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Gizem Saygılı



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CHAPTER I

Evaluation of Development Plans in terms of Financing of Higher Education

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Problem Statement

Education is a concept that can be considered as the key to development. The share of educational levels in the implementation of development through education is great. The contribution of higher education, which is one of the educational levels, to development is higher than other educational levels. Because higher education has an impact on the economic, social and cultural aspects of development. In addition, higher education is seen as important in terms of directing society (Vidovich & Currie, 2011). However, changes in society over time have affected the structure of higher education (Groen, 2021). In particular, the increase in the number of students over time and the acceleration of scientific studies can affect economic indicators. Therefore, policy makers need to make arrangements that will take into account the impact of higher education on the economy. Because quality higher education brings

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with it qualified scientific studies and attracting more students (Daşçı Sönmez, 2023). In order for higher education to be qualified, resources must be sufficient. For this, higher education must include resources. Otherwise, it will be difficult for the middle class, especially, to access universities. As a solution, it can be suggested to utilize structures such as companies based on transparency, accountability and trust (Greer & Klein, 2010); the university should have a connection with the city and a structure that transforms its connection into a partnership with sectors such as industry (Acar, 2013).

The increase in demand for higher education also brings with it the demand for increased resources. Different and innovative methods need to be developed to increase resources (Giray & Bodur, 2019). Because universities operate largely with the budgets they receive from the state. The lack of alternative resource production in higher education reduces the effectiveness of higher education. In addition, it is important to produce resources in the long term (Krishnan, 2021). In addition to these, the increasing number of students, increasing costs, economic slowdown, and the increase in the number of elderly people create problems in the financing of higher education (Salmon, 2020). In overcoming the problem, governments have responsibilities in financing higher education. Governments should encourage and control investments in the field of higher education. Thus, a contribution can be made to economic growth and quality higher education (Alshubiri, 2021). In Türkiye, students' credit needs are being met through the Credit and Dormitories Institution. However, the current structure is insufficient to meet the need (Yakut-Özek & Akbaşlı, 2021).

In order to understand the financing dimension of higher education, it is necessary to understand the economic return of higher education at the international level. The economic return of higher education should be revealed with research conducted and to be conducted at the international level (Croucher et al., 2019). Because the resources provided to higher education and the socio-economic environment that higher education has can be a policy tool

that can provide sustainable development to the society in the long term (Câmpeanu et al., 2017). The financing of higher education is included in the development plans. However, there is a mismatch between the objectives and policies in the development plans. Therefore, the education planning made does not meet the educational needs of the society. The deficiencies experienced through development plans in education planning have been one of the obstacles to economic development (İnanç, 2023).

Considering that an increasing share is allocated from the budget to education (Aslan & Yılmaz, 2021), the positive impact of development plans on the economy and society in quantitative and qualitative terms can be better understood. In other words, development plans directly contribute to the welfare of the society (Çelik & Çetiner, 2019). When the interaction between the development plans and the financing of higher education is examined, it is understood that higher education supports the economy and development in OECD countries (Daşçı Sönmez, 2023). It can be said that the share allocated by the public to higher education in OECD countries tends to decrease; private resources tend to increase (Giray & Bodur, 2019). Despite this, there are problems in the financing of higher education. For example, the student loan debt of the USA is around 1.6 trillion dollars (Salmon, 2020). The importance of the problem can be better understood because the financial source of higher education in countries such as the USA, Japan and England is mostly private resources (Yakut-Özek & Akbaşı, 2021). In addition, the fact that the financing of higher education can affect the relations between Austria and China (Croucher et al., 2019); the need for different, sustainable and long-term models in the financing of higher education (Alshubiri, 2021) shows the importance of researching the subject. The mentioned studies emphasize that the financial dimension should be taken into consideration for quality higher education.

The purpose of this research is to examine development plans in the context of financing higher education. In this context, the following questions were sought:

1. From which perspectives is the financing of higher education addressed in development plans?
2. Which points come to the fore in the context of financing higher education in development plans?

Method

The qualitative research method was used in the study because it was aimed to make inferences about the financing of higher education based on the education-related sections of the development plans. The aim of qualitative research is to reach systematic and new meanings about the subject under investigation (Merriam, 2015; Yıldırım & Şimşek, 2011). In the study, meaningful inferences were also made with the document analysis used in qualitative research. Official publications and reports such as legislation, strategic plans, development plans can be used as data sources in qualitative research (Christensen et al., 2015; Patton, 2014). The sections related to higher education in the development plans were taken into consideration during the document analysis. The researcher obtained data from the keywords “higher education” and “university” in the education-related sections of the development plans –Table 1- and then conducted the analysis. Since open access can be provided to the data sources to be used in the study, it was not deemed necessary to obtain permission from ethical perspectives. Development plans are coded as “DP” in the text. For example, the 1st Development Plan was coded as 1st DP. Descriptive analysis was also used in the study. The application of descriptive analysis in the study was in the form of direct quotation of the sections related to the financing of higher education in the development plans. The aim of descriptive analysis is to be able to directly reveal the situations related to the subject (Patton, 2014; Yıldırım, Şimşek, 2011). Inferences were made based on the articles related to the financing of higher education in the sections related to education in the development plans. A five-stage process was applied in the study. This process is as follows:

1. Review of development plans,

2. Determining the sections related to the financing of higher education in the sections related to education in the development plans and rereading these sections,
3. Analyzing the sections related to the financing of higher education in the sections related to education in the development plans,
4. Making inferences from the analyses made in line with the purpose of the research,
5. Presenting the inferences and reviewing the process.

Findings and Comments

Data on the financing of higher education in development plans are shown in Table 1.

Table 1: Financing of higher education in development plans

DP	Period	Section /Item (HE)	Page No	Highlights of Financing Higher Education
1	1963-1967	7	457,460, 464-467	Scholarship-Loan Usage, Personal Rights, R&D
2	1968-1972	6	170-175	Scholarship-Loan Usage, R&D
3	1973-1977	4/12	723,726, 728-729, 764-772	Creating Resources, Scholarship-Loan Usage
4	1979-1983	2/5	449-452, 454-455, 458-459	Use and Organization of Resources
5	1985-1989	4/6	140, 145-147	Savings and Investment
6	1990-1994	4	293, 295-296	Use and Organization of Resources, Providing a Collaboration Environment
7	1996-2000	3	23-25, 28-30, 32-33	Legislation (Structural Regulation)
8	2001-2005	8	82-85	Legislation (Structural Regulation), Use and

				Regulation of Resources, Use of Scholarships and Loans
9	2007- 2013	592,59 6, 598,60 1	86-87	Legislation (Structural Regulation), Use and Regulation of Resources, Use of Scholarships and Loans
10	2014- 2018	137,13 9,156, 161- 165	31-34	Legislation (Structural Regulation), Use and Regulation of Resources, Contribution of the Private Sector, Providing a Cooperation Environment
11	2019- 2023	552.5, 560- 563	127,131	Contribution of the Private Sector
12	2024- 2028	680.3, 682- 693	162-166	Providing a Collaboration Environment, Financial Sustainability, Use and Organization of Resources

(Source: www.sbb.gov.tr address was used.)

From Table 1, it is understood that development plans have been prepared 12 times since 1963. It is seen that there are different dimensions of financing higher education in development plans. Scholarship-credit, use and regulation of resources, and taking resource-increasing measures come to the fore. In the last 20 years, it has been important to include the private sector in the process more. The data regarding the financing of higher education in development plans are as follows:

Financing of higher education in the 1st DP

Financing of higher education in the 1st DP; issues regarding the budget of higher education, producing financial solutions in cooperation with other institutions, providing financial relief to students, conducting research and studying and training qualified people for economic development were taken into consideration. Since the plan was prepared considering the socio-economic conditions of the period, efforts were made to ensure social justice and equality in education with measures such as scholarships and loans. The articles on the subject are as follows:

“(III) In the plan period, scholarship opportunities will be increased to a great extent at every level of education in order to train talented but limited young people.” (p. 457)

“(2) Institutions of higher education:

Research expenses in institutions of higher education were removed from their budgets as a whole. A certain portion of the salaries of faculty members in these institutions, institute expenses and the section allocated to research and study in the budgets were accepted as the expenses allocated by institutions of higher education to research. This amount is around 59 million TL.” (p. 465)

Financing of higher education in the 2nd DP

The 2nd DP includes economic measures for students whose socio-economic level needs support in receiving a high-level education such as university as a requirement of the state's role as a social state - the scholarship and credit system. It is also seen that a step has been taken in the 2nd DP to support the education and research role, which is one of the basic functions of universities. The articles on the subject are as follows:

“Resources will be provided to increase the education and research power of universities.” (p. 172)

“However, a system will be developed that will encourage and direct these students to continue higher education in their own fields in order to close the manpower gaps and prevent waste of resources.” (p. 172)

“Credit, dormitory and scholarship opportunities are the most important tools to ensure social justice and to realize equal opportunities in education. A wide scholarship system will be established that will allow successful students with insufficient income to advance to the highest levels of education.” (p. 176)

Financing of higher education in the 3rd DP

The financing of higher education in higher education was addressed in the context of both quality-training qualified personnel- and quality-developing physical conditions-resource transfer. The importance of developing economic conditions for increasing quality in higher education was revealed. It was revealed that quality in higher education is multidimensional and financing is one of the important conditions for ensuring quality. In addition, it is seen that the scholarship-credit method, which was accepted as a basis in previous development plans as a reflection of the social state understanding, was continued for students with insufficient financial situation to gain higher education. The articles on the subject are as follows:

“1493. In order to train a large number of technical and professional personnel in higher education in a short time, the allocation allocated to these schools was kept high.” (p. 728)

“1604. It was envisaged to develop existing higher education institutions and open new ones for the necessary capacity increase in the Second Panda higher education level. In realization, capacity developments in public higher education institutions have fallen short of targets.” (p. 764)

“1611. In order to ensure quantitative and qualitative development in higher education... some studies have been carried out on issues such as the regulation of legislation that restricts the development of institutions in financial terms... but sufficient results have not been obtained.” (p. 767)

“1613. Apart from the lags in the realization of the higher education targets of the First and Second Plans, it is seen that the Turkish higher education system in general does not have a quality that sufficiently supports economic, social and cultural development.” (p. 768)

“1624. Higher education will be directed in a way that will train highly qualified personnel required for the economic, social and cultural development to be achieved at the end of the long term.” (p. 769)

“1633. In order to ensure equal opportunities in education, efforts to provide students with loans, scholarships and dormitories in higher education will be developed and social and health services will be provided for higher education students.” (p. 770)

