoring process?” reflect the theme of “no problems encountered”, while 18.4% reflect the theme of “problems encountered”. In addition, it was determined that among the parents associated with the theme of “problems encountered”, 8.2% used words such as “education”, 4.6% referred to “time”, and 3.2% mentioned “communication” to express the difficulties they experienced during the mentoring process. Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V70, from which the code “no problems encountered” was identified based on their response to the relevant question:

"I did not encounter any problems. I was able to meet with the teacher when I went to the school."

A sample statement from participant V93, from which the code “time” was identified based on their response to the relevant question:

"Time issue. The teacher is often unavailable due to time constraints and a heavy workload."

3.8. Findings related to question 8 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the questions "Where and how often do you meet with the science teacher? Who determines the meeting times?" are presented in Table 8.

Table 8. The themes and codes obtained from the answers to question 8 in the parent interview form

Theme	Code	f	%
School administration	At a parent-teacher meeting	37	30,8
	When the school administration calls	35	29,2
Teacher	When the teacher calls	20	16,7
	For academic status	9	7,5
Teachers and parents together	Once a month	12	10,0
	Whenever there is an opportunity	7	5,8
Total		**120**	**100**

When Table 8 is examined, it is seen that 60% of the parents' responses to the question “Where and how often do you meet with the science teacher? Who determines the meeting times?” reflect the themes of “school administration”, 24.2% reflect the theme of “teacher”, and 15.8% reflect the theme of “teacher and parent together”. Additionally, it was determined that among the parents whose responses reflected the “school administration” theme, 30.8% used the phrase “at a parent-teacher meeting” while 29.2% stated “when the school administration calls”. Among the parents whose responses reflected the “teacher” theme, 16.7% used the phrase “when the teacher calls,” and 7.5% stated “for academic reasons”. Moreover, among those whose answers reflected the theme of “teacher and parents together,” 10% used the expression “once a month” and 5.8% said “whenever there is an opportunity”. Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V93, from which the code “at the parent-teacher meeting” was identified based on their response to the relevant question:

"We meet at the school during the parent-teacher meetings."

A sample statement from participant V55, from which the code “when the teacher calls” was identified based on their response to the relevant question:

"The teacher calls and invites me to meet whenever there is a problem or something extra I need to know."

A sample statement from participant V76, from which the code "whenever there is an opportunity" was identified based on their response to the relevant question:

"I always try to go whenever the teacher is available."

3.9. Findings related to question 9 in the parent interview form

Within the scope of the study, the themes and codes obtained from the analysis of the parents' answers to the questions “Can the science teacher reach you easily?” and “Can you easily reach the science teacher?” are presented in Table 9.

Table 9. The themes and codes obtained from the answers to question 9 in the parent interview form

Theme	Code	f	%
Reachable	Contact information	80	66,7
	Whatsapp groups	34	28,3
Unreachable	Missing contact details	6	5,0
Total		**120**	**100**

When Table 9 is examined, it is seen that 95% of the parents’ responses to the questions "Can the science teacher reach you easily? Can you easily reach the science teacher?" reflect the theme of “reachable”, while 5% reflect the theme of “unreachable”. In addition, it was determined that among the parents associated with the theme of "reachable", 66.7% used expressions such as "contact information" and 28.3% referred to "WhatsApp groups" to indicate that they could easily communicate with the teacher. On the other hand, it was found that all of the parents who reflected the theme of "unreachable" used the expression "missing contact details" to explain their difficulty in reaching the science teacher.

A sample statement from participant V75 regarding the situation of being able to contact teachers, in which the code “contact information” was identified:

"They're just a phone call away; we can reach them easily."

A sample statement from participant V81 regarding the situation of being able to contact teachers, in which the code “missing contact details” was identified:

"We don’t have any of the teacher’s contact information. We don’t know the phone number, so I can’t reach them whenever I want."

3.10. Findings related to question 10 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Can you comfortably express your ideas and opinions to the science teacher?" are presented in Table 10.

