İSTANBUL UNIVERSITY CERRAHPAŞA

HAYEF: Journal of Education, 20(1); 18-31

DOI: 10.5152/hayef.2023.22032
Received: June 29, 2022
Accepted: September 2, 2022
Publication Date: January 30, 2023

HAYEF: Journal of Education

RESEARCH ARTICLE

Perceptions of Science Teachers Toward Face-to-Face/Distance Education and Trends Toward Teaching Activities

Faruk ARICI

Science Teacher in Ministry of National Education, Erzurum, Turkey

Abstract

The aim of this study was to determine the perceptions of science teachers in different sociocultural campuses about distance education due to coronavirus disease 2019, to compare their work in face-to-face education and distance education practices, and also to determine the difference this situation creates on students. The study carried out for this purpose is important in terms of presenting suggestions for eliminating the observed educational difference among students in different sociocultural regions. The study was carried out with 26 female and 34 male science teachers aged between 24 and 55 years, with professional experience between 1 and 25 years working in various schools in the city center (20), district center (20), and villages (20). Multiple case study design, which is one of the qualitative research methods, was used in the study. The study group was determined by the maximum variation sampling method, which is one of the purposeful sampling methods. A semistructured interview form was used as a data collection tool, and content analysis was applied to the data. The results obtained from the study showed that the teachers in the province and district centers mostly used Educational Information Network in this period, and because of the internet infrastructure problem in the villages, worksheets were prepared and delivered to the students. Zoom and WhatsApp applications have been widely used. It was observed that the teachers working in the villages made group calls and gave lectures. Teachers have often made use of e-books and online exams. It has been determined that participation in distance education is lower in villages. In distance education, while teachers in the city center can receive feedback from students, it has been observed that the feedback is very low in districts and villages. It has been determined that in villages where face-to-face education continues, students' commitment to school decreases and they cannot achieve the success they exhibited in previous periods. Finally, it can be said that the workload of teachers has increased compared to face-to-face education, and the gap between students from different socioeconomic environments in terms of academic achievement has widened.

Keywords: Case study, COVID-19, different sociocultural settlements, distance education, science teachers

Introduction

The coronavirus disease 2019 (COVID-19) pandemic has caused significant changes in the functioning of basic social institutions such as economy, health, sports, art, politics, family, and education and in the daily lives of individuals in a short time. One of the biggest shares among the sectors affected by the epidemic is the field of education. Approximately 92% of the world's student population has been affected by the epidemic conditions. The number of countries where face-to-face education has been suspended is 192. These percentages mean that approximately 1.6 billion students worldwide are affected by school closures (International Labor Organization, 2020). In this process, many countries have applied to the distance education option to prevent the spread of the COVID-19 pandemic and to ensure the continuity of education (Chen et al., 2020). In the distance education period, teaching activities were carried out using Web-based applications instead of face-to-face education (Vlachopoulos & Jan, 2020). The changes caused by the pandemic in the education system in Turkey show parallelism with the whole world.

With the decision of distance education on March 23, 2020, in Turkey due to COVID-19, a new era in education has begun. During this period, distance education platforms were quickly established and started to be used. Live classroom applications, especially TRT Educational Information Network (EBA), have been adapted for the continuity of education with the EBA internet platform and made available with online and offline options (Selçuk, 2020). Education administrators have tried to adapt to these emerging practices. Educational institutions have been closed in many countries, and online or hybrid education has been tried. Despite all these measures and efforts, education has been one of the most affected institutions in this process (Aretio, 2021). Therefore, different solutions created in educational environments during the COVID-19 period have created advantages or disadvantages for students with different opportunities (Opere, 2021). In order to determine the dimensions of the educational differentiation that these differences will create for students, the experiences of teachers, who are one of the most important stakeholders in the process, should be examined. After the examinations, studies should be carried out to reduce the educational differences that may occur between schools and students and to offer standard education opportunities to each student. As a matter of fact, during this period, which lasted about 2 years, there were changes in the duration of distance education and face-to-face education and the opportunities to reach this education (Boer & Asino, 2022). In regions, this situation is different, and full-time education was provided at various times within the possibilities (Selçuk, 2020). While densely populated regions generally have better opportunities for distance education,

Corresponding Author: Faruk ARICI, **E-mail:** farukarici25@gmail.com
Cite this article as: Arıcı, F. (2023). Perceptions of science teachers toward face-to-face/distance education and trends toward teaching activities. *HAYEF: Journal of Education,* 20(1), 18-31.

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License
Available online at https://hayefjournal.org

there are not enough opportunities in less dense regions. This difference is not limited to school time, but different opportunities are available. This led to the educational activities and unequal conditions for students in these regions. These different practices have shown that the motivation of students toward school in today's classroom environments is negatively affected (Alawamleh, et al., 2022; Zizka & Probst, 2022). It can be said that it is a situation that is expected to emerge more prominently in importance. For this, necessary research should be done, the size of the problem should be determined, and then studies should be carried out to offer suggestions for its solution.

When national and international studies in the field of science education during the COVID-19 period are examined, it is seen that students' motivation toward online learning has decreased (Alawamleh, et al., 2022; Zizka & Probst, 2022), students' entrepreneurial characteristics are negatively affected (Duong et al., 2022), online exams are perceived more easily than face-to-face exams, create less pressure, and female students are more successful in adapting to online education (Bisht et al., 2020), social interaction decreases (Dutta & Smita, 2020), interaction has a positive and meaningful effect on learning, and learning is more important than socializing in the online environment (Baber, 2021). Boer and Asino (2022) stated in their study that teachers do not show the necessary sensitivity to educational activities because they are worried about their health and that the lack of infrastructure, access, and connection negatively affect their teaching activities. Sohil and Sohail (2022) stated that limited interaction in online environments is effective on student attitude and teachers are not affected by this situation. Another study was conducted to investigate parenting interest and children's adaptation to distance education, and it was reported that there is a positive relationship between adaptation skills and parenting interest (Zambrana & Hart, 2022). Zizka and Probst (2022) emphasized the importance of careful planning of the teaching/learning environment to ensure student participation in education online, face-to-face, or otherwise. At this point, teachers have an important responsibility. It has been seen that the teaching activities should be planned in such a way that the students benefit from the applied educational activities. However, as Boer and Asino (2022) stated, it can be said that teachers have problems in planning teaching activities due to health concerns in this period.

In the literature review, studies in the field of science education during the COVID-19 period were examined. When the existing studies in the literature are examined, it is mostly focused on examining the attitudes of students about this period (Helm et al., 2021; Yazgan, 2022), and studies are conducted with quantitative methods and generally with questionnaires (Archila et al., 2022; Helm et al., 2021; Karaca & İlkim, 2021). In this study, which is different from the literature, the opinions and suggestions of the teachers who took an active role in this period were consulted and the reasons for these were examined. The education and opportunities of the students in different sociocultural campuses were compared, and the differences in terms of student success, motivation, or educational opportunities were examined. Suggestions for solutions in order to prevent negative results over the years were presented in comparison with the national and international literature. It is aimed to compare the teachers from different sociocultural regions in face-to-face and distance education periods in terms of experiences, measurement and evaluation, course materials, and in-class activities. In addition, it is aimed to determine whether the sociocultural structure of the students affects the education they receive during the distance education period. The research questions of the study carried out for these purposes are as follows:

1. What are the teachers' experiences and opinions about the process for the courses that are conducted with distance education due to COVID-19?
2. What are the opinions of teachers about classroom activities, course materials, measurement, and evaluation when they compare face-to-face and distance education?
3. What are the opinions of the teachers about their students in the distance education period when compared to face-to-face education?
4. How did the sociocultural structure of the students affect them during the distance education period?

Limitations

The research is limited to science teachers working in Erzurum province. Within the scope of the research, the perceptions, impressions, and teaching techniques of the science teachers participating in the research are limited to the period in which the study was conducted and their skills to use. Finally, another limitation is the assumption that the teachers participating in the research answered the questions sincerely.

Methods

The research was planned in accordance with qualitative research. Qualitative research is a design in which methods such as observation, interview, or document analysis are used, and events and phenomena are revealed in their natural environment and holistically (Yıldırım & Şimşek, 2016). In qualitative research, the researcher tries to understand the perspective of the participant or participants about facts and events (Merriam, 2002). Since this study aimed to determine the perceptions of science teachers about face-to-face and online education activities, the study method was determined as qualitative research. The research was carried out with the permission approval numbered 06.04.2022 and 47257547 from Erzurum Provincial Directorate of National Education.

Research Design

The research was carried out in accordance with the case study pattern, one of the qualitative research methods. A case study is a design in which the researcher defines the themes of a situation with certain boundaries by using interview, observation, document review, and visual or audio documents in a certain time period (Creswell, 2013). Case studies help to explain the subject within its own boundaries (Yin, 2003). Merriam (2018) defines case study as an in-depth description and examination of a circumscribed event from all aspects. In the light of the studies above, it can be said that the main point of the case study is to draw the boundaries of the situation under investigation and to analyze and describe in depth within these limits.

Participants

The research was carried out with science teachers working in different sociocultural regions of the same province. Maximum diversity sampling method was used to determine the participants. Maximum diversity sampling offers the opportunity to collect information from as many different participants as possible, and heterogeneity is sought within the sample in various aspects (Merriam, 2018). This method was preferred in order to determine the different perceptions of the participants toward online and face-to-face periods as much as possible. Detailed information about the participants is presented in Figure 1.