“(vi) They will conduct research and programming studies and make recommendations on ensuring that the standards of structure and cost that take into account the development and change of educational programs and student capacity in university and college constructions are followed in the planning and implementation stages of physical investments.” (p. 772)

“(6) The fee system applied in higher education will be rearranged in a way that will contribute to the expenses of higher education in line with the provision of scholarships and loans to students who do not have financial means.” (p. 772)

Financing of higher education in the 4th DP

In the 4th DP, there is a restructuring aimed at reorganizing resources based on the problems caused by the ineffective and efficient use of resources experienced in previous development plans. For this, a reorganization within the institution is deemed necessary. The article on the subject is as follows:

“(2) Higher education institutions will be reorganized according to their theoretical qualities based on the principle of integrity and the department system at the university level, in a way that will eliminate dilemmas in terms of their functions and prevent waste of resources.” (p. 458)

Financing of higher education in the 5th DP

The 5th DP also includes reshaping resources based on the principle of savings. In addition, efforts are being made to develop a higher education approach based on needs by developing financial models specific to universities. Investments are also determined

according to the needs of the university. The relevant article is as follows:

“567. Separate development plans will be made for universities so that they can reach their student capacities and the necessary qualifications in a timely manner and use their budget opportunities with maximum savings, and investments will be directed accordingly.” (p. 146)

Financing of higher education in the 6th DP

Two points stand out in the 6th DP. The first is the effort to put forward a solution proposal for increasing and organizing resources. It provides the opportunity to try different methods in terms of resources. Secondly, it is planned to pave the way for the university to produce its own resources in a way by cooperating with the environment, especially the industrial sector, in order to increase resources. It is stated that efforts should be made to create the necessary conditions for this. The articles related to the subject are as follows:

“835. The financing structure of higher education will be improved and support will be provided from non-budgetary sources and the use of revolving funds as a resource will be activated.” (p. 295)

“836. Legal, economic and structural regulations will be developed to establish university-industry cooperation. Applied training programs will be organized to increase entrepreneurial skills within universities.” (p. 296)

Financing of higher education in the 7th DP

In the 7th DP, it is deemed necessary to make structural arrangements by reducing bureaucracy as an obstacle to higher education. In addition, a flexibility approach is adopted in order to better manage resources. The need for legal arrangements is emphasized for this. In this way, it is aimed to reach the necessary resources better and faster. The articles on the subject are as follows:

“In order to save higher education from the centralized and bureaucratic structure; to increase the authorities of university and faculty management boards...necessary changes will be made in Law No. 2547.” (p. 33)

“In order to create a flexible structure in terms of income generation and spending, arrangements will be made in the legislation regarding revolving funds.” (p. 33)

Financing of higher education in the 8th DP

The 8th DP emphasizes that the problem emphasized in the previous plan - excessive bureaucratic structure - has not been solved and therefore the current problem continues. Therefore, it is stated in the 8th DP that efforts should be made to reorganize and solve the same problem. The fact that bureaucracy is an obstacle and negatively affects many areas such as financing is evident in the plans - the 7th and 8th DPs. In addition to reducing bureaucratic influence, the plan accepts new and developing solutions to solve the resource problem as the basis. In addition, the impact of scholarships and loans on the financing of higher education continues. The articles related to the subject are as follows:

“673. Higher education institutions have not been saved from bureaucratic and centralized structures; a competitive environment has not been created between universities as well as within universities; the authorities of university and faculty administrations have not been increased; the participation of academicians and research assistants in management, the necessary scientific autonomy and university-industry cooperation have not been sufficiently provided.” (p. 82)

“694. Higher education will be saved from bureaucratic and centralized structures, regulations will be made to develop competition in the system, and the administrative, financial and scientific autonomy of universities will be strengthened. The Council of Higher Education will be provided with a structure that will carry out long-term planning and coordination functions at a high level.” (p. 84)

“698. Financing resources will be developed and diversified in higher education institutions; an effective fee-scholarship-credit system will be established and it will be ensured that the contribution fees received from students for education, depending on their ability to pay, will become one of the sources of financing higher education.” (p. 84)

“705. “The necessary arrangements will be made to free higher education from its bureaucratic and centralized structure and to provide it with a structure responsible for long-term planning and coordination; to develop competition in the higher education system and to strengthen administrative, financial and scientific autonomy.” (p. 85)

Financing of higher education in the 9th DP

The financing of higher education in the 9th DP has been set forth in a manner similar to the principles set forth in the 8th DP. It is accepted as a principle to make reforms to provide resources, to continue the scholarship-credit approach and to make arrangements that include these principles and especially take into account the student dimension in higher education. The article on the subject is as follows:

“596. Financing resources in higher education institutions will be developed and diversified; arrangements will be made to increase the share of student contribution fees in the financing of higher education, provided that scholarships and loans are provided to successful students who do not have financial means.” (p. 87)

Financing of higher education in the 10th DP

The proposals including structural arrangements for the effective and efficient use of resources in the 10th DP were repeated as in other plans. However, in this plan, there is an incentive to increase the impact of the private sector in terms of more financing. In addition, a solution based on university-industry cooperation, which was also mentioned in the 6th DP, stands out as an innovative solution. Thus, it is aimed to both diversify and increase income. The articles on the subject are as follows:

“156. Alternative financing models in education will be developed, the private sector will be encouraged to open educational institutions, and the active participation of the private sector and professional organizations in the vocational education process in administrative and financial terms will be encouraged.” (p. 34)

“164. Transforming higher education institutions into an output-oriented structure that emphasizes technology production in

cooperation with industry will be encouraged, and entrepreneurial activities and income sources will be diversified.” (p. 35)

Financing of higher education in the 11th DP

The 11th DP focused on the private sector aspect of higher education. In addition, the problem of increasing the quality of academic staff was emphasized. The understanding that financial and social rights are indispensable and should be emphasized for qualified higher education is emphasized. The article on the subject is as follows:

“562.2. Regulations will be made to bring the minimum level of financial and social rights of academic staff of foundation higher education institutions to the same level as the staff with equivalent cadres in state universities.” (p. 130)

Financing of higher education in the 12th DP

In the 12th DP, it is expected that the financing of higher education will be addressed together with secondary education and a solution will be produced by considering both human and material infrastructure. In addition, principles that will solve the financing problems of universities within themselves are adopted. For this purpose, it is suggested that the cooperation with the environment specified in the 6th and 10th DPs be effectively activated. In addition, different solution proposals such as aid, donation and performance-based allowance are addressed in the context of financing of higher education. The articles related to the subject are as follows:

“680.3. In order to meet the need for qualified labor, vocational high schools, especially those located in organized industrial zones, will be matched and coordinated in terms of program, management, human resources, financing and physical infrastructure, taking program integrity as a basis.” (p. 162)

“689. The financial sustainability of universities will be strengthened by increasing their own income.” (p. 165)

“689.1. More resources will be provided for the development of universities by increasing their own income and financing diversity,

primarily by increasing the interaction with the real sector as a solution partner.” (p. 165)

“689.2. Aid and donations to universities will be encouraged.” (p. 165)

“689.3. In order to develop a competitive environment in higher education, the budgets that public universities receive from the central administration will be linked to their performance to a certain extent.” (p. 165)

Conclusion

This study, which aims to examine development plans in the context of financing higher education, has utilized qualitative research methods and document analysis. 12 development plans that are openly accessible have been included in the study. In the study, it is seen that the financing problem is a matter taken into consideration in all development plans. The researcher perceives the consideration of similar approaches in the plans as a sign that the problems have not been solved at the desired level. It is understood that the scholarship-credit system, which can be basically described as a requirement of the social state understanding, is a widespread application in the plans. Thus, it is aimed to pave the way for students whose financial situation is not suitable but who want to benefit from higher education.

It is also understood that structural arrangements are taken as basis in the development plans to increase and develop resources, prevent waste and ensure savings. Suggestions in the context of structural solutions are included in the plans. Among the suggestions, the reduction of the bureaucratic centralized structure, cooperation with industry, allocation of funds according to performance, and greater involvement of the private sector in the process are stated. It is understood that the factors mentioned are intertwined and should be evaluated together in order to make progress in the financing of higher education. Based on all the factors mentioned, it is understood that the issue of financing higher education is considered important in development plans and that it is a policy document that forms the basis for efforts in this regard. It is

also observed that different suggestions and models are being developed regarding financing according to the requirements of the age.

Discussion

One of the issues that is taken into consideration in the quality of higher education is the financing problem. In order for higher education to fulfill its function, there must be a solid financial structure. For this, those who benefit from higher education must be held financially responsible; a share must be allocated from the budget by taking into account institutional performance (Acar, 2013). In addition, models that will reduce the cost of higher education are needed. For this, projects that will reveal cooperation opportunities with the private sector should be developed (Alshubiri, 2021). In order to solve the financing problem in higher education, solutions that will increase income sources should be sought. The development of university-industry cooperation can be shown among the solutions (Yakut-Özek & Akbaşlı, 2021). In addition, the share of the private sector and foundation universities in higher education can be increased. Income can be increased through R&D activities; the legislation required for the activities can be reviewed (Çınar & Ağcakaya, 2016). It can be discussed how donations can be increased. The private sector can be supported in the context of financing higher education. The support of the private sector can be obtained for physical infrastructure (Giray & Bodur, 2019). There may be a market-based resource search. For this, investors should be attracted to higher education and a legal infrastructure that includes all these regulations should be provided (Salmon, 2020). The importance given to education in development plans should be reflected more in the share allocated to education. A budget should be prepared for education investments (Aslan & Yılmaz, 2021). Otherwise, the effectiveness of higher education will decrease (Krishnan, 2021).

Studies mentioned in the literature, as in the current study, emphasize the importance of financing higher education. In addition, it highlights the solution of the financing problem for qualified

higher education with alternative resource models. While doing these, it is emphasized that structural arrangements such as legislation should be made, those who benefit from higher education such as scholarships and loans should be held responsible for financing, and environmental factors such as industry should be taken into consideration. The results of the literature and the current research overlap at the mentioned points. However, the current research partially differs from the literature with the findings that the private sector should contribute more to the financing of higher education, that savings measures should be brought to the forefront and that the bureaucracy has an obstructive approach. Because the current research emphasizes the private sector, savings measures and bureaucracy in development plans in different periods. It is shown together with other factors among the results in the literature. Therefore, it is understood that savings measures, the private sector and bureaucracy are determinants in the financing of higher education and therefore in quality higher education.