Table 10. The themes and codes obtained from the answers to question 10 in the parent interview form

Theme	Code	f	%
I can say	For better education	85	70,8
	Because of their sincerity	16	13,3
I can't say it	We can't meet	12	10,0
	Because they are a subject teacher	3	2,5
I can partially say	Only on matters related to the student	4	3,3
Total		120	100

When Table 10 is examined, it is seen that 84.1% of the parents’ responses to the question “Can you comfortably express your ideas and opinions to the science teacher?” reflected the theme of “ı can say”, 12.5% “ı can't say it”, and 3.3% “I can partially say”. It was determined that among the

parents associated with the theme of “ı can say”, 70.8% used the expression “for better education” and 13.3% mentioned “because of their sincerity”. In the responses of parents linked to the theme of “ı can't say it”, 10% used the expression “we cannot meet,” and 2.5% referred to “because they are a subject teacher”. Furthermore, all parents identified with the theme of “ı can partially say” used the phrase “only on matters related to the student”. Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V75 in response to the related question, in which the code “for better education” was identified:

"Of course, I say it for the student's academic success and development."

A sample statement from participant V96 in response to the related question, in which the code “because they are a subject teacher” was identified:

"I look at it differently because of their specialty."

A sample statement from participant V75 in response to the related question, in which the code “only on matters related to the student” was identified:

"I talk about matters concerning the student and enhancing their academic success."

3.11. Findings related to question 11 in the parent interview form

Within the scope of the study, the themes and codes obtained from the analysis of the parents' answers to the questions "Do you meet with the science teacher outside of school? If so, what is the purpose and content of these meetings?" are presented in Table 11.

Table 11. The themes and codes obtained from the answers to question 11 in the parent interview form

Theme	Code	f	%
I meet	For homework	8	6,7
	For academic matters	2	1,7
	Friendly (Chat)	1	0,8
I don’t meet	I don’t need.	70	58,3
	We meet at school	39	32,5
Total		**120**	**100**

When Table 11 is examined, it is seen that 9.2% of the parents' responses to the question "Do you meet with the science teacher outside of school? If so, what are the purpose and content of these meetings?" revealed the themes "ı meet" and 90.8% "I don't meet". Additionally, among the parents who stated "ı meet", 6.7% mentioned "for homework" as the reason for these meetings. Furthermore, of the parents who stated "ı don't meet", 58.3% said "ı don’t need" and 32.5% said "we meet at school". Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V33, from which the code "for homework" was identified based on their response to the relevant question:

"I communicate with the teacher for homework."

A sample statement from participant V78, from which the code "we meet at school" was identified based on their response to the relevant question:

"We meet within the school boundaries. It's enough."

3.12. Findings related to question 12 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Would you prefer to meet with the science teacher within the formal boundaries of the school as a parent-teacher interaction, or in a more informal and friendly setting?" are presented in Table 12.

Table 12. The themes and codes obtained from the answers to question 12 in the parent interview form

Theme	Code	f	%
Within the boundaries of the school, within the official parent-teacher relationship	Should be formal	75	62,5
	Should be boundaries	15	12,5
	Within the institution and formal	3	2,5
In a less formal setting and a friendly manner	Friendly	16	13,3
	Sincere	11	9,2
Total		**120**	**100**

When Table 12 is examined, it is seen that 77.5% of the parents' responses to the related question revealed the theme "within the boundaries of the school, within the official parent-teacher relationship" and 22.5% reflected the theme "In a less formal setting and a friendly manner". Additionally, among the parents whose responses were categorized under the theme "parent-teacher formality within school boundaries", 62.5% used the expression "should be formal," and 12.5% used the expression "Should be boundaries". Furthermore, it was found that 13.3% of the parents in the "in a less formal setting and a friendly manner" theme used the expression "friendly" and 9.2% used "sincere" in their responses. Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V88, from which the code "should be formal" was identified based on their response to the relevant question:

"It should be within the boundaries of a formal parent-teacher relationship."

Sample statements from participant V38, from which the codes "friendly" and "sincere" were identified based on their responses to the relevant question:

"I think we should have a friendly relationship with the teacher."

"Rather than being formal, she is also a mother. She can be warmer and sincere. We're not doing a job interview."

3.13. Findings related to question 13 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "Do you have any limitations

in your meetings with the science teacher? If so, how and why?" The themes and codes obtained from the analysis of their answers to the questions are presented in Table 13.

Table 13. The themes and codes obtained from the answers to question 13 in the parent interview form

Theme	Code	f	%
There is	Time	18	15
	Boundaries	10	8,3
	Subject	2	1,7
None	Within the framework of respect	55	45,8
	For student development	35	29,2
Total		**120**	**100**

When Table 13 is examined, it is seen that 25% of the parents' responses to the question "Do you have any limitations in your meetings with the science teacher? If so, how and why?" revealed the theme of "there is" and 75% revealed the theme of "there isn't". In addition, among the parents for whom the theme "there is" was identified, 15% used the expression "time" and 8.3% used the expression "boundaries" in their responses. On the other hand, among the parents for whom the theme "there isn't" was identified, 45.8% used the expression "within the framework of respect" and 29.2% used the expression "for student development". Sample parent responses in which these themes and codes were identified are presented below.