When Figure 1 is examined, it is seen that the average age of female and male teachers working in three different sociocultural campuses, with a minimum age of 24 and a maximum age of 55, is slightly lower in villages, while it increases in district and provincial centers. This is due to the fact that while there are teachers who work with the first assignment in villages and district centers, there are teachers with more advanced age and professional experience in provincial centers. However, in order to ensure maximum diversity, teachers from various

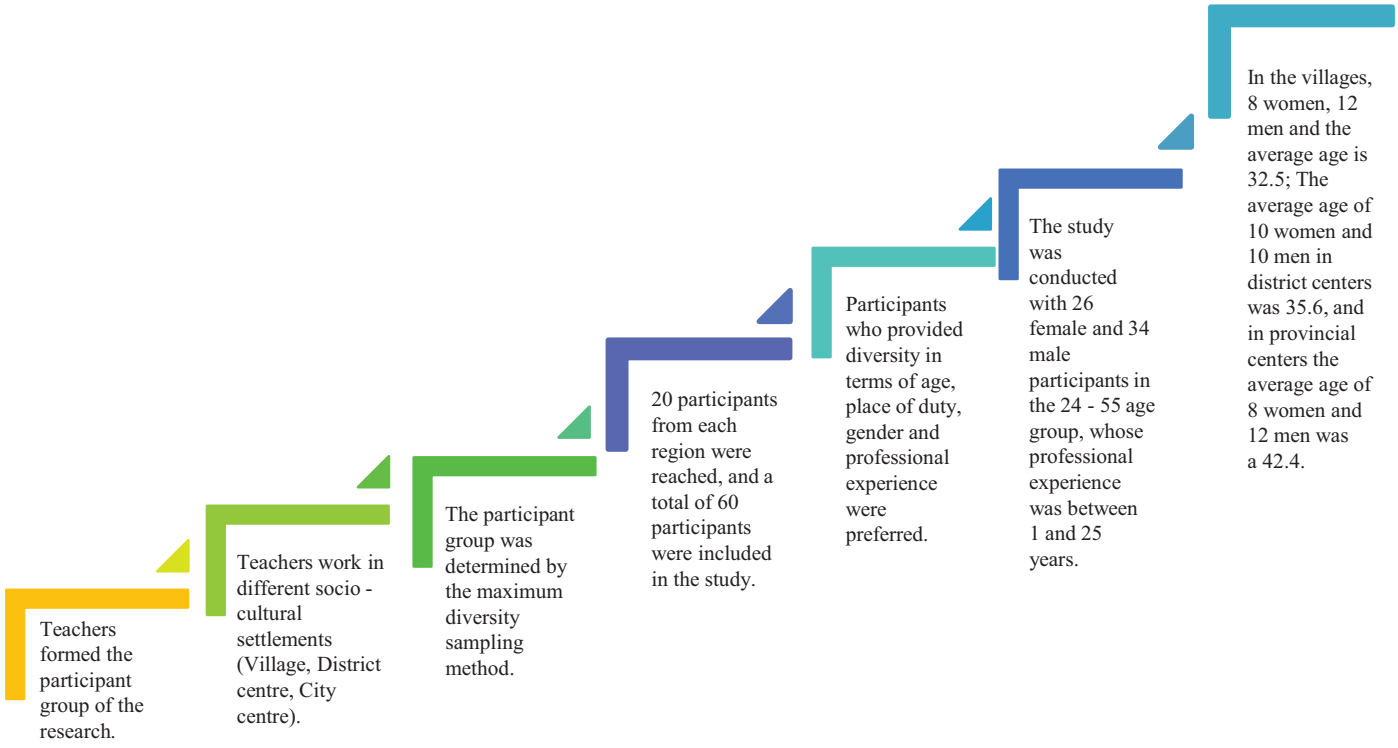

Figure 1.
Information About Participants.

age groups, professional experience, and gender groups from each region were included in the study.

Data Collection Tool

A semistructured interview form was developed by the researcher in order to determine and compare the experiences of science teachers in distance education and face-to-face education periods and their educational tendencies in these periods. The draft form of the form developed by the researcher consisted of 10 questions. After the draft form was prepared, expert opinions were consulted, and suggestions were received for its suitability to the scope of the study, its compatibility with grammar rules, and the arrangement of the interview time so that it would not be too long. With the arrangements made in the light of these suggestions, the number of questions was reduced to eight, and then a pilot study was conducted with five science teachers. In line with the interviews in the pilot application, some questions were changed, some questions were deleted, and the final form of the form was decided. The questions in the interview form are given in Figure 2.

Validity Reliability

As stated in the literature for the validity and reliability measures of the research, the data collection tool and process of the study should be clearly stated (Bogdan & Biklen, 2007; Brinberg & McGraft, 1985; Büyüköztürk et al., 2017; McMillan & Schumaher, 2010; Merriam, 2018), the participant group in which the research will be conducted should be voluntary (McMillan & Schumaher, 2010; Merriam, 2018), the reason for choosing the research method should be stated simply and clearly (Merriam, 2018), assumptions and limitations should be stated (Bogdan & Biklen, 2007; Büyüköztürk et al., 2017; Yıldırım & Şimşek, 2016), the description of the sample should be made (Brinberg & McGraft, 1985; Büyüköztürk et al., 2017; Yıldırım & Şimşek, 2016), and data analysis procedures should be explained (Brinberg &

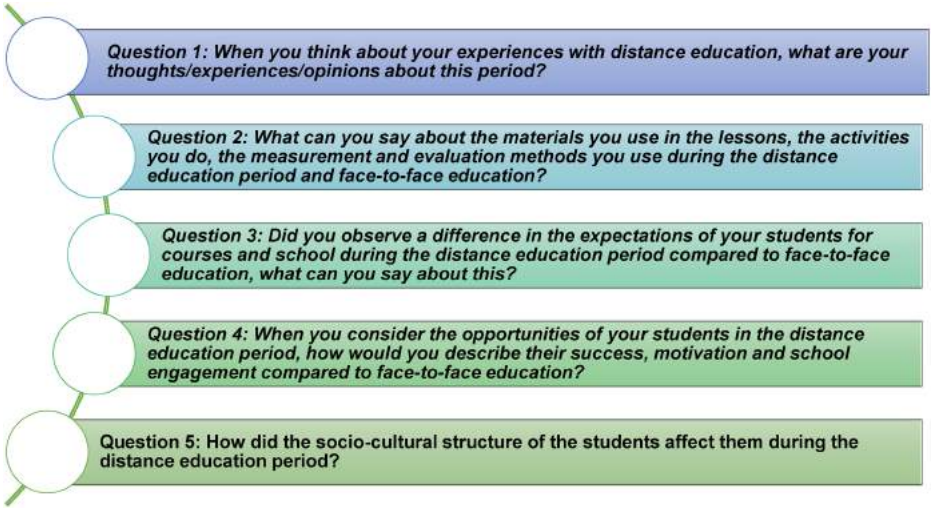

Figure 2.
Interview Questions.

McGraft, 1985; Büyüköztürk et al., 2017). The study was carried out by taking these validity and reliability measures.

Statistical Analysis

Content analysis, one of the qualitative data analysis methods, was used for the analysis of the data in the research. Content analysis is used to investigate the concepts that can explain the data and how they relate to the participants (Yıldırım & Şimşek, 2016). With content analysis, themes and codes related to the subject are determined, the relationships between them are revealed, and an in-depth examination of the subject takes place (Creswell, 2013). The face-to-face interviews of the researcher with the participants were recorded with a voice recorder, with the consent of the participants. The recorded data after the interviews were converted into text with the "sespro" software. While expressing the participants, V, D, and C were presented to indicate village, district, and city center, respectively. Moreover, M codes for male participants and F codes for female participants were used. Finally, the E code denotes experience and describes how many years the participants have served. For example, V_1ME_5 states that the first participant working in the village is male and has 5 years of professional experience. Sixty pages of text were obtained from the interviews. After the transcription of the data, the texts were given to the participants, and their consent was obtained to verify that the records were correct and complete, thus ensuring the reliability of the data. The codes and themes created in the content analysis were not determined beforehand but were created later with a holistic point of view according to the concepts specified by Strauss and Corbin (1990) and extracted from the data. After the transcriptions of the interviews, the content analysis units (code, category, and theme) were determined from these texts read by the researcher, which are repetitive, pointing out similar points and related concepts. The coding process was done in cycles. In this process, codes were determined with INVIVO and focused coding methods. The texts were also shown to another specialist with a doctorate in science education, and the Cohen kappa value between the two coders was checked. This value was calculated as .82, and it can be said that the agreement between the two encoders is high (Pallant, 2017). The units created after these inferences are presented by creating figures, graphs, and tables.

The Role of the Researcher

In qualitative research, the researcher is the person who personally goes to the field of study, has direct contact with the individual and society, and experiences the happenings. If the researcher plays a participatory role, he should clearly state this and, as much as possible, should be careful that his own assumptions and prejudices do not affect the data collection and analysis process (Büyüköztürk et al., 2017; Yıldırım & Şimşek, 2016). For this reason, the participant role of the researcher in the study was explained, and information about the researcher was included. Necessary validity and reliability precautions have been taken so that the researcher's participant role does not affect the research findings. The researcher works as a science teacher in a village school. It supports the view that there are disruptions in online learning activities due to limited opportunities and that students studying in village-like campuses are disadvantaged in this period. However, he thinks that it is important to continue face-to-face education in order to be less affected by the problems experienced due to online learning in sparsely populated settlements. But in this case, researcher thinks that some students and teachers cannot show the necessary self-sacrifice due to health concerns. The researcher does not know the participants individually. Face-to-face and individual interviews were conducted with the participants. The interviews were conducted in an appropriate section of the schools where the participants work. The interviews lasted an average of 20 minutes.

Results

The data obtained from the research participants were presented respectively within the scope of codes and themes research sub-problems.

Findings Related to the Sub-problem of "What Are the Teachers' Experiences and Opinions About the Process for the Courses Conducted with Distance Education due to COVID-19?"

The answers to the questions posed within the scope of the first sub-problem of the study were subjected to content analysis. The themes, categories, codes, and frequency values created are presented in Figure 3.