Recommendations

Since this study draws conclusions about the financing of higher education based on the education-related sections in the development plans, conclusions can be made based on the findings related to higher education in all development plans. In addition, those who have duties related to the financing of higher education can be included in the research and new research can be conducted with different methods. Students' loan and scholarship needs should be reviewed considering the current conditions. In addition to state appropriations, private appropriations should be evaluated in terms of the student dimension of the financing of higher education.

More than half of the budgets of universities are covered by public resources. In order to reduce the burden of public resources in the financing of higher education, models based on performance, academic studies, external resources and student enrollment numbers, such as the Italian model, can be implemented (Aksoy, 2016). Based on the importance given to education in development plans, a larger share allocated to education (Aslan & Yılmaz, 2021)

can contribute to the solution of the financing problem of higher education.

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CHAPTER II

A Comparison of Middle School Principals' Instructional Leadership Behaviors: Strengths and Weaknesses

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1. Introduction

In today's world, technological and social advancements have increased the importance given to education and directed attention to the quartet of teachers, students, schools, and their environments. Within this scope, there is a need for leaders and administrators who can effectively manage these four elements and achieve success. This situation has made it necessary for administrators not only to possess certain administrative characteristics but also to have instructional leadership qualities that

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can sustain these four stakeholders at the desired quality (Göçen, 2013).

The widespread adoption of student-centered education in recent years has influenced the development and transformation of school principals' leadership characteristics. For a school principal to enhance the success of their school, the first aspect they need to pay attention to is how much of an instructional leader they are, their strong and weak points in this regard, and, if there are weaknesses, the reasons behind them. A school principal who does not focus on this aspect cannot meet today's educational needs and creates a significant obstacle to education.

Research Question

“What are the strengths and weaknesses of middle school principals' instructional leadership behaviors according to different perspectives?” This sentence is the research question of this research.

1.2. Purpose

The purpose of this research is to reveal the opinions of middle school teachers regarding the instructional leadership behaviors of school principals, to make comparisons, and to identify their strengths and weaknesses.

1.3. Instructional Leadership

In the field of education, particularly in schools, teachers, students, and school administrators are continuously engaged in the act of learning (Dönger et al., 2016). Therefore, educators in every school must utilize 21st-century skills, such as creativity, critical thinking, and problem-solving abilities (Sarigoz, 2023).

Specifically, school administrators must possess the characteristics of an educational leader to effectively solve problems and manage their schools successfully.

In recent years, the instructional leadership approach has gained prominence, focusing on educational leadership and centering principals and teachers in school improvement and student success. “Instructional leadership consists of dimensions such as defining the school's mission, managing the curriculum and instruction, and developing a positive learning climate” (Hallinger & Murphy, 1985). “Instructional leadership has been developed in accordance with school administration and is a type of leadership focused on teaching” (Çelik, 2003). “Instructional leadership, in addition to focusing on classroom practice, can also concretize the school's mission and its defined objectives” (Bennet & Anderson, 2003).

Hallinger and Murphy (1987), emphasizing that it is more important than ever for school principals to exhibit instructional leadership behaviors, state that this depends on three main conditions. First, barriers arising from upper management must be removed for principals to exhibit instructional leadership behaviors. Second, principals should demonstrate concrete and practical instructional leadership behaviors. Finally, reliable and tangible criteria must be determined for evaluating instructional leadership behaviors so that principals can pursue professional development in this direction.

Şişman (2011) examined instructional leadership in five dimensions: Managing the curriculum and instructional process, defining and sharing school objectives, evaluating the instructional

process and students, supporting and developing teachers, creating a structured teaching-learning environment and climate.

2. Method

This study aimed to determine the instructional leadership behaviors of middle school principals based on teachers' perspectives, reveal the strengths and weaknesses of school principals in instructional leadership along with their reasons, and compare two different schools. Therefore, the research was conducted using qualitative research methods, specifically "multiple case study" and "phenomenology" designs. In this research, two different schools were treated as two cases, while the instructional leadership behaviors of school principals were treated as the phenomenon.

2.1. Participants

The study used extreme (deviant) case sampling, one of the purposive sampling methods. As Lincoln and Guba (1985) stated, the sample size should be carefully chosen between 12 and 20 to provide a satisfactory explanation of the cases involving the selected individuals. In line with this principle, the study group consisted of 20 branch teachers and 2 school principals working in middle schools. For the selection of schools, the opinions of officials working at the Arsuz District Directorate of National Education in Hatay were consulted, and one school from a socio-economically developed area and another from an underdeveloped area in Arsuz district were included in the study group. The socio-economically developed school was coded as "School A," and the underdeveloped school as "School B."

2.2. Data Collection Tool

A semi-structured interview technique was used to collect data for the study. For this purpose, a "Teacher Interview Form" was prepared. The interview form included five semi-structured questions prepared based on the five dimensions of instructional leadership developed by Şişman (2004):

Defining and sharing school goals,

Managing the curriculum and instructional process,

Evaluating the instructional process and students,

Supporting and developing teachers,

Creating a structured teaching-learning environment and climate.

2.3. Data Collection

Permission was obtained from the Hatay Governorship to conduct the semi-structured interviews required to collect the qualitative data for the research. After obtaining permission from the teachers and school administrators to conduct the interviews, meetings with teachers were held at their schools. Before starting the interviews, participants were provided with the interview guide to read. All interviews for the study were conducted personally by the researcher. If a teacher being interviewed strayed from the topic, the question was repeated to ensure the participant answered the specific question. During the interviews, Şişman's (2004) instructional leadership scale items were referenced, and the questions were explained to the participants as needed.

2.4. Data Analysis

The semi-structured interviews with the participating teachers were recorded using an audio recording device. The recorded data were transcribed into text using Microsoft Word. These transcriptions were shared with the participating teachers to confirm that they accurately represented their views. Before coding the research data, the researcher read the transcripts. Dimensions relevant to the research objectives were identified, and an effort was made to define what each dimension represented. Words and concepts expressed by the participating teachers were used as codes during the coding process. However, when the words and concepts used by the participants were insufficient for coding, alternative concepts were determined as codes by the researcher. For coding the research data, the "line-by-line analysis approach" suggested by Patton (2014) was used. A word, phrase, or sentence constituted a unit for data analysis.

For interpreting the interview data, inductive descriptive analysis and content analysis techniques were used (Marshall & Rossman, 2011). In descriptive analysis, direct quotes were frequently included to vividly reflect the views of the participants (Demir & Bütüner, 2014). Frequency analysis techniques were used in content analysis, aiming to identify the occurrence frequency of units and elements. This type of analysis involves dividing a specific message into units and grouping these units into categories based on certain criteria (Bilgin, 2006). Based on Şişman's (2004) instructional leadership scale, five themes were created for the study. Additionally, sub-themes were developed under each theme, and related codes were assigned. The themes of the study are as follows:

1. Defining and Sharing School Goals,
2. Managing the Curriculum and Instructional Process,
3. Evaluating the Instructional Process and Students,
4. Supporting and Developing Teachers,
5. Creating a Structured Teaching-Learning Environment and Climate.

3. Results

In this section, themes are presented under headings according to the research question.

3.1.Theme 1: A Comparison of the Strengths and Weaknesses of School Principals in Defining and Sharing School Objectives

The codes and subthemes that make up this theme are summarized in Table 1.

Table 1. According to Participant Opinions Themes and Codes Showing the Strengths of School Principals in Determining and Sharing School Goals

A SCHOOL	Sub Themes		Codes	
	1.	Explaining the school's goals to its stakeholders.	Determining goals	
			Making a statement	
	2.	Taking the lead in sharing the school's goals.	Leading the way	
			Sharing	
			Ensuring coordination	
	3.	Review your goals and redefine them according to current conditions.	Review	
			Setting achievable goals	
	4.	Utilizing students' success in developing the school's goals.	Leveraging student success	
	5.	Discussing the aims of the school in meetings.	Giving importance to opinions	
Don't hold a meeting				
6.	Encouraging stakeholders to work towards goals.	Encouragement		
		Supporting		
		Motivating		
7.	Determining goals to increase student achievement.	Having a vision		
		Sharing experiences		
		Leading the way (pioneering)		
Sub Themes			Codes	
1.	Explaining the school's goals to its stakeholders.	Determining goals		
		Making a statement		
2.	Leading in sharing the school's goals.	Leading the way		
		Sharing		
3.	Review your goals and redefine them according to current conditions.	Review		
		Setting achievable goals		
4.	Discussing the school's goals in meetings.	Giving importance to opinions		
		Don't hold a meeting		
		Encouragement		
5.	Encouraging stakeholders to work towards goals.	Supporting		
		Motivating		
		Having a vision		
6.	Determining goals to increase student achievement.	Being a guide		

Within this theme, it is evident that the principal of School B demonstrates fewer instructional leadership behaviors compared to the principal of School A.

Teacher8, School A:

“...I perceive our principal as highly effective in valuing opinions and demonstrating influential behaviors when defining and sharing the school’s objectives. Our principal consistently strives to consider the perspectives of all stakeholders. Despite the challenges posed by

the large and central nature of our school in terms of both staff and students, the principal’s experience and expertise in regulations greatly facilitate coordination and streamline operations...”

Teacher1, SchoolB:

“...Our principal communicates the school’s general objectives to both teachers and students. They take the lead in ensuring that everyone in the school aligns with and commits to these objectives...”

Table 2. According to Participant Opinions Themes and Codes Showing the Weaknesses of School Principals Regarding Determining and Sharing School Goals

A SCHOOL	Sub Themes	Codes
	1. Explaining the school's goals to its stakeholders.	Ineffectiveness
		Unfollow
	2. Reviewing and reframing their goals based on the current and school environment and circumstances.	Inability to set original goals
	3. Utilizing students' success in developing the school's goals.	Not benefiting from the results of previous years
	4. Discussing the school's goals in meetings.	Not discussing the purposes
		Lack of communication
		Not taking time
	5. Conducting studies to increase students' success	Don't be insensitive
B SCHOOL	Sub Themes	Codes
	1. Explaining the school's goals to its stakeholders.	Ineffectiveness
		Unfollow
	2. Reviewing and reframing their goals based on the current and school environment and circumstances.	Inability to set original goals
	3. Utilizing students' success in developing the school's goals.	Not benefiting from the results of previous years
	4. Discussing the school's goals in meetings.	Not discussing the purposes
		Lack of communication
		Not taking time
	5. Conducting studies to increase students' success	Don't be insensitive

When examining the weaknesses of school principals, the most significant shortcoming in School A is identified as the “failure to share goals,” whereas in School B, the primary weaknesses are “failure to share goals” and “indifference.” Furthermore, it has been observed that the principal of School B also exhibits deficiencies in defining unique objectives, utilizing the results from previous years, and maintaining follow-up efforts.