A sample statement from participant V29, from which the code "time" was identified based on their response to the relevant question:

"Yes, there are limits, especially regarding time."

A sample statement from participant V38, from which the code "boundaries" was identified based on their response to the relevant question:

"I do have limits. There needs to be certain boundaries in communication between teachers and parents."

A sample statement from participant V79, from which the code "within the framework of respect" was identified based on their response to the relevant question:

"I think conversations and meetings should take place within the bounds of respect."

3.14. Findings related to question 14 in the parent interview form

The themes and codes obtained from the analysis of the answers to the questions "What is the purpose of your mentoring relationship with the science teacher? What effects do you expect from the science teacher as a result of this sharing?" are presented in Table 14.

When Table 14 is examined, it is seen that 88.3% of the parents' responses to the related question revealed the theme of "positive effects" and 11.7% revealed the theme of "no opinion". In addition, among the parents for whom the theme "positive effects" was identified, 17.5% used the expression "interest and ability", 16.7% "responsibility", 15.8% "communication skill", 13.3% "academic development", and 12.5% "sense of curiosity" in their responses. On the other hand, all parents identified with the theme of "no opinion" used the phrase "no opinion".

Table 14. The themes and codes obtained from the answers to question 14 in the parent interview form

Theme	Code	f	%
Positive effects	Interest and ability	21	17,5
	Responsibility	20	16,7
	Communication skill	19	15,8
	Academic development	16	13,3
	Sense of curiosity	15	12,5
	Social development	15	12,5
No opinion	No opinion	14	11,7
Total		**120**	**100**

A sample statement from participant V86, from which the code "sense of curiosity" was identified based on their response to the relevant question:

"It allows me to discover new things."

A sample statement from participant V48, from which the code "no opinion" was identified based on their response to the relevant question:

"I have no idea at all."

3.15. Findings related to question 15 in the parent interview form

The themes and codes obtained from the analysis of the parents' answers to the question "How do you think mentoring affects the parent-teacher relationship?" are presented in Table 15.

Table 15. The themes and codes obtained from the answers to question 15 in the parent interview form

Theme	Code	f	%
Positive	Responsibility	25	20,8
	Respect	19	15,8
	Empathy skill	14	11,7
	Provides comfort	11	9,2
	Provides guidance	18	15
	Bilateral relationship	7	5,8
Does not affect	Does not affect	16	13,3
No opinion	We don't communicate	10	8,3
Total		**120**	**100**

When Table 15 is examined, it is seen that 78.4% of the parents' responses to the related question were coded under the theme "positive," 13.3% under "does not affect," and 8.3% under "no opinion." In addition, among the parents identified with the "positive" theme, 20.8% used the expression "responsibility," 15.8% "respect," and 11.7% "empathy skill" in their responses. Furthermore, it was determined that all parents whose responses were coded under the "does not affect" theme used the expression "does

not affect," and all parents under the "no opinion" theme used the expression "we don't communicate" in their responses.

4. CONCLUSION

When the data obtained within the scope of the study were analyzed, it was determined that the parents thought that science teachers particularly mentored them regarding students' academic development, the examination process (e.g., LGS), and educational issues, and that this led to positive developments in students. In addition, it was found that parents thought they were able to guide their children more effectively thanks to the mentoring support they received from teachers. It is anticipated that informing parents may contribute positively to teacher-parent-student communication, thereby enhancing the overall quality of education. Supporting this situation, the literature also emphasizes that teachers' mentoring roles constitute an important factor in improving student achievement (Anderson & Shannon, 1988). Similarly, Allen and Eby (2003) argue that effective mentoring offers a range of benefits for both mentors and mentees. Kocabaş and Yirci (2011) highlight that the benefits of mentoring for mentees include personal satisfaction, the ability to conduct research and think critically, the capacity to transfer knowledge on new topics, effective problem-solving skills, and increased self-awareness. In addition, within the scope of the study, it was revealed that parents expected science teachers to provide help and support in academic matters, and that these expectations were generally met by the relevant teachers. It was determined that parents believed the mentoring provided or to be provided by teachers would help resolve problems before they emerge or grow. The reason why parents and teachers communicate more on academic issues can be considered the constant renewal of science in the age of changing and developing technology, with the curriculum change.