When Figure 3 is examined, it is seen that the data obtained from the participants are examined in the "student-based" and "other factors" categories under the "negative attitude" theme within the scope of the first sub-problem. The codes in the category of student-based factors are students' indifference, not responding, not taking responsibility, not being able to progress in the subjects due to lack of continuity, and repetition of the subjects due to lack of participation. Codes in the category of other factors are increased workload, lack of interaction, failure to conduct lessons efficiently, and become addicted to technology. When Figure 3 is examined, the participants have stated that students are indifferent due to the decrease in school commitment (f=47), students did not return because they did not complete their work (f=40), students did not take responsibility because they did not have grade anxiety (f=37), since there is no continuity in the students' participation in the lesson, the teachers cannot progress in the subjects (f=36), and they had to repeat the subjects for each new student because each lesson differs for the students who attend the lesson (f=29). In addition, the participants have stated that their workloads increased because it was difficult to deliver the worksheets to the students and it was difficult to control the status of the homework (f=54), the student-teacher, student-student interactions have decreased when compared to face-to-face education(f=52), students use phones and tablets more frequently due to distance education, which will lead to technology addiction(f=45), and also computers, tablets and phones used in distance education require internet access, but the problems that occur in accessing these tools to the internet cause systemic problems and these problems negatively affect the course efficiency (f=36). The statements of the participants who had a negative attitude toward distance education due to these findings are given below.

> *Since most of our students did not have internet, we were taking the worksheets home, which increased our workload. However, most of the time we could not get feedback for homework. Being away from school, it was difficult to follow the students. Our students were not fulfilling their responsibilities adequately (V_4ME_5).*

> *In the online lessons we held in distance education, the cameras of the students were turned off, moreover, we could not deal with the students individually, this caused less interaction, and we could not conduct the lessons efficiently due to systemic problems ($D_{17}FE_{10}$).*

> *Since students were given high grades without an exam in this period, they did not worry about grades. Therefore, they did not show the necessary attention to the lesson because they did not have academic success concerns (C_5ME_8).*

Resultson the Comparison of the Codes for the First Sub-problem for Teachers in Different Sociocultural Environments

The findings regarding the comparison of the answers given by the participants within the scope of the sub-problem are presented in Figure 4.

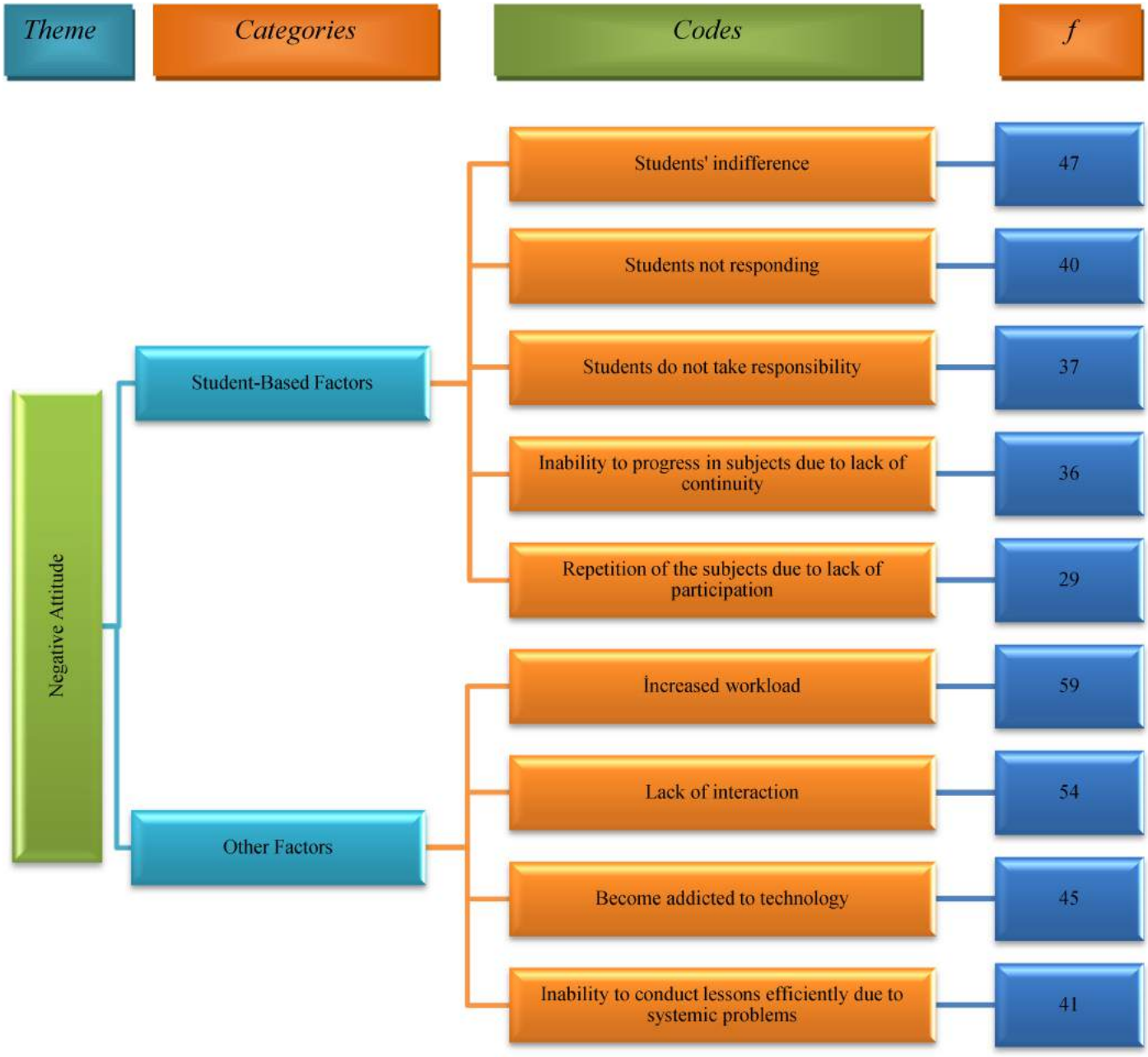

Figure 3.
Theme, Category, Codes, and Frequency Values of Teachers' Experiences Regarding the Effectiveness of Distance Learning Courses due to COVID-19.

When Figure 4 is examined, when the answers given by teachers in different settlements are compared within the scope of the sub-problem "What are the teachers' experiences and opinions about the process for the courses conducted with distance education due to COVID?" it is seen that village teachers have more problems.

ResultsRelated to the Answers of the Sub-problem "What are the Opinions of Teachers on Classroom Activities, Course Materials, Measurement, and Evaluation When They Compare the Face-to-Face and Distance Education?"

The answers to the questions posed within the scope of the second sub-problem of the study were subjected to content analysis. The themes, categories, codes, and frequency values created are presented in Figure 5.

When Figure 5 is examined, it is seen that the findings obtained from the participants are examined in the categories of "face-to-face education" and "distance education" under the theme of "educational environment" within the scope of the second sub-problem. It is seen that the codes in the face-to-face education category are notebooks, books, worksheets, experiments, EBA, e-books, simulations, and augmented reality and also that the codes in distance education category are e-book, simulations, online questions, video, EBA, PowerPoint presentations, Zoom, WhatsApp, mobile calls, worksheets, WordWall, Telegram, Skype, Quizlet, and Padlet. When Figure 5 is examined, it is seen that the educational technology, tools, and techniques used by teachers differ in distance education and face-to-face education. It is understood that the frequency of use of the teaching materials, techniques, or technologies used in both education situations changes.

> *I mostly use textbooks, notebooks and worksheets in face-to-face education. The worksheets include multiple choice, open-ended matching questions. Since our students' internet access is limited in distance education, we used to deliver worksheets to students*

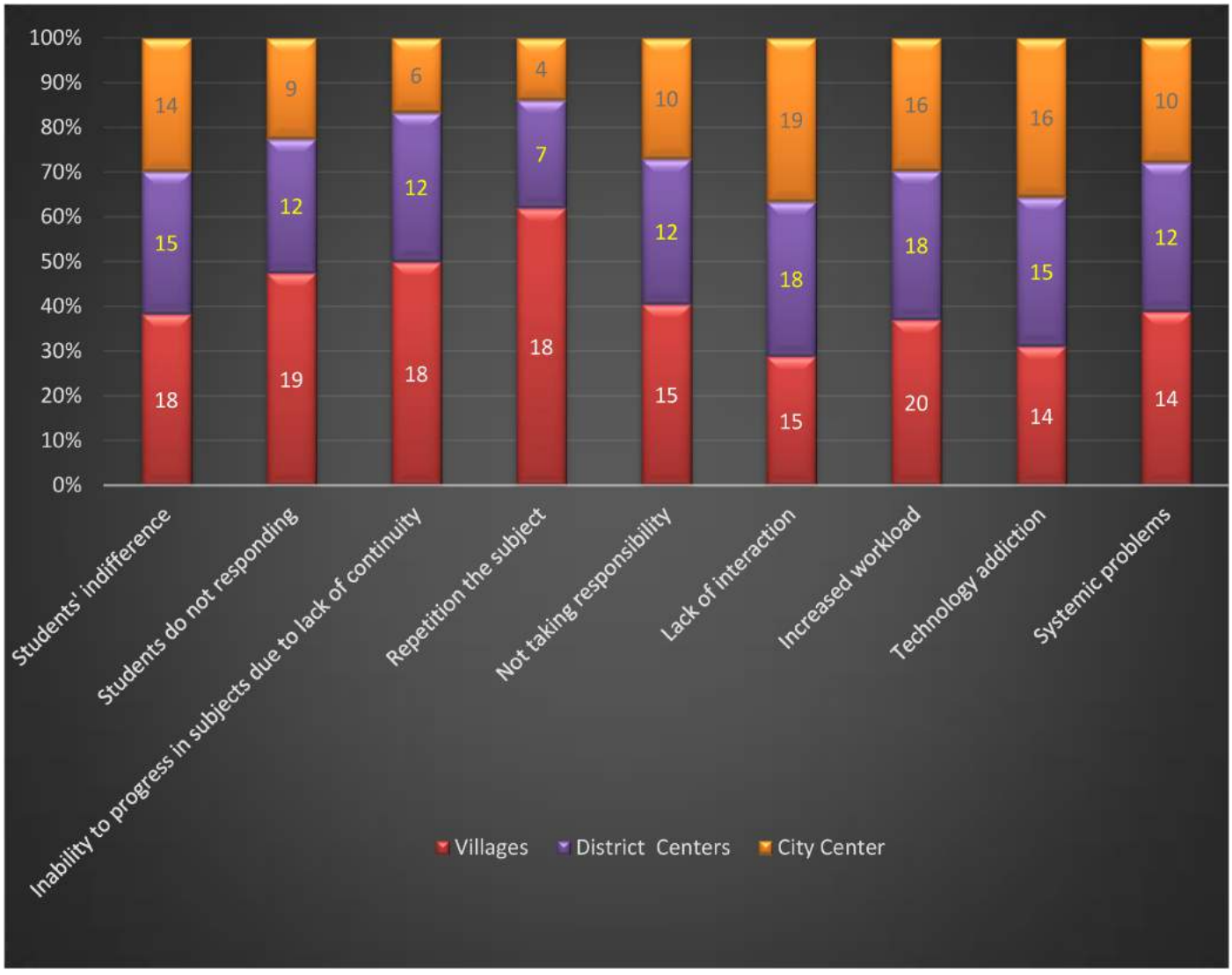

Figure 4.
Comparison of the Experiences and Opinions of Teachers in Different Sociocultural Environments Regarding the Distance Education Period due to COVID-19.