Teacher 10, School A: “...I believe that our principal is not sufficiently effective in defining and sharing the school’s objectives. Additionally, I think they lack sensitivity to initiatives aimed at improving student achievement. I perceive these behaviors as weaknesses...”

Teacher 2, School B: “...One of the weaknesses I observe in our principal regarding defining and sharing the school’s objectives is the inability to allow in-depth discussions during board meetings due

3.2. Theme 2: A Comparative Analysis of the Strengths and Weaknesses of School Principals in Managing the Curriculum and Instructional Process

In this theme, the code of classroom visits, especially regarding program management and the teaching process, attracts attention.

The codes and subthemes that make up this theme are summarized in Table 3 and Table 4.

Table 3. According to Participant Opinions Themes and Codes Showing the Strengths of School Principals Regarding the Management of Curriculum and Teaching Process

	Sub Themes	Codes
A SCHOOL	1. Giving importance to taking student needs and expectations into account in the school program.	Taking expectations and needs into account
		Importance to students
	2. Keeping track of the school's curriculum.	Don't follow
	3. Actively participating in the selection of program-related materials (Books, Magazines, etc.) for review.	Examination
		Active participation
	4. Visiting classrooms to ensure effective use of instructional time.	Class visits
		Time tracking
	5. Encouraging extracurricular social, cultural and educational activities at school.	Encouragement
	6. Preventing interruptions to lessons and ensuring that lessons start and finish on time.	Prevention
		Check
		Control
	7. Spending most of your time at school observing and participating in educational environments.	Don't make observations
		Participation in training
	8. Preparing the annual activity plan regarding the school's educational activities.	Planning
		Conducting teaching activities
	Sub Themes	Codes
B SCHOOL	1. Giving importance to taking student needs and expectations into account in the school program.	Taking expectations and needs into account
		Importance to students
	2. Visiting classrooms to ensure effective use of instructional time.	Class visits
		Time tracking
	3. Encouraging extracurricular social, cultural and educational activities at school.	Encouragement
	4. Preventing interruptions to lessons and ensuring that lessons start and finish on time.	Prevention
		Check
		Control

Teachers from School A indicated that their principal demonstrates behaviors such as “follow-up,” “review,” “active participation,” “observation,” “engagement in education,” “planning,” and “conducting instructional activities.” In contrast, teachers from School B did not mention such behaviors. The

findings suggest that the principal of School A exhibits stronger behaviors in considering expectations and needs as well as in supervision compared to the principal of School B.

Direct quotes related to this category are presented below:

Teacher 10, School A: "...Our principal supervises us twice a year, during the first and second semesters, and personally observes our lessons. They share their insights with us and monitor our attendance in and out of class. Due to their workload, they delegate this task to the relevant vice principal on duty..." *Teacher 3, School B:* "...Our principal's strongest behavior regarding the implementation of the instructional program can be considered their classroom visits..." *Teacher 5, School B:* "...Our principal conducts classroom visits but does not provide positive or negative feedback during or after the supervision..."

Table 4. According to Participant Opinions Themes and Codes Showing the Weaknesses of School Principals Regarding the Management of Curriculum and Teaching Process

	Sub Themes	Codes
A SCHOOL	1. Keeping track of the school's curriculum.	Failure to cooperate
		Unfollow
	2. Participation in the selection of program-related materials (Books, Magazines, etc.)	Ineffectiveness
		Don't be passive
	3. Spending most of your time at school observing and participating in educational environments.	Not observing
	Sub Themes	Codes
B SCHOOL	1. Keeping track of the school's curriculum.	Failure to cooperate
		Unfollow
	2. Participation in the selection of program-related materials (Books, Magazines, etc.)	Ineffectiveness
		Don't be passive
	3. Spending most of your time at school observing and participating in educational environments.	Not observing

When analyzing the weaknesses of school principals, it can be stated that they are particularly weak in the theme of "spending most of their time observing educational settings and participating in education," especially in terms of "not engaging in the educational process." Direct quotes related to this category are presented below:

Teacher 4, School A: "...I consider our principal's behavior weak in terms of ensuring collaboration among the school's instructional programs regarding the management of the curriculum and instructional process. They are passive in the selection of textbooks and supplementary materials related to lesson plans, leaving these preferences and choices to us..."

Teacher 5, School B: "...Our principal conducts classroom visits only as a procedural requirement. They do not participate in the educational process..."

Teacher 6, School B: "...I view our principal as weak in ensuring the necessary collaboration among school stakeholders regarding the management of the curriculum and instructional process. Our principal does not actively participate in the selection of textbooks and supplementary materials related to the instructional programs..."

3.3.Theme 3: A Comparative Analysis of School Principals' Behaviors in the Instructional Process and Student Evaluation

The codes and subthemes that make up this theme are summarized in Table 5 and Table 6.

Table 5. According to Participant Opinions Themes and Codes Showing the Strengths of School Principals Regarding the Teaching Process and Student Evaluation

	Sub Themes	Codes
A SCHOOL	1. Conducting meetings with teachers to discuss student achievement.	Don't have a conversation
		Don't hold a meeting
	2. Conducting interviews with teachers to determine the strengths and weaknesses of their curriculum.	Finding the missing parts
		Ignore suggestions
		Communication
	3. Reviewing the school program based on exam results and, if necessary, do not make changes.	Interrogator
		Being open to change
		Follower
	4. Informing teachers and students about the school's success status in writing or verbally.	Being a guide
		To inform
	5. Rewarding students who demonstrate outstanding success with their behavior in school and classroom.	Success Status
		Rewarding
		Encouragement
	6. Explaining important issues regarding teaching to teachers after classroom observations.	Motivational
		Making a Statement
		Check
		Observation
	Sub Themes	Codes
B SCHOOL	1. Conducting meetings with teachers to discuss student achievement.	Don't have a conversation
		Don't hold a meeting
	2. Conducting interviews with teachers to determine the strengths and weaknesses of their curriculum.	Finding the missing parts
		Ignore suggestions
	3. Informing teachers and students about the school's success status in writing or verbally.	To inform
		Success Status
	4. Rewarding students who demonstrate outstanding success with their behavior in school and classroom.	Rewarding
		Motivational
	5. Explaining important issues regarding teaching to teachers after classroom observations.	Check

Direct quotes related to this category are presented below:

School A Teacher-4: "...I see our school principal's supervisory behavior regarding the teaching process and evaluation of students as strong. Our principal inspects our classes twice a year during the teaching process and calls us to his office after class to meet..." *A School Teacher-5*: "...Students who are successful at school are rewarded. Students who are ranked at school are displayed on our achievement board throughout the year. I see this situation as important in terms of student motivation because I think it is encouraging for our students who want to enter that board..." *School B Teacher-5*: "...Our school principal evaluates the data he has regarding the success of the students and reports it to the students and teachers..." *School B Teacher-6*: "...Our school principal appreciates our successful students and rewards them. This reward is usually not material but moral. He honors successful students in ceremonies held on Fridays or Mondays..."

Table 6. According to Participant Opinions Themes and Codes Showing the Weaknesses of School Principals Regarding the Teaching Process and Student Evaluation

	Sub Themes	Codes
A SCHOOL	Participating in the process of evaluating students' teaching and achievement.	Exhibiting passive behavior
		Failure to participate in the evaluation process
	Conducting interviews with teachers to determine the strengths and weaknesses of their curriculum.	Weak communication
		Not exchanging ideas
	Explaining important issues regarding teaching to teachers after classroom observations.	Not making recommendations
		Nitpicking
	Sub Themes	Codes
B SCHOOL	Participating in the process of evaluating students' teaching and achievement.	Exhibiting passive behavior
		Failure to participate in the evaluation process
	Conducting interviews with teachers to determine the strengths and weaknesses of their curriculum.	Weak communication
		Not exchanging ideas
	Explaining important issues regarding teaching to teachers after classroom observations.	Not making recommendations
		Nitpicking

Direct quotes related to this category are presented below:

School A Teacher-1: "...Our school principal does not actively participate in the teaching process and evaluation of students, he leaves the process entirely to the initiative of teachers... In addition, the fact that he does not meet with students one-on-one and does not have contact with them about the problems at school also shows that his communication skills are weak..."

School B Teacher-5: "...Our school principal exhibits passive behavior in terms of participating in the teaching process and evaluation of students... Our principal leaves the evaluation process of student work to the teachers..."

3.4.Theme 4: Comparison of the strengths and weaknesses of school principals regarding the support and development of teachers

The codes and subthemes that make up this theme are summarized in Table 7 and Table 8.

Table 7. According to Participant Opinions Themes and Codes Showing the Strengths of School Principals in Supporting and Developing Teachers

	Sub Themes	Codes
A SCHOOL	1. Encouraging and appreciating teachers to develop high-level performance.	Encouragement
		Appreciation
	2. Informing teachers about opportunities that will enable them to develop themselves professionally.	Providing Information
		Supporting professional development
		Guidance
	3. Organizing meetings to share new knowledge and skills acquired during in-service training and supporting their use in the classroom.	Holding Meetings
		Ensuring the use of information obtained from in-service training activities
	Sub Themes	Codes
B SCHOOL	1. Encouraging and appreciating teachers to develop high-level performance.	Encouragement
		Appreciation
	2. Informing teachers about opportunities that will enable them to develop themselves professionally.	Providing Information
		Supporting professional development
		Guidance
	3. Organizing meetings to share new knowledge and skills acquired during in-service training and supporting their use in the classroom.	Holding Meetings
		Ensuring the use of information obtained from in-service training activities

Direct quotes related to this category are presented below:

When the findings regarding the strengths of the principals of School A and School B are compared, it is seen that teachers developing themselves professionally will increase the success in the school, the quality of education in the school will increase, and the desire to see the teacher profile required by the age will ensure that teachers exhibit strong behaviors in terms of supporting and developing them.

School A Teacher-6: “...Our School Principal appreciates us in writing for his special efforts and endeavors in supporting and developing teachers...” *School A Teacher-8*: “...I find our School Principal’s supportive and guiding behaviors in supporting and developing teachers strong. Our principal warns us in meetings to develop ourselves professionally and not to fall behind the times...” *School B Teacher-6*: “...Our School Principal shares both the

official letters received by teachers and information about his own development so that they can develop themselves professionally...”

School B Teacher-7: “...Our School Principal appreciates our School Principal for his special efforts and endeavors in supporting and developing teachers...”