The majority of parents stated that science teachers possessed the necessary knowledge and skills to act as mentors. They also indicated that teachers with strong subject knowledge, professional experience, and a commitment to self-improvement were likely to be more effective mentors. According to Holloway (2001), a mentor should be trustworthy, open-minded, kind, and capable of keeping confidences. Kalin et al. (2009) describe a mentor as a humble individual, Mertz (2004) defines the mentor as a guide and supporter, and Brockbank and McGill (2006) characterize a mentor as someone capable of demonstrating empathy. Developing teachers' mentoring skills can enhance both student achievement and parent satisfaction (Özdem Yılmaz et al., 2024).

Some parents stated that science teachers showed interest in their problems, while others indicated that, due to the heavy workload and lack of a clearly defined mentoring role in their job descriptions, teachers did not sufficiently address parental issues. In order for education to improve and reach the desired level, teachers and educational institutions need to involve families in cooperation with the school. In this way, it is believed that a positive parental attitude toward the school and desirable developmental outcomes in students may emerge. Among the qualities that parents expected from teachers in the mentoring process, personal competencies such as communication skills, empathy, attentiveness, and a commitment to self-improvement came to the forefront. This finding demonstrates that teaching as a profession requires not only academic expertise but also social and emotional competencies. Possessing these skills may enable teachers to fulfill their mentoring roles more effectively (Beigi Rizi et al., 2021). Within the scope of the study, it was also revealed that nearly all parents did not encounter any significant problems during the mentoring process, while only a few experienced difficulties related to time and communication. These challenges could potentially be mitigated by allocating dedicated time for teachers to engage in mentoring, free from other responsibilities. Limited communication between teachers and parents may hinder the effective implementation of mentoring roles. In the literature, the importance of open and continuous communication for effective mentoring is frequently emphasized (Ensher et al., 2003). Conway (2002) also emphasized in his study that communication between mentor and mentee is a critical component. Students who perceive that they are supported and monitored by both their families and teachers are more likely to demonstrate positive development.

Within the scope of the study, it was determined that meetings between science teachers and parents at school were mostly held with regard to a specific problem or need. In this way, they stated that the formality between teacher and parent was maintained and that communication was healthier. Boyle and Boice (1998), in their study examining the reasons for the failure of mentoring programs, found that mentoring processes are unlikely to succeed if mentor-mentee relationships are not conducted systematically. In light of this, it becomes evident that a structured approach to mentoring is essential for its success. Ehrich et al. (2004) stated that the lack of sufficient time devoted by mentors and mentees to each other leads to problems. In their study, Darwin and Palmer (2009) concluded that mentor-mentee pairs should meet once a month. Furthermore, within the scope of the study, it was determined that parents were able to contact science teachers when needed and felt comfortable expressing their opinions. Kılınç and Alparslan (2014) emphasized in their study that interaction and communication between the mentor and mentee an important factors for the success of the mentoring process. Mentees who are able to express themselves openly and accurately to their mentors tend to benefit more from the relationship. In this way, it has been determined that communication and trust between teachers and parents have increased. Kuzu et al. (2012) also suggested that digital communication tools can enhance teacher-parent interactions and support the mentoring process. Additionally, it was found that most parents involved in the study believe that meetings with science teachers should be held within school premises, maintaining the formal teacher-parent boundaries, which they think both preserve the teacher-parent relationship and enhance student motivation. However, Noe (1988) states that, contrary to this view, meetings between the mentor and mentee outside the work environment positively contribute to mentoring relationships. Additionally, within the scope of the study, it was emphasized that parents believe meetings with science teachers should be limited in number and neither too informal nor overly formal, and that the setting of the meeting can vary depending on time and place. According to Celep (2008), students who perceive cooperation between their parents and

teacher tend to demonstrate more constructive behaviors.

In line with the research findings, teachers can be encouraged to communicate more frequently with parents through various platforms (e.g., email, mobile applications, one-on-one meetings) to strengthen teacher-parent communication. In-service training programs on communication skills, empathy building, and psychological counseling can be organized to enhance science teachers' capacity to carry out mentoring activities more effectively. School administrations can be guided by more clearly defining teachers' mentoring roles. Additionally, informational meetings, seminars, and parent-teacher workshops can be organized to encourage more active parental involvement in the school process. Moreover, by developing solutions to reduce teachers' workloads, a more flexible structure can be created for allocating time to parents.

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