by hand. We used to send all the assignments via whatsapp, but we followed such a way because most students could not receive them, and I was calling some of my students who could not attend the lesson and giving lectures (V_8FE_3).

I mostly used e-books and powerpoint presentations and online questions in distance education. I was using experiments, simulations and worksheets in face-to-face education. I was teaching with the Zoom application, and I was also giving homework using the lectures and tests in EBA. I was also sending worksheets on Whatsapp ($D_{13}FE_4$).

I was using tools such as EBA, augmented reality, e-books in face-to-face training. I used e-books and powerpoint presentations in distance education. I used the padlet app to create the classroom environment. I used whatsapp, wordwall and quizlet applications for question solution (C_9ME_6).

Resultson the Comparison of the Codes for the Second Sub-problem for Teachers in Different Sociocultural Environments

The findings regarding the comparison of the answers given by the teachers within the scope of the sub-problem are presented in Figure 6.

When Figure 6 is examined, it is seen that written and printed materials are preferred and delivered to students in villages, and the use of technological opportunities is more common in districts and especially in city centers.

Results of the Answers to the Sub-problem "What are the Opinions of the Teachers About Their Students in the Distance Education Period When Compared to Face-to-Face Education?"

The answers to the questions posed within the scope of the third sub-problem of the research were subjected to content analysis and the generated code, category, and theme are presented in Figure 7.

When Figure 7 is examined, it is seen that the findings are examined in the categories of impressions about the lesson and impressions about the school under the theme of impressions. In the category of impressions for the course, it was determined that coding was done for low motivation, no expectation of success, lack of interest in the course, no grade anxiety, no desire to study, low participation in the course, and lack of continuity in course participation. In the category of impressions toward the school, it was observed that the codes of developing a negative attitude toward the school, having a problem getting used to the school, and decreasing commitment to the school

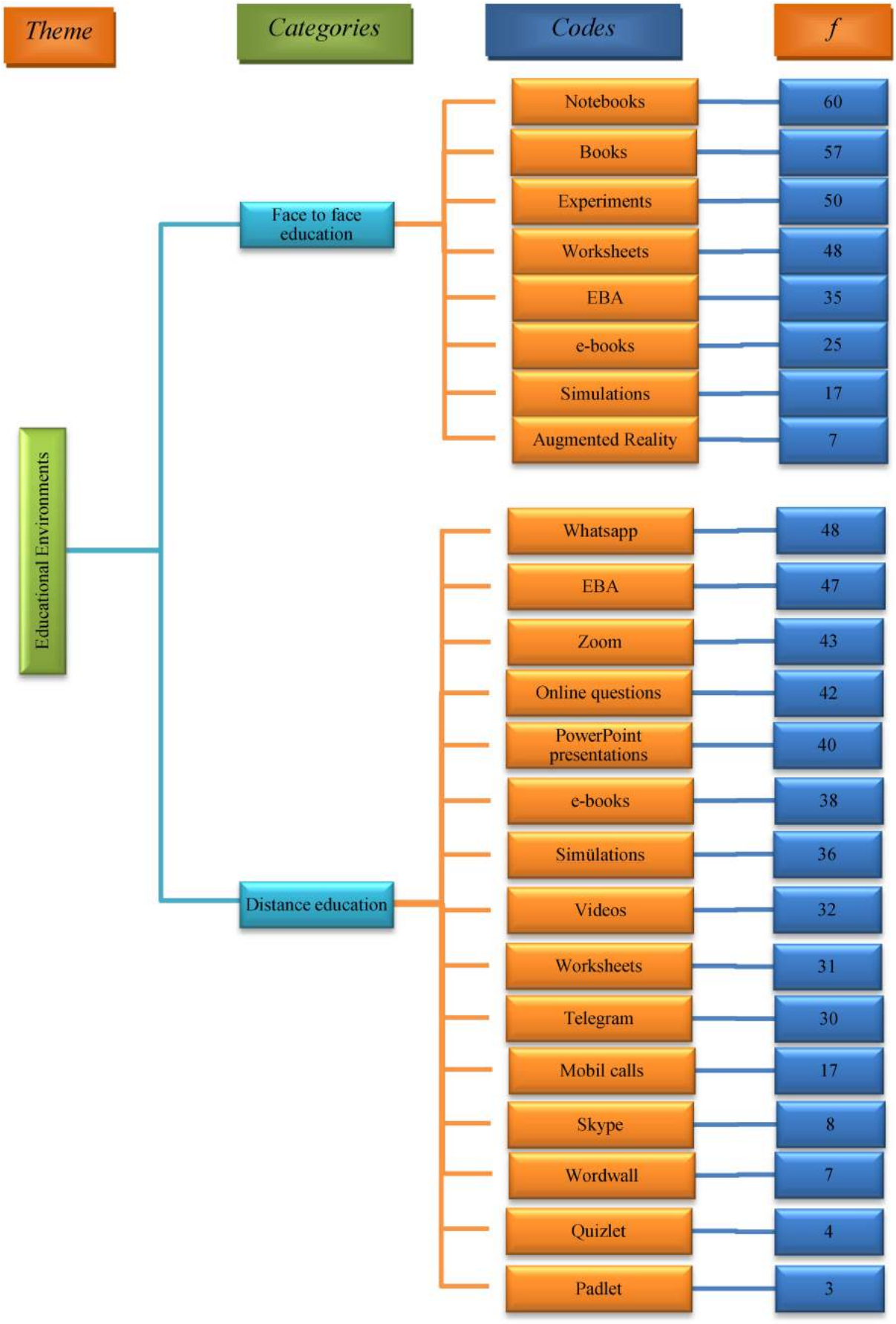

Figure 5.
Theme, Category, Codes, and Frequency Values of Teachers' Opinions on Classroom Activities, Course Materials, Measurement, and Evaluation When They Compare the Face-to-Face and Distance Education.

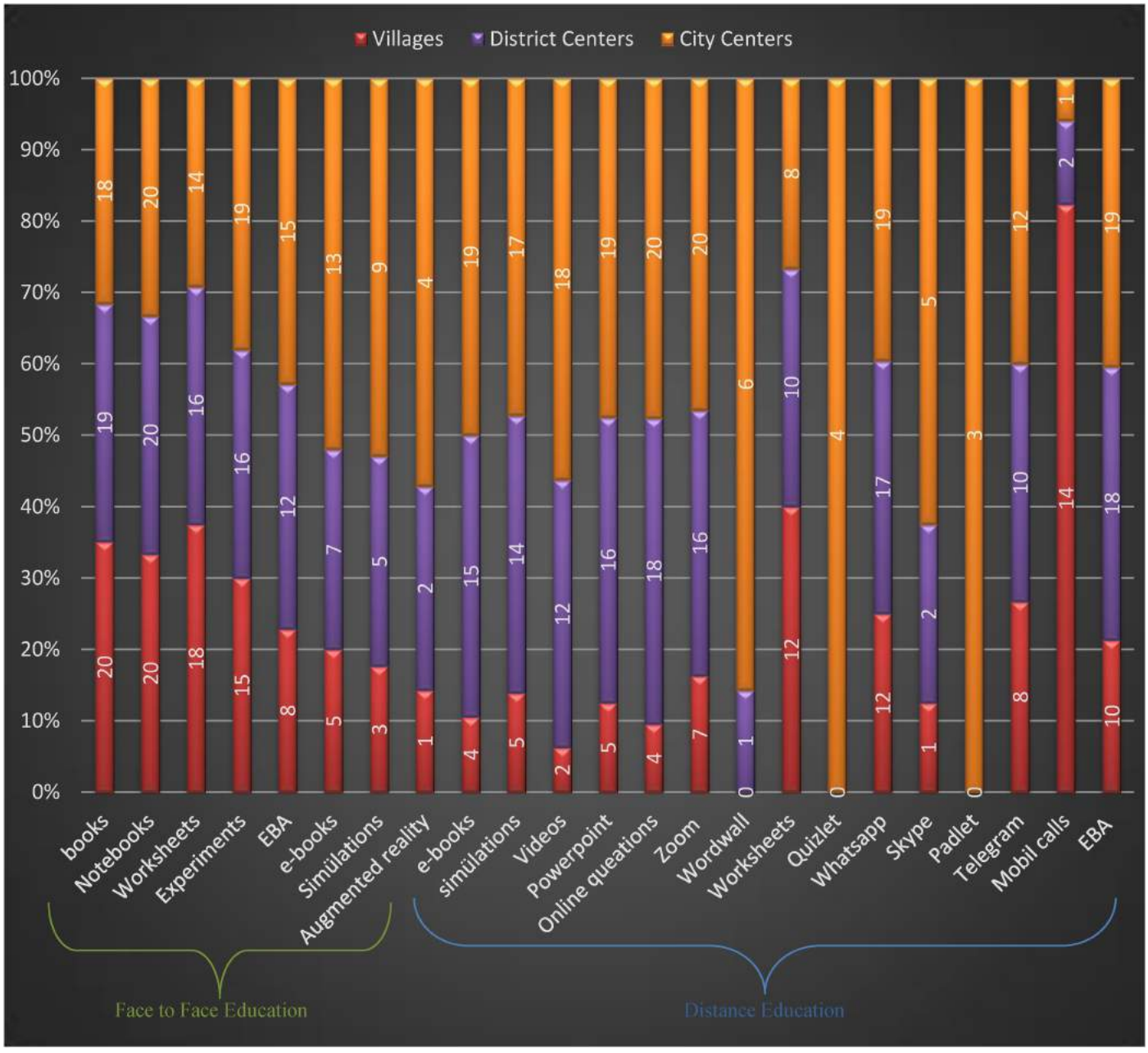

Figure 6.