Table 8. According to Participant Opinions Themes and Codes Showing the Weaknesses of School Principals Regarding Support and Development of Teachers

	Sub Themes	Codes
A SCHOOL	Encouraging and appreciating teachers to develop high-level performance.	Not rewarding
		Not appreciating
	Informing teachers about opportunities that will enable them to develop themselves professionally.	Failure to Provide Sufficient Information
		Report only changes in laws and regulations
	Supporting in-service training activities.	No meeting
		Not conducting in-service training activities
	Sub Themes	Codes
B SCHOOL	Encouraging and appreciating teachers to develop high-level performance.	Not rewarding
		Not appreciating
	Informing teachers about opportunities that will enable them to develop themselves professionally.	Failure to Provide Sufficient Information
		Report only changes in laws and regulations
	Supporting in-service training activities.	No meeting
		Not conducting in-service training activities

Direct quotes related to these categories are presented below:

A School Teacher-6: “... Our school principal only gives verbal speeches about supporting and developing teachers, about us improving ourselves. He does not copy and distribute important articles about education in newspapers and magazines. He only announces changes in laws and regulations to us. He does not invite speakers from outside the school to give conferences for us and does not organize in-service activities...”

B School Teacher-7: "... Our school principal does not show behaviors that will honor teachers who make great efforts to support and develop teachers... He does not inform us about important changes about education that appear in the written and visual media. He only communicates changes in legislation. He does this because it is his official duty..."

Theme 5: Comparison of the strengths and weaknesses of school principals in creating a regular teaching-learning climate and environment

The codes and subthemes that make up this theme are summarized in Table 9 and Table 10.

Table 9. According to Participant Opinions Themes and Codes Showing the Strengths of School Principals in Creating a Regular Teaching-Learning Climate and Environment

	Sub Themes	Codes
A SCHOOL	1. Manager , teacher , student and other employee between set Spirit to be formed lead don't .	Team Spirit
		Leading the Way
	2. Supporting teachers and students to perform their duties better.	Supporting
		Motivation
	3. Effective One teaching And learning for necessary order And discipline provision .	Order
		Discipline
	4. At school teacher And students with pleasure they can work physically environments preparation .	Physical Environment
		Social Activity
	5. Leading social activities that will ensure integration between teachers and students.	Leading the way
		Ensuring Integration
		Giving importance to teachers' opinions
	6. Supporting teachers who put forward new and different views on education.	Being Open to Innovation
		Giving importance to education
		Leading the way
B SCHOOL	1. Supporting teachers and students to perform their duties better.	Supporting
		Motivation
	2. Effective One teaching And learning for necessary order And discipline provision .	Order
		Discipline
	3. At school teacher And students with pleasure they can work physically environments preparation .	Physical Environment
		Giving importance to teachers' opinions
	4. Supporting teachers who put forward new and different views on education.	Giving importance to education
		Leading the way
		Communication
	5. Leading on teaching-related issues	School-Environment Relationship
		Experience
	6. Providing support to the school from the family and the community to increase student success	Communication
		Communication

Direct quotes related to these categories are presented below:

A School Teacher-5: “...Our school principal leads social activities that will ensure integration between us and the students in creating a regular teaching-learning climate and environment... He supports teachers who put forward new and different views on education and training...”

B School Teacher-2: “...Our school principal is successful in creating physical environments in our school where teachers and students can work with pleasure...”

B School Teacher-3: “...Our principal tries to ensure the support of students’ parents and the environment for the school in order to increase student success...”

Table 10. According to Participant Opinions Themes and Codes Showing the Weaknesses of School Principals in Creating a Regular Teaching-Learning Climate and Environment

	Sub Themes	Codes
A SCHOOL	1. Manager , teacher , student And other employee between grouping prevention	Inability to prevent grouping
		Inability to maintain control
	2. Leading social activities that will ensure integration between teachers and students.	Not doing social activities
		Not doing integration work
	3. Focus on teaching-related issues	Not taking enough time
		Not evaluating
		Don't be insensitive
	Sub Themes	Codes
B SCHOOL	1. Manager , teacher , student And other employee between grouping prevention	Inability to prevent grouping
		Inability to maintain control
	2. Leading social activities that will ensure integration between teachers and students.	Not doing social activities
		Not doing integration work
	3. Focus on teaching-related issues	Not taking enough time
		Not evaluating
		Don't be insensitive

Direct quotes related to these categories are presented below:

School A Teacher-8: "...Our school principal does not show enough interest in activities that will increase integration among school stakeholders, which is necessary for creating a regular teaching-learning climate and environment..."

School B Teacher-4: "...It can be said that our school principal is inadequate in providing control in creating a regular teaching-learning climate and environment... Our principal does not allocate enough time to issues related to teaching and remains outside the teaching process..."

School B Teacher-10: "...Our school principal does not include activities that will ensure integration between school personnel and students... He does not show much interest in and does not support social activities..."

5. Discussion

Mestry, Moonsammy-Koopasammy and Schmidt (2013) mentioned the classroom visits of school principals in their study on the instructional leadership roles of primary school principals. In their study where they asked the opinions of school principals, several of the principals stated that they preferred informal supervision and felt that formal visits could not accurately reflect what was happening in the classroom. In the mentioned study, the experienced teachers' sharing their experiences with other teachers, as stated by one of the principals, refers to the behavior of school principals sharing their experiences, which was emphasized by the teachers in our study. In this case, it can be said that there is a

similarity between the perspectives of school principals and teachers regarding instructional leadership behaviors.”

Blasé and Blasé, in the theme of talking to teachers, which is the first dimension of effective instructional leadership, the behavior of “sharing your experiences” overlaps with the behavior of sharing your experiences that emerged in our research. This overlap brings to mind the fact that perceptions of teachers in different cultures are also similar. The reference to the concept of experience is particularly striking. This result also reveals how important the experiences of school principals are in the instructional leadership process. Studies indicating that experienced school principals are better at fulfilling their instructional leadership roles (Borden, 2011) also provide a complementary perspective to the concept of “experience.”

Yavaş Taşdelen, Aküzüm, Tan and Uçar (2015) aimed to examine in their research how and in what way the instructional leadership behaviors of school principals are determined in schools in terms of teachers' views. As a result of the study, it was determined that the perception of principals working in primary, secondary and high schools as guiding and instructional leaders directly emphasizes their instructional leadership behaviors. The obtained results of the “guiding” behavior overlap with the results obtained from our study. In addition, it was determined that especially positive behaviors of school principals such as “guiding, guiding and student-teacher centeredness” were frequently repeated and coded in the study. Since these findings obtained in the study are parallel to the codes obtained in our study, these data support our study.

6.Conclusion

This study was conducted to reveal the instructional leadership behaviors of school principals located in socio-economically developed and underdeveloped regions according to teachers' views, to determine their strengths and weaknesses together and to make comparisons. In the study, the instructional leadership behaviors of school principals were determined under five basic questions. Accordingly, the behaviors of the school principal in determining the school's goals, managing the curriculum and teaching process, evaluating the teaching process and students, supporting and developing teachers, and creating a regular teaching-learning environment and climate were examined in detail and instructional leadership behaviors were tried to be found.

It was determined that the school principal located in the socio-economically developed region displayed stronger behaviors in terms of providing support from the family and the environment to the school in order to increase student success. However, it was concluded that the school principal located in the socio-economically underdeveloped region displayed weak behaviors in terms of providing support from the family and the environment to the school in order to increase student success. After the data obtained from the research, as a result of the interviews conducted with the two school principals about their strengths and weaknesses, it was concluded that the school's facilities, the parents' educational and economic status, and the principal's experience were effective in the school principal located in the socio-economically developed region displaying instructional leadership behaviors. As a result of the interviews, it was concluded that the school principal located in the socio-economically underdeveloped region, despite the school's

physical well-being, the parents' indifference, and the poor socio-economic status of the school's surroundings affected the instructional leadership behaviors.

7.Recommendations

In order for school principals to be able to demonstrate their instructional leadership behaviors and guide teachers, their duties, authorities and responsibilities need to be regulated.

The opportunities of schools located in socio-economically underdeveloped regions need to be increased. In addition, continuous education needs to be provided to parents of students with low levels of education in socio-economically underdeveloped regions.

In the research, it is understood that whether the school is located in a socio-economically developed region or an underdeveloped region does not affect the in-service training activities to be organized in the school. Therefore, the necessary assistance needs to be provided to school principals so that they can carry out the in-service training activities they need in their schools.

Teachers' opinions were sought in this research. The research can be developed by expanding the dimensions of the research and including parents and students in the research. In this way, findings with high scientific validity can be obtained.

8. Ethics Statement

This research was conducted in 2016 under the supervision of Dr. Tuba Yavaş and was derived from Mesut Delioğlu's master's thesis. This research was completed in accordance with the "research implementation permit" numbered 32889839/605/4012622 and

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CHAPTER III

Versatile Perspectives Of University Students Regarding Distance Education: Bingol University Example

Nesip DEMİRBİLEK¹

INTRODUCTION

Distance education is defined as an education system in which trainers and learners are in various places and conduct education and training activities with communication technologies (İşman, 2008). According to the California Distance Learning Project (CDLP), "The distance education program is a system that provides education by establishing a connection between the student and educational resources." Distance education can also be defined as an open and blended learning environment in which pedagogical tools are used, activated by internet and web technologies, and facilitated by

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meaningful activities and interactions (Dabbagh & Bannan-Ritland, 2005).

In the European Union's definition of distance education, it is stated that the use of internet and web technologies positively affects the quality of education. (Düzakın & Yalçinkaya, 2008). However, students' perceptions of the concept of distance education may differ individually. The fact that these perceptions are positive or negative can directly or indirectly affect all stakeholders in the education system, learning environments, learning-teaching processes, students' education life, and motivation.

Positive Aspects of Distance Education

There are many advantages of distance education systems that can reach even large audiences. In distance education, which is primarily a student-centered, the responsibility for learning is left to the student rather than the teacher (Aldemir, 2020; Deveci, 2019; Mitchell, Chen & Macredie, 2005). This education system is an application that allows each student to progress at their own learning pace (Gökçe, 2008; Kaya, 2002). Distance education allows a large audience to receive their necessary education simultaneously (synchronously) or separately (asynchronously), thus reducing the learning distance (Dinçer, 2006). In this respect, distance education, which provides flexibility to the person receiving the education from time and place, also facilitates the students to study (de Oliveira, Penedo & Pereira, 2018; Sığın, 2020). This system, which is related to the concepts of global education and global communication, is more flexible and advantageous than traditional education (İşman, 2008). In distance education, curriculum and course contents can be updated quickly and easily (Kaba, 2012). One of the most important reasons why this education system has gained importance in many countries is that it brings together individuals with different individual characteristics (age, talent, social and cultural difference,

learning ability, etc.) in order to minimize the inequality of opportunity in education (Deveci, 2019; Kurnaz & Serçemeli, 2020; Welsh, Wanberg, Brown & Simmering, 2003). The positive aspects of distance education are listed as follows (Begimbetova, 2015; Değirmenci, 2013):

Students do not require a place like a school. Following the lectures may be sufficient. The students can do their lectures and homework at home.