Comparison of Teachers' Opinions on Classroom Activities, Course Materials, Measurement, and Evaluation When They Compare the Face-to-Face and Distance Education, in Terms of Teachers in Different Environments.

were found. When Figure 7 is examined, teachers have stated that there was no grade anxiety because students' learning is not measured (f=54), there was no expectation of success because the exams measuring the contents of the courses were not administered to the students (f=43), there was no continuity in their participation in the lessons because the students do not have to attend classes (f=42), the complex situations caused by COVID-19 reduced the motivation of the students towards the lessons (f=38), the students' desire to studyis lost due to the decrease in their motivation (f=37), since students have problems with internet and computer access, their attendance is low (f=36), (f=36), since continuity could not be ensured, their interest in the lesson decreased (f=33), their commitment to school decreased due to the periods when schools were closed (f=46), the problem of not getting used to school was caused by being away from school for a long time and recurrent closures (f=42), and they developed a negative attitude toward school due to health concerns (f=36). Below are the statements of the participants explaining this situation.

There was no attendance requirement during the COVID-19 period, this caused the students to not be able to attend the lesson continuously. A student who came to one lesson did not attend the other lesson. There was no expectation of success or grade concern because they got high grades without taking the exam, moreover, schools were tried to be kept open in our regions. After the closure, students had problems in adapting to school, habits of absenteeism and being late not doing homework ($V_{15}ME_3$).

Students passed the class with their first semester grades and there were some who passed the class without attending the class for a semester, this created a gap in the students. There was no striving for success, no worries about grades. Due to absenteeism, their interest in the lessons decreased. When schools were opened for short periods, students who did not come to school due to health concerns had a negative approach to school and there were disconnections in school commitment ($D_{19}FE_9$).

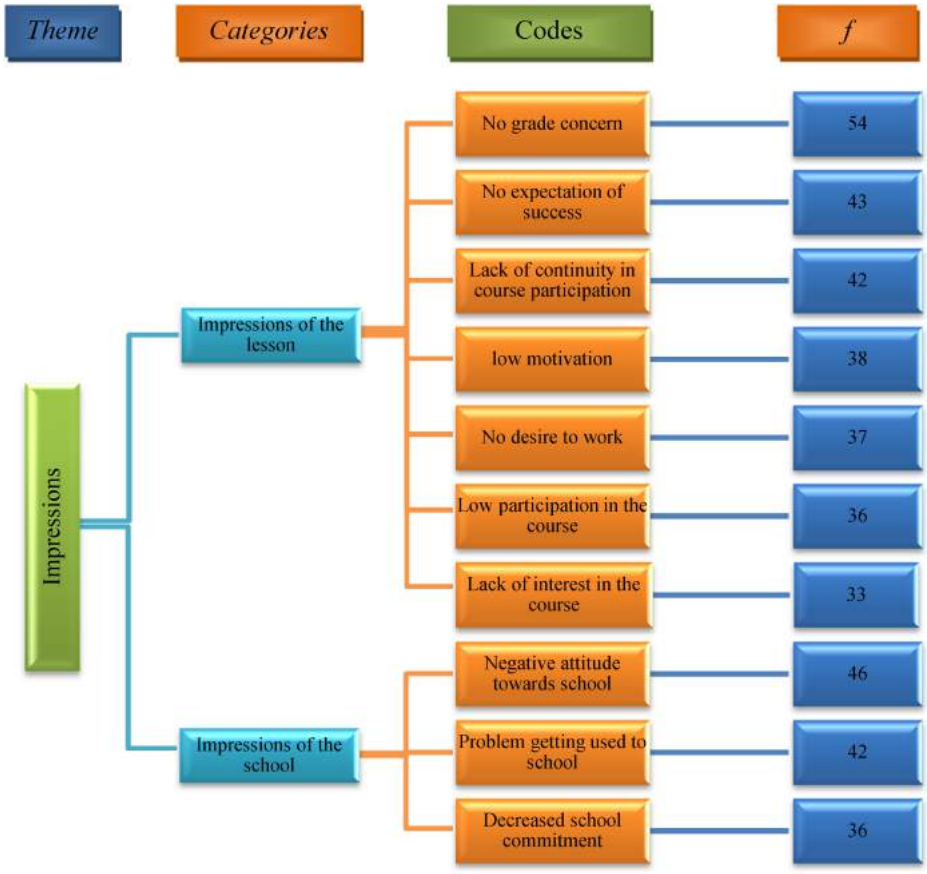

Figure 7.
Code, Category, and Theme Regarding the Opinions of the Teachers About Their Students in the Distance Education Period When Compared to Face-To-Face Education.

> *The participation rates of the students were very low compared to the face-to-face education and the students who participated were changing, and this was due to the absence of attendance requirement. There was also a decrease in motivation and interest. Unusual circumstances due to COVID-19 negatively affected their motivation. The lack of internet, tablets and phones in some of the students limited their participation in the lessons and their interest in the lessons was decreasing day by day.*($C_{20}FE_{18}$).

Results on the Comparison of the Codes for the Third Sub-problem for Teachers in Different Sociocultural Environments

The findings for the comparison of the answers given by the teachers within the scope of the sub-problem are presented in Figure 8.

When Figure 8 is examined, it is seen that village teachers stated that their students experienced more low motivation, less participation in the lesson, and no expectation of success, for the answers to the questions asked to compare the situations of students in distance education and face-to-face education. When Figure 8 is analyzed, while similar opinions were received in terms of grade anxiety in three different regions, it was determined that school engagement decreased more in city centers and the problem of getting used to school was also seen more frequently in city centers. Finally, it is seen that the problem of getting used to school is less experienced in villages, and this situation is more common in district and city centers.

Results of the Answers to the Sub-problem "How Did the Socio-cultural Structure of the Students Affect Them During the Distance Education Period?"

Within the scope of the fourth sub-problem of the study, the answers given by the teachers to the questions asked were subjected to content analysis, and the generated code, category, and theme are presented in Figure 9.

When Figure 9 is examined, it is seen that within the scope of the sub-problem "How did the socio-cultural structure of the students affect them during the distance education period?" the findings obtained from the opinions of the teachers were formed from the categories of technology, home environment, and contribution to the home economy in the "opportunities theme." It is seen that the codes in the technology category are mobile internet and internet speed is low, there is no internet infrastructure, there is no personal tablet, phone, computer, mobile internet has low quota and high cost, and the use of a parent phone. According to Figure 9, the codes in the home environment category are that there is no suitable room, the family is crowded, there no is studying desk, and the siblings have classes at the same time. The codes in the category of contribution to home economy are working in different jobs, working in agriculture, and helping parents. When Figure 9 is examined, the participants stated that the students participated in the online lesson by using their parents tablet/computer/phone as they do not have their own tablet/computer/phone (f=37); due to financial inadequacies, students do not have a personal tablet, phone, and computer (f=31); the mobile internet which is the type of internet access that students have, has low quota and yet its fee is high (f=27); students did not have internet infrastructure because their settlements are far from transportation centers (f=25); students use mobile internet due to the natural conditions of their settlements and the internet speed is low (f=22); students did not have a studying desk that will make their participation in courses more comfortable (f=41); students did not have a suitable study or courseparticipation environment because their house was small/stove (f=36); and those who had enough room could not