The speed of the lectures can be adjusted according to the levels of students. Some students may learn slowly, some learn faster.

Distance education is much easier to perform and following comparison to traditional education as it allows the student to follow the lectures wherever they want.

In distance education, the number of students may be much higher than in traditional education.

Distance education can be conducted regardless of time and place

Distance education can provide quality education for students who cannot participate in traditional education due to some health and work conditions.

Education programs prepared for distance education can be completed on scheduled time.

Online lectures allow the students to easily provide feedback to lecturers.

Negative Aspects of Distance Education

When examined in a theoretical framework, besides the benefits of distance education, some difficulties and limitations can be revealed due to the way it is applied. The limitations of the system are the inability to easily establish face-to-face interactions (eye contact), which are effective in formal learning environments, the inability to

provide more socialization opportunities to students, technological inadequacies, technical problems, high hardware and internet infrastructure costs, and the inability to adequately benefit from the application parts of the courses (Alexander, Truell & Zhao, 2012; Batdi, Dogan & Talan, 2021; Devran & Elitaş, 2017; Eroğlu & Kalaycı, 2020; Kaya, 2020; Kaya, 2002; Pınar & Dönel Akgül, 2020; Sahu, 2020). Difficulties in planning for individuals who do not have the habit of learning unaided and on their own, not being able to receive support on time, and the problems that may arise behind this situation (Alexander et al., 2012; Doğan, 2013; Erfidan, 2019; Gülbahar, 2009; Jaggars & Bailey, 2010; Kurnaz & Serçemeli, 2020; Pınar & Dönel Akgül, 2020; Uşun, 2006) can be expressed as the limitations of distance education. In addition, it can be stated that the target audience may lack the necessary technical equipment and skills during the use of the system, and technical knowledge may be needed (Bakioğlu & Çevik, 2020; Deveci, 2019; Holmes & Gardner, 2006). Such problems negatively affect the learning process and can lead to significant disruptions as they make the applicability of the education program more difficult. Therefore, trainers and learners who think that they will have difficulties in eliminating such deficiencies may refrain from using the system. The negative aspects of distance education are documented as follows (Begimbetova, 2015; Değirmenci, 2013):

Technological tools and materials used in distance education can be costly. Considering each student of the family requires a computer, the education cost will increase proportional to the number of students.

It may be difficult to prepare a syllabus and schedule in distance education.

Since students and teachers are in various places in distance education, the feedbacks may not be given on time.

In distance education, the lectures that require laboratory experiments and workshops, either may not be possible to teach online or may be exceedingly difficult.

Active and effective communication between students and teachers might be lost in distance education.

May cause difficulties in the preparation of lectures that are constantly updated on the WEB in distance education.

Due to a presence of substantial number of students in distance education, dealing with each student might be difficult and time consuming.

Distance education has become a mandatory part of educational institutions during the pandemic period. In this context, it is important to determine the positive and negative aspects of distance education. Also, it is a necessary to improve the positive aspects and eliminate the negative aspects in terms of improving the quality of education.

Adapted to educational environments to support the learning process and raise the quality of education to higher levels, distance education is used as an alternative to traditional education (Nakos, Deis, & Jourdan, 2002). It is emphasized that distance education, which removes obstacles such as time and place, enriches education owing to its online use (Park, Kier, & Jugdev, 2011). It is at least as useful and efficient as traditional education with the provision of basic factors such as appropriate information technologies, correct educational methods and techniques and communication between teacher and student (Hamzaee, 2005; Schlosser & Simonson, 2006). Distance education emphasizes the importance of benefiting from both information technologies and educational science in the learning process (Anderson & Dron, 2009).

When the studies in the literature are examined, it is often stated that the positive aspects of distance education are not observed much and that the negative aspects are more dominant (Akyürek, 2020; Keskin

& Özer-Kaya, 2020; Karatepe, Küçükgençay, & Peker, 2020; Tuncer & Bahadır, 2017; Öztaş & Kılıç, 2017). For this reason, it is thought that studies on distance education performed during the pandemic period are important. It is seen that there is a need for studies to be conducted to strengthen the positive aspects of distance education and to identify and eliminate the negative aspects. In line with this importance and need, student opinion on the positive and negative aspects of distance education, which is conducted urgently and compulsively by Bingöl University, were examined.

Purpose of the study

The purpose of this study was to examine student opinion on the positive and negative aspects of distance education that Bingöl University had to conduct in the spring semester of the 2019-2020 academic years. For this purpose, the answers to the following questions were investigated:

1. In your opinion, what are the negative aspects of distance education in your university due to the pandemic?
2. In your opinion, what are the positive aspects of distance education in your university due to the pandemic?

METHOD

Research method

In this study, phenomenology design, one of the qualitative research designs, was used in line with the purpose. Phenomenology design is used to illuminate the cases that we are aware of but want to determine in depth and with their reasons (Yıldırım and Şimşek, 2013). Phenomenology is a research design that tries to understand more people's inner world and their consciousness structures (Creswell, 2017). The source data and data collection tool about the phenomenon are the observations and semi-structured interviews that provide the opportunity to examine the experiences and

perceptions of the phenomenon in detail (Baş, Usta & Uyar, 2008; Yıldırım & Şimşek, 2013). In this pattern, it is investigated how persons perceive, explain, remember, and interpret a phenomenon and what kind of language they use to convey this phenomenon to people (Patton, 2014). The first preferred data collection method in phenomenological research is interviews (Johnson & Christensen, 2014). Interviews are seen as the main data collection technique of the qualitative research method, as they can access areas of reality that are exceedingly difficult to reach with other techniques, such as people's subjective experiences and attitudes (Peräkylä & Ruusuvuori, 2018). The data of this study, in which phenomenology, one of the qualitative research methods, was used, was also collected by interview technique. Thus, it has been tried to reveal the feelings, thoughts, behaviors, and perceptions of the students in the distance education process in depth, based on their own expressions.

Population and sample

In the determination of the study group, the easily accessible situation sampling technique, which is one of the unknown sampling methods, was used. Since the current pandemic process also makes accessibility difficult, it has been seen as an appropriate method to evaluate easily accessible situations. With this technique, a random sample large enough to represent the universe is selected from a population to determine the participants. With this technique, people who are related to the research topic and people that the researcher can reach are used to determine the participants (Yıldırım & Şimşek, 2013). In line with the purpose of the research, a total of 1064 university students studying at Bingöl University in the 2019-2020 academic year were reached as the study group of the research.

Data Collection and Analysis

Within the scope of the research, a semi-structured questionnaire about the positive and negative opinions of university students on distance education and a form asking demographic variables were prepared online. Expert opinion on the semi-structured questionnaire was obtained and necessary corrections were made. The prepared forms were sent via e-mail and WhatsApp. The forms were also shared online on social media such as Facebook and Instagram.

Descriptive and content analysis were used in the analysis of the data. Descriptive analysis is evaluated by supporting direct quotations to reveal the opinion of the interviewed individuals in a striking way (Yıldırım & Şimşek, 2013). In content analysis, the researcher determines categories and counts the data coming into each category (Silverman, 2014, p116). Content analysis is stated to be a systematic, repeatable technique in which some words of a text are summarized with smaller content categories with coding based on certain rules (Büyüköztürk et al., 2014). Analysis and interpretation of the research data were conducted as follows:

Initially, each interview form was coded as S1, S2...S1064 for students. The answers given to the questions in the semi-structured questionnaire were meticulously examined and codings were made by adhering to the essence of the statements. While coding, attention has been paid to determine the frequency of expression. The similarities and differences of the codes were examined, and themes were formed by bringing together similar codes (Yıldırım & Şimşek, 2013).

To obtain reliable results in qualitative research, the codings and themes made by experts who have worked on the research should be consistent. Also, the process of creating the theme by more than one person enables the reliability of the research to increase (Yıldırım & Şimşek, 2013). Then, the classification made by the expert and the

classification made by the researchers were compared. The reliability of this research was calculated by (Reliability = Agreement / Agreement + Disagreement x 100) (Miles & Huberman, 1994). As a result of the calculations made for the research, it was concluded that there was an 85% agreement. Also, to ensure the validity of qualitative data, direct interview quotations were included while giving the findings. This is important to ensure the validity of qualitative data (Yıldırım & Şimşek, 2013).

FINDINGS

Findings related to the first sub problem (University Students' Views on the Negative Aspects of Distance Education)

The answers to the semi-structured questionnaires related to the negative category were examined; codes were created and collected under themes.

Table 1. Students' negative opinions about distance education in the university

Themes	Codes	f	%
Negativities related to planning and execution of the lectures	Failure of students to ask their lecturers what they are curious about the lectures and to receive feedback	91	8,5 4
	Lack of practicing lectures requiring laboratory experiments, clinic, internship, numeracy, and speaking and reading	82	7,7 0
	Lectures are not understood	73	6,8 5
	Submission of weekly lecture notes sent by lecturers as pdf only	54	5,0 7
	Students are away from their lecturers and not able to benefit from their experiences	42	3,9 4
	Students' inability to communicate with lecturers one-on-one	37	3,4 7
	Lectures were not made as online	37	3,4 7
	Not having one-to-one lectures	31	2,9 1
	The video recording was not used during lectures	24	2,2 5
	The thought of being withdrawn from lectures and topics	18	1,6 9

	The lectures were shown as if they were made	8	0,7 5
	Lectures not being done properly, being empty or delayed	8	0,7 5
	Total	50	47, 5 42
Negativities related to the processes of education and training conducted from a distance	Choosing face-to-face education instead of distance education	96	9,0 1
	Distance education is useless and inefficient	91	8,5 4
	Failure to provide permanent information with distance education	67	6,2 9
	Distance education is inadequate	66	6,1 9
	Trying to implement a system that has not been used before, without planning, experimenting	32	3,0 0
	Sudden change in teaching method and lifestyle and disruption of habitual learning patterns	31	2,9 1
	Distance education is ineffective and useless	20	1,8 8
	Effective and active communication is less than the classroom environment.	20	1,8 8
	Distance education is far from education that should be given	12	1,1 3
	Education and training processes are injustice and inequality	9	0,8 5
	Education and training processes are in uncertainty	8	0,7 5
	Education and training processes are in exam-oriented	7	0,6 6
	Education and training processes are not student-centered	3	0,2 8
	Total	46	43, 0 19
Negativities related to exams	Exam questions are difficult and not easy to understand	49	4,6 0
	Getting unexpected low grades despite our work	48	4,5 1
	The evaluation is not fair and objective and there is an injustice	37	3,4 7
	Exam questions are not found in the lecture notes	37	3,4 7
	The exams are unsafe	28	2,6 3
	Lecturers do not read the exam paper and give points according to their own mind	22	2,0 7

	Students can cheat in exams	17	1,6 0
	The number of exams is higher than before (two visas and one final)	13	1,2 2
	Students who are not hardworking get higher scores than hardworking students	12	1,1 3
	The exams are invalid	8	0,7 5
	The exams being unnecessary	7	0,6 6
	Students' failure to prepare a petition to appeal the exam results	6	0,5 7
	Lecturers not sending students an answer sheet	1	0,0 9
	Total	28 5	26, 76
Negativities arising from lecturers	Lecturers not helping and provide guidance support	49	4,6 0
	Not being able to reach and communicate with lecturers through communication channels (mail, phone)	47	4,4 1
	Lecturers' lack of interest and insensitivity to distance education	29	2,7 2
	Lecture notes sent weekly by lecturers are difficult and incomprehensible	29	2,7 2
	Lecturers are intolerance	24	2,2 5
	Lack of informing and announcements (exams, lectures) by lecturers as required	23	2,1 6
	Lecture notes sent weekly by lecturers are being more than necessary	17	1,6
	Lecturers are ruthless and putting too much psychological pressure on them	16	1,5 0
	Lecture notes sent weekly by lecturers are extra-curricular and unnecessary.	13	1,2 2
	Insufficient lecture notes sent weekly by lecturers	13	1,2 2
	Ego satisfaction and irresponsible behavior of lecturers	11	1,0 3
	Lecturers are not able to adapt to the distance education process	4	0,3 8
	Having insulting lecturers	3	0,2 8
	Diction disorders of lecturers	1	0,0 9
	Total	27 9	26, 20

Negativities arising from the "social distance" rule	The decrease or cessation of the social environment, interaction, activity, and environment	38	3,5 7
	Causing anxiety, stress, and pessimism	31	2,9 1
	Cause psychological problems	30	2,8 2
	Students not being able to meet and be together with their friends	29	2,7 2
	Students do not have enough university life and the longing for this	26	2,4 4
	Classroom unavailability by students	20	1,8 8
	Cancellation of pre-planned social activities (travel, theater, etc.)	17	1,6 0
	Students being away from the school environment	15	1,4 1
	Students being always at home	15	1,4 1
	Students being deprived of social relations	10	0,9 4
	Students not being able to go to the library	3	0,2 8
	Students not being able to do group work	2	0,1 9
	Total	23	22, 6
		6	16
Negativities related to internet access and technological tools	Lack of internet access and possible technical problems	11	10, 7
	Insufficient technological tools and lecture materials (electricity, computer, printer, appropriate Smartphone and internet quota or package) of the students	58	5,4 5
	Lack of internet infrastructure in the places where students live	4	0,3 8
	Total	17	16, 9
Negativity related to student motivation and self-efficacy	The low motivation of students	68	6,3 8
	Not being able to study regularly for lectures and loss of current work discipline	28	2,6 3
	Students not being able to follow the lectures and focus on the lectures	23	2,1 6
	Loss of students' interest and enthusiasm for lectures	20	1,8 8
	Students' alienation from lectures	1	0,0 9
	Increase in useless preoccupations (playing games)	1	0,0 9

	Total	14 1	13, 24
	Limitations and problems in OBS	34	3,1 9
Inadequate distance education infrastructure of the university and negativities related to announcement- information	Not making the information and announcements (exam dates, how the lectures will be processed) by the university, as necessary.	18	1,6 9
	Students' anxiety and uncertainty about whether they will graduate	13	1,2 2
	Orientation and adaptation services (using OBS, how to follow the path) are not providing enough by the university	8	0,7 5
	The university does not give privileges to senior's grade students (graduation ceremony) and graduates hastily	7	0,6 6
	Student affairs not being reachable	4	0,3 8
	The university's internet infrastructure is insufficient	4	0,3 8
	The university does not show the necessary attention to the students	1	0,0 9
	Total	89	8,3 6
The negativities related to the results of distance education	Students are not gain practice and experience	47	4,4 1
	The shortcomings will cause trouble in our professional life in the future	20	1,8 8
	Thought to cause negative social effects in the future	9	0,8 5
	The education given causes rote learning	4	0,3 8
	Addiction to technological devices (phone, computer)	3	0,2 8
	Total	83	7,7 9
Negativity arising from being at home	The environment at home is not suitable for regular study	40	3,7 6
	Being at home is boring and tiring	18	1,6 9
	Responsibility for household chores and exposure to family troubles	10	0,9 4
	Exposure to domestic violence	3	0,2 8
	Total	71	6,6 7
Negativity arising from the student	Technological inadequacy of students	10	0,9 4
	Students missing a few online classes	3	0,2 8

	Students' fear of infection with the virus	3	0,28
	Students are not able to adapt to the compulsory distance education process	3	0,28
	Students' dissatisfaction	1	0,09
	Disruption of students' routine working behaviors	1	0,09
	Total	21	1,97
Other	Not paying attention to students who are sick or whose relatives are sick	6	0,56
	Not considering students who will take post-university exams (KPSS and DGS)	2	0,19
	Total	8	0,65
Students who stated that they had no negative side	No negative side of distance education	88	8,26

As seen in Table1, the themes formed within the framework of the students' opinions about the negative aspects of distance education are evaluated under thirteen themes as follow respectively; negativities related to the planning and execution of the lectures (f=505), the negativities related to the processes of education and training carried out at a distance (f=460), the negativities related to the exams (f=285), negativities arising from lecturers (f=279), negativities arising from the "Social Distance" rule (f=236), negativities related to internet access and technological tools (f=179), negativity related to student motivation and self-efficacy (f=141), inadequate distance education infrastructure of the university and negativities related to announcement-information(f=89), the negativities related to the results of distance education (f=83), negativity arising from being at home (f=71), negativity arising from the student (f=21), other (f=8) and the absence of a negative side of distance education (f = 88). Below are some of the students' thoughts on the negative aspects of distance education.

Lecture topics are always written as pdf by our lecturers. It has no efficiency. We could learn better in face-to-face education. It could have been a one-month remedial training at least for the senior's grade. Having graduated in such a hurry has damaged my psychology (S492).

It is all problems from start to finish. Being on the computer constantly due to exams and homework causes various health problems (such as eye problems, hernia). I am telling you what happened. Taking these into consideration, our greatest wish is that our lecturers will give us feedback and make our work easier (S165).

None of the lectures were conducted online. There is no match or additional information about the exams in the additional files sent. We were constantly looking for answers from other sources (S104). We were deprived of the in-class training of our lecturers who really loved their job, who did the lectures not by making presentations but by guiding them as guides (S87).

Trying to implement a previously unused system without planning and working on it will bring failure. Extremely unsuccessful processes await both lecturers and students (S227).

There are problems such as the problem of attending online lectures, the internet problem, and the reliability of online exams (S11).

The relationship between learner and teacher is getting weaker. You can never work as desired in the family home (S115).

Lecturers never read exams properly. They gave it to give a grade. All our grades went down. My grades, which were too high, were remotely down. However, since it is from a distance, it should have been a more tolerant reading (S116).

While the students who are sick or whose relatives are sick have enough difficulty in how to do the exams and homework, we also consider exam homework school (S139).

While there is only one visa in face-to-face education, why are there two visas in distance education and they are so challenging (S141)?

University is not just about exams (s155).

The difference between the education given to us and the exams is too much and challenging (S169).

Announcements were not enough. We could not get an online education. The materials were also not adequate. I think the process was not managed very well. We will not even be able to graduate (S212)!

I have no desire to study. It is exceedingly difficult for lecturers to read the documents they throw from start to finish and find the places I need and take notes. I am very worried about the lectures I am lagging. If I am as anxious as a first year, I cannot even guess the anxiety of friends who have clinical lectures (T809).

There is no positive side, it is a completely psychological disorder, nothing else (S277).

Findings related to the first sub problem (University Students' Views on the Positive Aspects of Distance Education)

The answers to the semi-structured questionnaires related to the positive category were examined; codes were created and collected under themes.

Table 2. Students' positive opinions about distance education in the university

Themes	Codes	F	%
Positive aspects in terms of health	Preventing the spread of the pandemic and minimizing the risk of transmission	14	13,7
	It is a healthy method	6	1
	Protects from disease	86	8,08
	To be the most logical, correct, and appropriate choice to control the virus	53	4,98
	Being a good measure to combat the disease	48	4,51
	Making education feel safe and secure	44	4,13
	Ensuring social isolation with distance education	29	2,72
	Keeping it away from the public and crowded environments such as schools and dormitories	26	2,44
	Students continue to learn without fear of people	25	2,35
	People pay more attention to being clean and hygienic	3	0,28
	It is psychologically good for students to know that their health is not in danger	2	0,19
		2	0,19
	Total	46	43,5
		4	7
Positive aspects related to exams	Exam duration is one week (freedom of time)	48	4,51
	Exam questions are easy and comfortable	35	3,29
	Increasing students' exam grades and success levels	34	3,19
	Students do not experience exam stress and anxiety	32	3,00
	Being able to access all kinds of resources by doing research for exam questions	24	2,25
	Students can study better on exams	19	1,78
	A better understanding of exams	16	1,50
	Examinations are on the internet	15	1,41
	Assigning homework instead of exam	11	1,03
	Students can see their exams again	7	0,66
	Students focus on exam questions	7	0,66
	Students can reassess their exams	4	0,38
	Total	25	18,0
		2	3
Positive aspects in terms of time and place	Students have more time and opportunities to study	33	3,10
	Abundant and efficient use of time	31	2,91
	Students can comfortably study at the desired time to the lectures	25	2,35
	Increasing time to study for post-university (KPSS and DGS) exams	19	1,78
	Increased time available for self-development (reading articles, watching movies)	15	1,41
	Having plenty of time to read books	14	1,31
	Students to devote more time to themselves	14	1,31
	No attendance is required	12	1,13