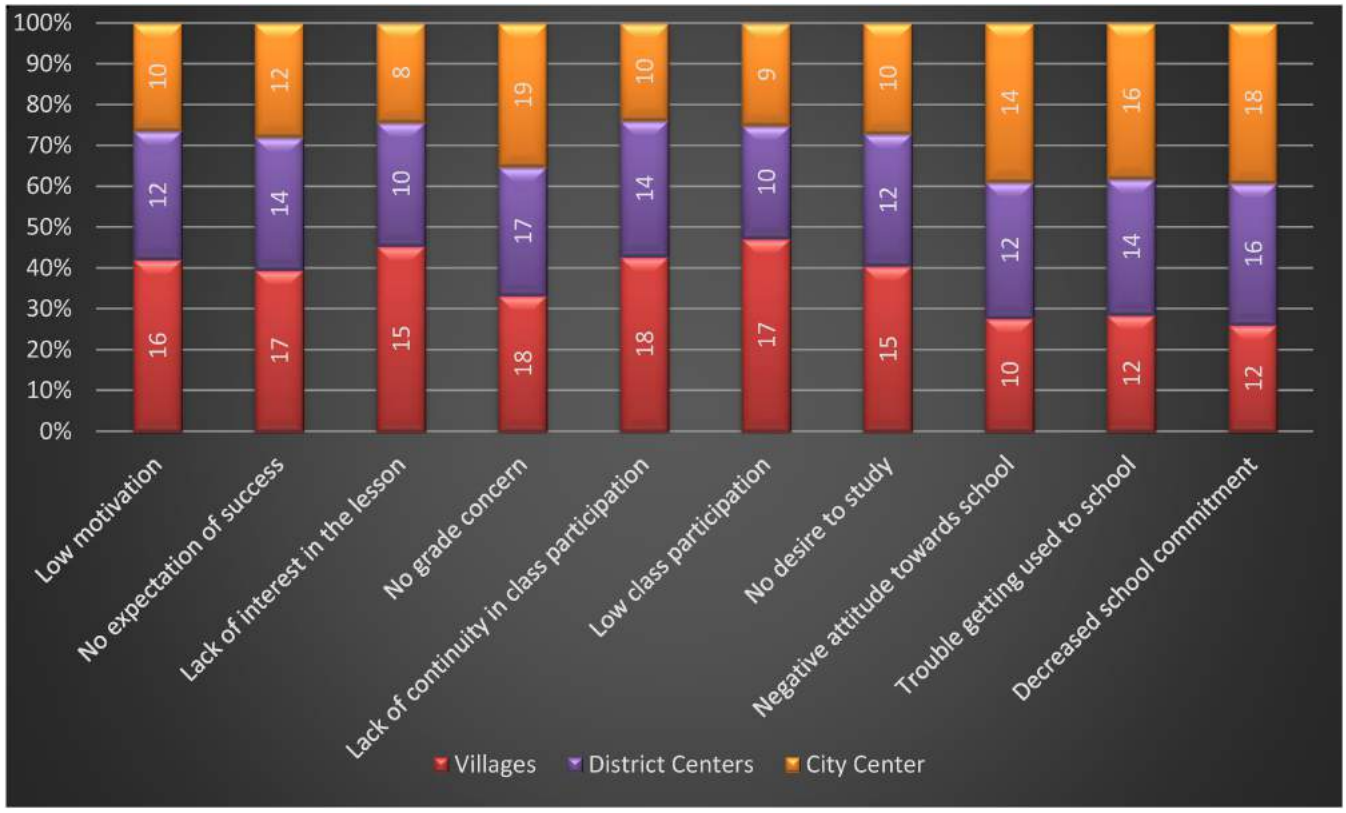

Figure 8.
Findings Regarding the Comparison of the Opinions of the Teachers About Their Students in the Distance Education Period When Compared to Face-To-Face Education.

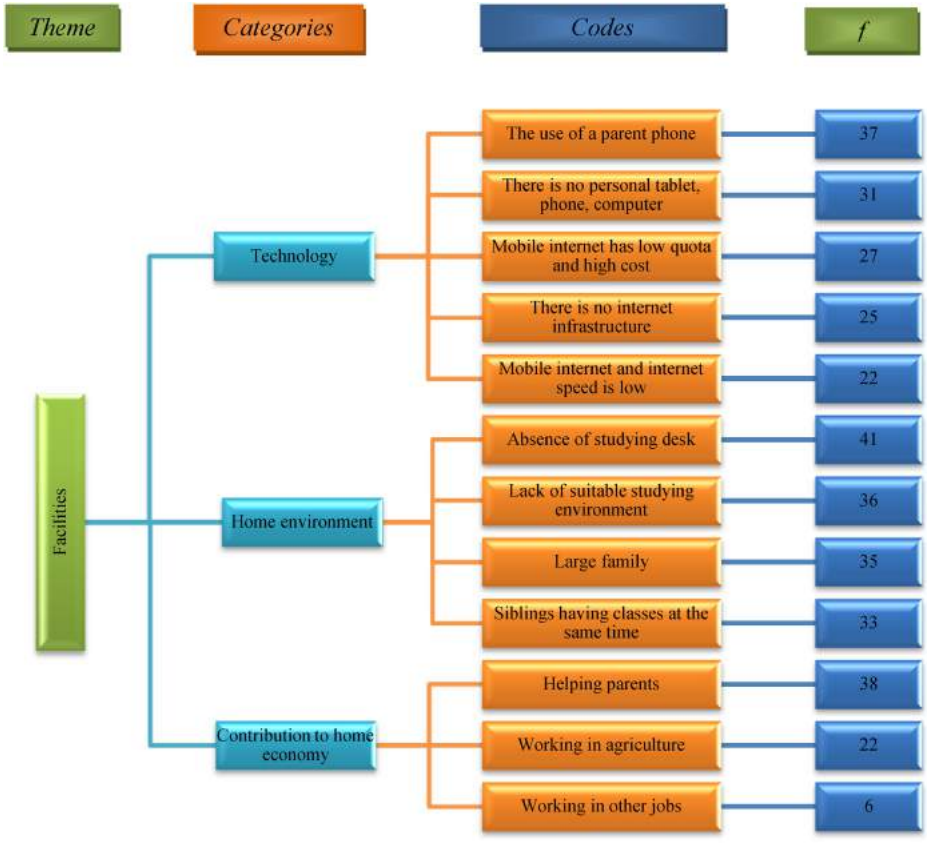

Figure 9.
Frequency Values of Themes, Categories, and Codes for the Sub-problem of How the Sociocultural Structure of the Students Affected Them in the Distance Education Period.

attend the lesson because their families were crowded (*f*=35); since students with more siblings use the same tool/environment, their lesson hours overlap with siblings (*f*=33); some families did not comply with the lesson hours and the students helped the parents because the they were at home (f=38); the students mostly worked in agricultural work during the lesson hours (*f*=22); those who had financial problems due to the fact that the students were at home during this period helped the family by working in different jobs (*f*=6). Below are the statements of the participants explaining these findings.

The school where I work is quite far from the city and district center. There is no fiber internet and infrastructure here. Children access the Internet with a mobile phone or VPN. However, their shooting power is not very good, they constantly freeze, we cannot conduct the lesson efficiently, and it is more expensive than normal and the quota ends early. Because of these, children cannot attend the lesson. Apart from these, most students use their parents' phones and families cannot use the phone during most of the lesson hours because they are engaged in agriculture or animal husbandry. They have to wait for their father or mother to come home or work in the field with them. Also, although families working as seasonal agricultural workers send their children to primary school, in some villages they are at secondary school level. The lack of school and their unwillingness to benefit from boarding or transport education cause these children to fall behind in education (V_9FE_1).

Most of the time, their siblings' classes overlap because they use the common phone or environment, only one of the siblings attends the lesson, the others cannot attend, and they take turns participating in that lesson. Another problem is that, since the houses have a stove, there is not a suitable environment for the children to attend the lesson, either there is no extra room, or because everyone is in the same environment, outside ambient noises are heard ($D_{11}ME_4$).

Students usually use the phone of one of their families to participate in the lesson in distance education, and most of them do not have a room or a desk that will enable them to attend the lesson efficiently for a long time, and it is not possible for them to learn something by looking at the phone screen for hours. In addition, because the children attended classes at home with the schools closed, some students went to the villages, others worked in different jobs, and most of them helped with hunting, of course, it's okay for them to be helpers, but in some cases it was a problem because they got in front of the classes ($C_{13}FE_{15}$).

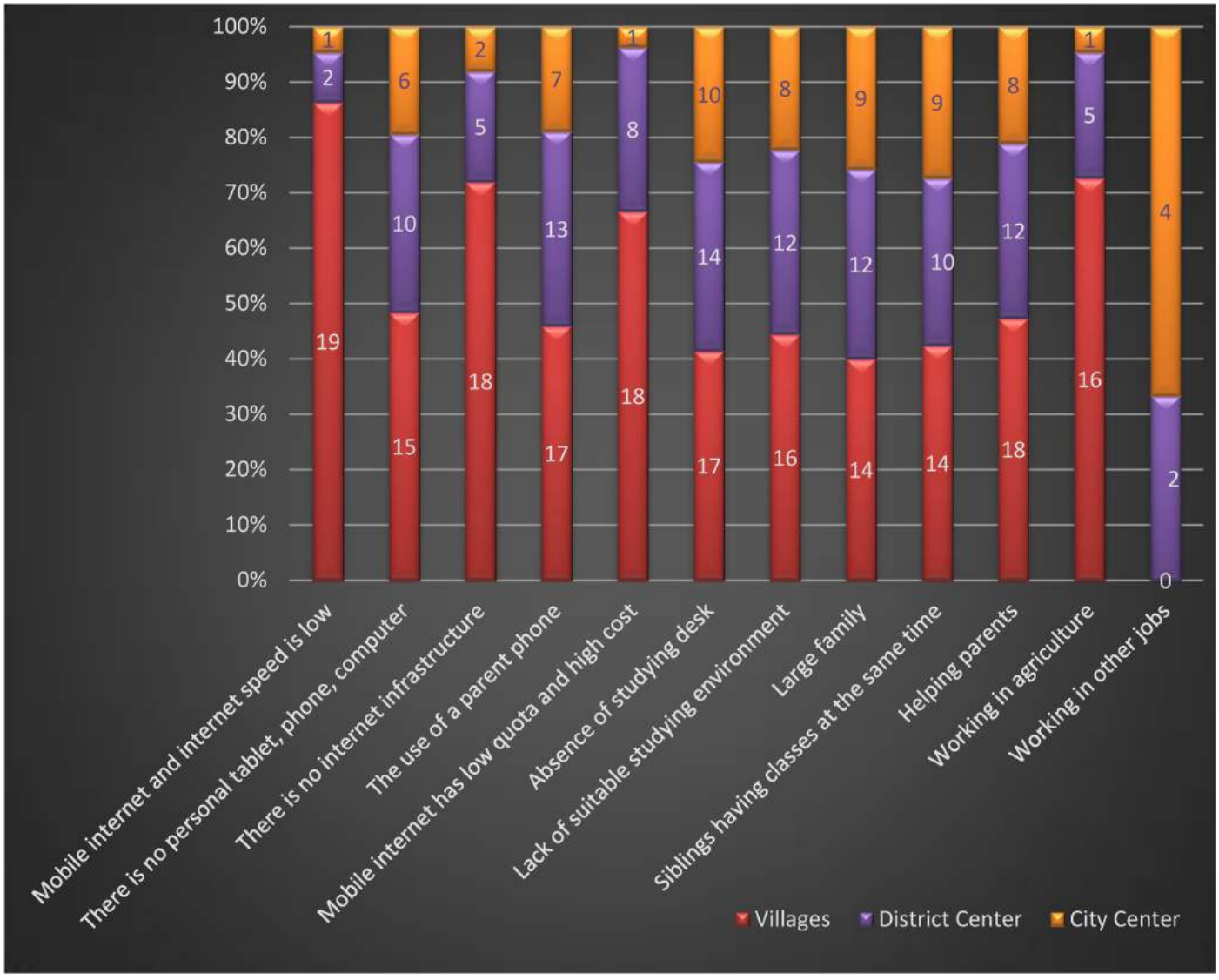

Figure 10.
The Findings on the Comparison of the Answers Given by the Participants Within the Scope of the Fourth Sub-problem of the Study.

Resultson the Comparison of the Codes for the Fourth Sub-problem for Teachers From Different Sociocultural Environments

The findings for the comparison of the answers given by the teachers within the scope of the sub-problem of the study are presented in Figure 10.

When Figure 10 is examined, it is seen that the answers given by the teachers within the scope of the sub-problem of how the sociocultural structure of the students affected them during the distance education period are compared in terms of different sociocultural regions. When we look at the coding according to Figure 10, it is understood that the rate of being affected by the mentioned situations in the villages has higher frequencies than the district and city centers. This situation is more common in district centers than in city centers. It was determined that only in the villages where there is no tendency in the villages in terms of working in different jobs, they worked in agricultural works. When these codes are examined, it is understood that the technological and infrastructure facilities in the villages are not yet at a sufficient level compared to the labor and city centers.

Discussion

According to the results obtained from the first sub-problem of the research, it was determined that the students, due to the decrease in their commitment to the school, their interest in the lessons decreased, they did not do the homework given in distance education and did not respond, they did not take responsibility because there was no grade concern, the teachers could not progress in the subjects of the lessons conducted with distance education because students participation in the lesson was not continuous, and the teachers constantly repeated the subject because the students attending the lessons differed. In addition, the participants have stated that their workloads increased because it was difficult to deliver the worksheets to the students and it was difficult to control the status of the homework, the student-teacher, student-student interactions have decreased when compared to face-to-face education and, students use computers, phones and, tablets more frequently due to distance education, which will lead to technology addiction. In these periods when internet, tablet, and phone were used, it was seen that the lessons could not be conducted efficiently due to internet-related problems and systemic problems. The teachers working in the villages complained more about the increased in workload, the students not returning for the homework given to them, the repetition of the subjects, the inability to progress in the subjects due to lack of continuity, the failure of the students to fulfill their responsibilities, the systemic problems and the indifference of the students. . It was seen that teachers in the city center focused more on the lack of interaction and becoming dependent on technology. The district center has average values in these results. It can be said that the problems that come to the fore in the villages are mostly due to the lack of transportation and infrastructure. Another reason here may be that the students work in seasonal agricultural works and are interested in animal husbandry. In the literature review, in parallel with the results of the study, the lack of interaction between students and teachers was emphasized in studies that compared distance education and face-to-face education (Alawamleh, et al., 2022; Boer & Asino 2022; Sohil & Sohail, 2022). While it was stated that the lack of interaction emerged as an important deficiency in terms of students, it was claimed that this did not affect the teachers (Alawamleh, et al., 2022); in order to solve the problem, it was stated that online applications and instant audio and video calls should be used to increase students' participation in the course. Finally, the inadequacy of teachers' skills in using the technological applications that emerged in this period may have caused them to have a negative attitude toward distance education. As a matter of fact, while Tengler et al. (2020) stated that 69% of teachers lack digital skills as a barrier to distance education, Runge et al. (2021) stated that the development of these skills is the greatest need to improve the process. Finally, the fact that teachers working in villages report more negative experiences can be explained by their lower motivation. As a matter of fact, teachers' motivations differ according to the students' participation in the lesson and their responsibilities related to the lesson (Helm et al., 2021).

According to the results obtained from the second sub-problem of the research, it was seen that the teaching tools, technologies, and techniques used by the participants in face-to-face education were notebooks, books, experiments, worksheets, EBA, e-books, simulations, and augmented reality. In distance education, on the other hand, the types of teaching technologies, tools, and techniques used and the frequency of their use differ, and these are WhatsApp, EBA, Zoom, online exams, PowerPoint presentations, e-books, simulations, lecture videos, worksheets, Telegram, mobile calls, Skype, WordWall, Quizlet, and Padlet. It has been observed that teachers working in villages prefer paper–pencil and printed materials more in face-to-face and distance education. It has been observed that teachers working in provincial and district centers, In addition to the techniques they use in face-to-face education since students studying in these regions have higher access to technological opportunities, they use EBA, WhatsApp, Zoom (etc.) applications more widely. In addition, it can be said that the frequency of use of WordWall, Quizlet, Padlet, and augmented reality applications is low, due to the fact that teachers are not sufficiently aware of new techniques and technologies, technological opportunities are not sufficient for the use of students, or teachers and students have problems in adapting to personal and academic conditions. While Perez-Lopez et al., (2021) stated that this adaptation problem differentiates the tools and materials used by teachers in their teaching activities, Eickelmann and Drossel (2020) stated in their study that the insufficient level of school and student facilities affects the techniques and technologies used. In the study conducted by Boer and Asino (2022), it was stated that teaching activities changed during the COVID-19 period and that teachers were reluctant to plan teaching activities due to health concerns in this period. These problems have differentiated the techniques and tools used in educational environments. In addition, Huber et al. (2020) stated that 31% of the teachers in the self-evaluation questionnaire were not competent enough to use digital teaching and learning styles; Diz-Otero et al. (2022), Eickelmann and Drossel (2020), and Lorenz et al. (2020), on the other hand, stated that teachers' digital skills are sufficient to offer very few learning opportunities in distance education. Finally, while 97% of young teachers state that using technology in the learning process is sufficient, although this is easy for 73% of experienced teachers (Schrammel et al., 2020), only 25% of teachers find it easy to use technologies used in distance education (Huber et al., 2020). For this, studies should be carried out to increase the motivation of teachers to plan their teaching activities, and also seminars should be organized within the scope of the use of alternative techniques and technologies that they can use in distance education.

According to the results obtained from the third sub-problem of the research, it was understood that the students did not have grade anxiety because the students were not given an exam. It has been determined that students do not have success expectations because they get high grades without an exam. Since there is no obligation to attend the course, it has been observed that there is no continuity in the participation of the students in the course. It has been concluded that the uncertainties caused by COVID-19 reduce the motivation of the students toward the lessons and the desire to study is lost due to the decrease in the motivation of the students. Due to the low level of internet and computer access of the students, it was determined that the participation in the course was low. In addition, it was observed that the students' interest in the lesson decreased due to the lack of continuity in participation in the lesson. It was observed that students' commitment

to school decreased due to the long-term closure of the schools, the problem of getting used to school due to being away from school for a long time and repetitive closures, and finally, students developed negative attitudes toward the school due to health concerns. In addition, students staying indoors for a long time due to curfews during this period caused them to experience emotional stress, and long-term changes in daily routines caused them to experience hopelessness (Shanahan et al., 2022). It can be said that these results have caused a decrease in their commitment to school, a decrease in their motivation, and a negative impact on their interest in the lessons. When the results are compared in terms of different sociocultural regions, while the villages are in the first place in terms of low motivation, lack of desire to study, lack of continuity in class participation, no expectation of success, low participation in the lesson, and lack of interest in the lesson, city centers also ranked first in terms of not having grade concern, developing negative attitudes toward school, having problems getting used to school, and decreasing school engagement. In terms of these results, district centers took values between the two regions. When the studies in the literature are examined, it is seen that there are studies stating that students' lack of motivation (Alawamleh, et al., 2022; Helm et al., 2021; Zizka & Probst, 2022) and their commitment to school decrease (Boer & Asino, 2022) in parallel with the results of the study. It has been stated that this situation negatively affects the learning of students in distance education (Alawamleh, et al., 2022; Boer & Asino, 2022). The fact that students experience more low motivation in villages can be explained by the lack of infrastructure (Eickelmann & Drossel, 2020) as well as by less family support (Helm et al., 2021). Generally, mothers provide learning support to children in primary and secondary schools (Helm et al, 2021); this support has been less felt since all family members are generally involved in agricultural work in rural areas and villages. It can be said that while there are institutions where children can receive support with different opportunities in district and provincial centers, the absence of these in villages has created an important shortcoming.

According to the results obtained from the fourth sub-problem of the research, it was observed that since students do not have a tablet/computer/phone, they attend the lesson using their parent's phone; due to financial difficulties, students do not have a personal tablet, phone, computer; there is no internet infrastructure because they are far from the settlements; they use mobile internet due to the natural conditions of the settlements, the internet speed is insufficient; mobile internet quotas are low and fees are high; they do not have work desks where they can effectively participate in classes for a long time; since their houses are small/with a stove, they do not have a suitable working or class participation environment; those with enough room could not attend the lesson because their families were crowded; since students with more siblings use the same tool/environment, their lesson hours coincide with their siblings; some families do not pay attention to the lesson hours and they help their parents because the children are at home during these hours; most of the time they work in village jobs during class hours; due to the fact that children are at home during this period, those with financial problems work in different jobs to help their families. When the results obtained from the fourth sub-problem are compared in terms of different sociocultural regions, while villages ranked first in terms of having mobile internet and low internet speed, lack of personal tablet/computer/phone, lack of internet infrastructure, using parent phone, not suitable working environment, lack of desk, crowded families, conflicting class hours with siblings, house for parents helping with their work, working in agriculture/livestock, the city centers ranked first in terms of working in different jobs. This can be explained by the families' perspective on education. Helm et al. (2021) stated that the family approach on distance education affects the education received by the student. In the literature review, it was not seen that the different socio-cultural regions were compared. Perez-Lopez et al., (2021) in his study with university students, students from families with low education levels have less opportunity to use digital technologies; Boer and Asino (2022), emphasized that the lack of infrastructure and lack of connection were an important problem in this period in parallel with the results of the research. For this reason, it is important to eliminate the infrastructure problem for distance education in all settlements. As a matter of fact, in this process that started with COVID-19, technology has been an important turning point in terms of education. The economic collapses that countries have experienced in the process and the restriction of their education budgets may create serious problems for education in the coming years; in order to prevent this, it is important that restrictions are not made in the field of education as much as possible (Norris, 2022).

Suggestions

The suggestions presented in line with the results obtained from the research are as follows:

- The study was carried out under pandemic conditions and can be repeated at the end of the pandemic in case the participants abstained due to health concerns.
- In order for students to fully fulfill their responsibilities regarding the courses during these periods, assessment and evaluation processes should be given importance.
- In the study, it was determined that the motivation of teachers and students is low, and in order to eliminate this problem, motivation-enhancing activities should be carried out for teachers and students in the new academic year.
- Studies can be conducted to show how well motivational states improve over time.
- Trainings can be given so that teachers have more information about the different technologies they can use in distance education.
- Online education and instant audio-visual messaging to increase student–teacher and student–student interaction in distance education activities should be emphasized.
- Measures should be taken to ensure continuity in distance education.
- Support training courses or similar practices should be expanded in the summer months in the villages.
- It is important to eliminate the closure problems of village schools, especially in order to bring the children who are engaged in agricultural work in the villages to education.

Ethics Committee Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Peer-review: Externally peer-reviewed.

Declaration of Interests: The author declare that they have no competing interest.

Funding: The author declared that this study has received no financial support.

References

Alawamleh, M., Al-Twait, L. M., & Al-Saht, G. R. (2022) The effect of online learning on communication between instructors and students during Covid-19 pandemic. *Asian Education and Development Studies*, *11*(2), 380–400. [CrossRef]

Archila, P. A., Restrepo, S., Truscott de Mejía, A. M. T., Rueda-Esteban, R., & Bloch, N. I. (2022). Fostering instructor-student argumentative interaction in online lecturing to large groups: A study amidst the Covid-19 pandemic. *Revista Eureka Sobre Enseñanza y Divulgación de las Ciencias*, *19*(1), 1–17. [CrossRef]

Aretio, L. G. (2021). COVID-19 and digital distance education: Pre-confinement, confinement and post-confinement. [Ried-revista IberoAmericana de educacion a distancia]. *RIED. Revista Iberoamericana de Educación a Distancia*, *24*(1), 9–32. [CrossRef]

Baber, H. (2021). Social interaction and effectiveness of the online learning–A moderating role of maintaining social distance during the pandemic COVID-19. *Asian Education and Development Studies*, *11*(1), 159–171. [CrossRef]

Bisht, R. K., Jasola, S., & Bisht, I. P. (2020). Acceptability and challenges of online higher education in the era of COVID-19: A study of students' perspective. *Asian Education and Development Studies*, *11*(2), 401–414. [CrossRef]

Boer, P. J., & Asino, T. I. (2022). Learning design experiences of the Namibian teachers during the COVID-19 pandemic: An ethnographic perspective. *TechTrends : For Leaders in Education and Training*, *66*(1), 29–38. [CrossRef]

Brinberg, D., & McGrath, J. (1985). *Validity and the research process*. Sage.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2017). *Scientific research methods*. Pegem.

Chen, T., Peng, L., Jing, B., Wu, C., Yang, J., & Cong, G. (2020). The impact of the COVID-19 pandemic on user experience with online education platforms in China. *Sustainability*, *12*(18), 7329. [CrossRef]

Creswell, J. W. (2013). *Research design: Qualitative and quantitative approaches*. SAGE Publications.

Diz-Otero, M., Portela-Pino, I., Domínguez-Lloria, S., & Pino-Juste, M. (2022). Digital competence in secondary education teachers during the COVID-19-derived pandemic: Comparative analysis. *Education + Training*. [CrossRef]

Duong, C. D., Ha, N. T., Le, T. L., Nguyen, T. L. P., Nguyen, T. H. T., & Van Pham, T. V. (2022). Moderating effects of Covid-19-related psychological distress on the cognitive process of entrepreneurship among higher education students in Vietnam. *Higher Education, Skills and Work-Based Learning*, *12*(5), 944–962. [CrossRef]

Dutta, S., & Smita, M. K. (2020). The impact of COVID-19 pandemic on tertiary education in Bangladesh: Students' perspectives. *Open Journal of Social Sciences*, *08*(9), 53–68. [CrossRef]

Eickelmann, B., & Drossel, K. (2020). School at a distance. Perspectives and recommendations for the new everyday school life. *A representative survey of teachers in Germany*. Retrieved from https://www.vodafone-stiftung.de/wp-content/uploads/2020/05/Vodafone-Stiftung-deutschland_Studie_Schule_auf_Distanz.pdf.

Helm, C., Huber, S., & Loisinger, T. (2021). Meta-Review on findings about teaching and learning in distance education during the Corona pandemic-evidence from Germany, Austria and Switzerland. *Zeitschrift Fur Erziehungswissenschaft : ZfE*, *24*(2), 237–311. [CrossRef]

Huber, S. G., Günther, P. S., Schneider, N., Helm, C., Schwander, M., Schneider, J. A., & Pruitt, J. (2020). COVID-19 und Aktuelle Herausforderungen in Schule und Bildung. *Erste Befunde des Schul-Barometers in Deutschland, Österreich und der Schweiz. Münster; New York*. [CrossRef]

International Labor Organization (2020). ILO sector summary: COVID-19 and the education sector. Retrived March 22, 2022, from https://www.ilo.org/wcmsp5/groups/public/ed_dialogue/sector/documents/briefingnote/wcms_742025.

Karaca, Y., & Ilkim, M. (2021). Investigation of the attitudes distance education of the faculty of sport science students in the Covid-19 period. *Turkish Online Journal of Distance Education*, *22*(4), 114–129. https:// https://doi:10.12669/pjms.36.COVID19-S4.2766. [CrossRef]

Lorenz, R., Lepper, C., Brüggemann, T., & McElvany, N. (2020). *Teaching during the Corona pandemic: Results of a teacher survey, Part 1, The Teaching*. Institute for School Development.

McMillan, J. H., & Schumacher, S. (2010). *Research in education: Evidence-based inquiry, My Education Lab Series*. Pearson.

Merriam, S. B. (2002). Introduction to qualitative research. In S. B. Merriam (Ed.). *Qualitative research in practice: Examples for discussion and analysis*. Jossey-Bass.

Merriam, S. B. (2018). Qualitative research. A guide to pattern and application. In Trans (Ed.). *Selahattin Turan*. Nobel Academic Publishing.

Norris, T. (2022). Educational futures after COVID-19: Big tech and pandemic profiteering versus education for democracy. *Policy Futures in Education*. [CrossRef]

Opere, W. M. (2021). Negative impacts of the current COVID-19 crisis on science education in Kenya: How certain can we be about the efficacy of the science learning framework online? *Journal of Microbiology and Biology Education*, *22*(1). [CrossRef]

Pallant, J., (2017). *SPSS user guide, step by step data analysis with SPSS* (S. Balci & B. Ahi, trans). ANI Publications.

Perez-Lopez, E., Atochero, A. V., & Rivero, S. C. (2021). Distance Education in COVID-19's period: An Analysis from the perspective of university students. *Ried-Revista İberoamericana de Educacion a Distancia*, 331–350. [CrossRef]

Runge, I., Rubach, C., & Lazarides, R. (2021). Digital competence self-assessment by teachers - What is the importance of school equipment and participation in further training in view of current challenges. *School leadership* [Yearbook] (pp. 228–242).

Schrammel, N., Tengler, K., & Brandhofer, G. (2020). Learning despite Corona. Opportunities and challenges of distance learning at Austrian schools. Results of teachers with professional experience compared to young professionals. *Open Online Journal for Research and Education*, *14*, 1–18.

Selçuk, Z. (2020). Details of distance education process. Retrieved from https ://www.meb.gov.tr/uzaktan-egitim-surecinin-detaylari/haber/21990/tr.

Shanahan, L., Steinhoff, A., Bechtiger, L., Murray, A. L., Nivette, A., Hepp, U., Ribeaud, D., & Eisner, M., Ribeaud, D., Eisner, M. (2022). Emotional distress in young adults during the COVID-19 pandemic: Evidence of risk and resilience from a longitudinal cohort study. *Psychological Medicine*, *52*(5), 824–833. [CrossRef]

Sohil, F., & Sohail, M. U. (2022). Measuring the impact of COVID-19 on distance learning for educational sustainability. *Cogent Education*, *9*(1), 2034248. [CrossRef]

Tengler, K., Schrammel, N., & Brandhofer, G. (2020). Learning despite Corona. Opportunities and challenges of distance learning in Austrian schools: Opportunities and challenges of distance learning in Austrian schools. *Media Impulses*, *58*(02), 37.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research*. Sage publications.

Vlachopoulos, P., & Jan, S. (2020). Exploring modes of lecturing as a teaching method in higher education: Student attendance, preference and motivation. *Journal of University Teaching and Learning Practice*, *17*(5), 222–240. [CrossRef]

Yazgan, Ç. Ü. (2022). Attitudes and interaction practices towards distance education during the pandemic. *Education and Information Technologies*, *27*(4), 5349–5364. [CrossRef]

Yıldırım, A., & Şimşek, H. (2016). *Qualitative research methods in the social sciences*. Seçkin Publications.

Yin, R. K. (2003). Designing case studies. *Qualitative Research Methods*, *5*(14), 359–386.

Zambrana, K. A., & Hart, K. C. (2022). Riesgo Y Resilienca: Exploring the role of parenting stress and self-efficacy on young latino children's well-being and home learning experiences during COVID-19. *Journal of Latinos and Education*, *21*(3), 212–223. [CrossRef]

Zizka, L., & Probst, G. (2022). Learning during (or despite) COVID-19: Business students' perceptions of online learning. *Quality Assurance in Education*. [CrossRef]