	Avoiding school commuting traffic and transportation	11	1,03
	Students can listen to the lectures from anywhere	10	0,94
	Students can sleep more	10	0,94
	Provides saving some time	8	0,75
	Prevention of unnecessary and leisure time at school	7	0,66
	Students have more time to think	6	0,56
	Opportunity for a good rest period even if there is no vacation	5	0,47
	Students do not get up early	5	0,47
	Provide place-saving	3	0,28
	Students have time to do research	1	0,09
	Total	22	21,5
		9	0
Positive aspects of being at home	Being with our family and loved ones during the pandemic process	55	5,16
	It is nice to have homeschooling during the pandemic process	43	4,04
	Home environment to be more comfortable	38	3,57
	Spending time with our family during the pandemic process and not being alone	26	2,44
	Because the study system is at home, it is more fun and organized	19	1,78
	Understanding the value of our family and loved ones during the pandemic process	7	0,66
	Students are in their hometown	4	0,38
	Students are feeling happy and peaceful about being with their families	2	0,19
	Total	19	17,0
		4	0
Positive aspects regarding student motivation and self-efficacy	Increasing and directing the desire to research	34	3,19
	Permanence and quality of learning due to individual studies	22	2,07
	Learning how to do research or homework	20	1,88
	Students are more focused and interested in the lectures	14	1,31
	Students do not need to memorize	9	0,85
	Encouraging and digitizing students to use technology in education	6	0,56
	Increase in student motivation	5	0,47
	Developing homework habits	4	0,38
	Recognizing that student success depends on work and effort	3	0,28
	Causes positive changes in students' lives	1	0,09
	Total	11	11,8
		8	
Positive aspects regarding the planning and execution of the lectures	Lectures are more comfortable and easier	18	1,69
	Accessibility of the submitted lectures notes due to being recorded	17	1,60
	The lectures are not interrupted and not lagging	12	1,13
	Students can read again because their lecture notes are recorded.	11	1,03

	Realizing that some non-practical lectures can also be learned at home	10	0,94
	Students can successfully pass many lectures they did not pass	10	0,94
	Students do not need to write because their lecture notes are recorded.	9	0,85
	Lectures do not take too much time and not an intense marathon	7	0,66
	Students do not experience lecture stress and anxiety	6	0,56
	Realizing that some lectures are unnecessary	5	0,47
	Students can listen to the lectures again since the lecture documents sent are saved.	5	0,47
	Lectures are recorded as video, even if a little	4	0,38
	Lectures are conducted online, even if a little	2	0,19
	Total	11	10,9
		6	0
Positive aspects related to education and training processes	Distance education facilitates access to information	35	3,29
	Continuing education processes despite the difficult conditions of the pandemic	34	3,19
	Distance education to be more efficient	10	0,94
	A little more emphasis on student interpretation with distance education	7	0,66
	Not having some difficulties like in the face-to-face training period	7	0,66
	Some lectures are taught more effectively and organized in this way.	7	0,66
	Understanding the importance of face-to-face lectures	6	0,56
	Not being distracting noise in the classroom	3	0,28
	Distance learning and lack of face-to-face training	3	0,28
	Most of our obligations disappear	2	0,19
	Total	11	10,6
		4	0
Positive aspects arising from lecturers	Lecturers regularly sending lectures notes	10	0,94
	Some of our lecturers are flexible and indulgent	8	0,75
	Understanding that some of our lecturers are valuable	7	0,66
	Some of our lecturers act responsibly and show effort	7	0,66
	The increasing interest of some lecturers	4	0,38
	Increased communication with some lecturers	2	0,19
	Some lecturers are informing students about the exam	2	0,19
	Lecturers upload their exam documents on time	2	0,19
	Some lecturers provide information and guidance about the lectures.	1	0,09
	Total	43	4,04
Economic reasons	The decrease in financial concerns, burdens, and expenses (transportation, rent, food, beverage)	22	2,07
	Supporting the family in business and financial terms during the pandemic process	8	0,75

	The decrease in the cost of education and no financial difficulties	3	0,28
	Total	33	3,10
Positive aspects of the university's process management	Our university's interest in students	10	0,94
	The distance education conducted by our university is found successful by students	9	0,85
	Understanding the value of the university	7	0,66
	Conducting the distance education conducted by our university by planning a road map	4	0,38
	Making education easier and more comfortable during the pandemic process	2	0,19
	Total	30	2,82
Positive aspects for the student	Students concentrate on things that increase spirituality (religion)	6	0,56
	Not to be exposed to the lectures of our unsuccessful lecturers	4	0,38
	Students not seeing people they do not like (friends)	4	0,38
	Students can do the hobbies and activities they want	4	0,38
	Making student-oriented and student-centered decisions	2	0,19
	Realizing that some lecturers do not add anything to students	2	0,19
	Some faculty members cannot defy our rights (bad summer, page layout) and cannot break the grade.	1	0,09
	Total	23	2,16
Students who stated that they had no positive side	No positive side of distance education	28	26,5
		3	7

When Table 2 is examined, the themes formed within the framework of the students' opinions about the positive aspects of distance education was evaluated under twelve themes as follow respectively; positive aspects in terms of health (f=464), positive aspects related to exams (f=252), positive aspects in terms of time and place (f=229), positive aspects of being at home (f=194), positive aspects regarding student motivation and self-efficacy (f=118), positive aspects regarding the planning and execution of the lectures (f=116), positive aspects education and training processes (f=114), positive aspects arising from lecturers (f=43), economic reasons (f=33), positive aspects of the university's process management (f=30) positive aspects for the student (f=27) and students who stated that

they had no positive side (f=283). Below are some of the students' thoughts on the positive aspects of distance education.

I think that obtaining information without time limitation for education, learning, and working and encouraging them to individual and definite research on certain subjects increases the quality of education (S127).

Our desire for more research is increasing. While searching for answers to the questions given in the exams, I do research more carefully and precisely and I can form my sentences easily (S69).

Unnecessary loss of time, which could be spent during the education period, was reduced to a minimum in distance education. The time that a person could spare for his / her self-development increased.

Also, financial burdens such as transportation, food, and beverage during the day decreased (S52).

We can study at home in an extremely healthy and safe way. Sharing lecture materials with us regularly by our lecturers. The time given for the exams, the information requested for the exams enable us to do our work properly and well (S41).

While we care about health issue so much, while isolating ourselves at home for months, while taking on certain psychology, there is not much lecture anxiety (S36).

I will not say anything about the positive side because face-to-face education is healthier, but even at distance education; our lecturers are interested in it (S602).

There is no positive aspect; it did not contribute at all. On the contrary, I became completely alienated from the lectures (S898).

Having plenty of time is a good thing, but I am not satisfied with this situation as this time is spent with extra-curricular things (S1015).

Online education is more effective than face-to-face education based on a memorization system. Since it is homework, you are doing more research and this is more permanent, so if distance education is developed further, it seems more advantageous in many subjects (S1016).

There is nothing positive about the virus other than preventing it from spreading (S1050).

DISCUSSIONS and CONCLUSION

The aim of this study was to determine the positive and negative opinions of university students about compulsory distance education, which started with the Covid-19 pandemic. University students evaluated the pandemic process negatively. Similar findings were obtained by Tuncer and Bahadır (2017), Öztaş and Kılıç (2017), and Karatepe et al. (2020). The important results of the study are discussed below.

In the theme of the negativities related to the planning and execution of the lectures, 47.42% of the students expressed a negative opinion that the lectures were taught more according to the procedure during the pandemic process. When the negatively expressed opinions are examined in general; it was found that the students could not get feedback about the lectures, the lecturers only sent the pdf document

as the lecture notes and therefore the lectures were not understood. It was stated that communication and interaction in distance education cannot be as easy as in face-to-face education (Akyürek, 2020). In distance education, some of the lectures (laboratory, clinical, professional practice, internship, numerical, and speaking and reading lectures) that need to be taught in person and mutually cannot be realized (Clark, 2020; Djalilova, 2020).

When the findings obtained in terms of the positive opinions about the planning and execution of the lectures were evaluated, 10.90% of the students stated a positive opinion on the way the lectures were taught. When the positively expressed opinions are examined; it was determined that there are positive aspects such as the ease and convenience of the lectures as the lecture documents sent by the lecturers are recorded. In distance education, students do not have problems with missing content, as documents and speeches are recorded (Zhang, Zhao, Zhou, & Nunamaker, 2004; Parker & Martin, 2010; Ilgaz, 2014).

When the negative (47.42%) and positive (10.90%) aspects of the planning and execution of the lectures are evaluated together, it is seen that the negative aspects are much more dominant. This result coincides with the study of Keskin and Özer - Kaya (2020) in which they reported students could not communicate with lecturers and could receive insufficient feedback during pandemic. To solve these problems, it is stated that soon, it will be possible to provide effective education from a distance thanks to the augmented reality technology in which 3D virtual objects are integrated into a 3D real environment in real time (Clark, 2020; Djalilova, 2020).

In the theme of negativities related to the processes of education and training conducted remotely, 43.85% of the students expressed a negative opinion that the lectures were conducted inadequately and ineffectively. When the negatively expressed opinions are examined in general; it has been determined that the distance education, a

sudden change in education method, is useless due to applying a system that has not been used before, without planning, experimenting, and making any predictions. Although the gains to be obtained in distance education are not permanent, they are forgotten more quickly (Akyürek, 2020; Keskin & Özer-Kaya, 2020).

In terms of the positive aspects of distance education and training processes, 10.60% of the students stated that distance education is more efficient than face-to-face education. When the positively expressed opinions are examined in general; it has been determined that there are positive aspects such as the convenience of distance education in accessing information, the continuity of educational processes despite the difficult conditions of the pandemic, and a little more attention to student interpretation with distance education. In addition, it was stated that distance education is more effective in lectures that do not require practice.

When the negative (43.85%) and positive (10.60%) opinions of the students about the processes of distance education and training are evaluated together, it is seen that the negative aspects are much more prevalent. Based on these data, it can be said that remote education is not beneficial enough during the pandemic process and interpreted that a generation was wasted. Trying to implement the face-to-face education curriculum with distance education in an unplanned way and the inadequacy of the lecturers in distance education negatively affect the satisfaction of students (Chen, Peng, Yin, Rong, Yang, & Cong, 2020). Education has become more teacher-centered, and the active participation of students in lectures has decreased in the process of distance education, which is unprepared and unplanned (Barton, 2020). Considering the conditions of distance education; lecture contents designed according to face-to-face education should be updated according to distance education, especially student

acquisition. Also, orientation seminars should be given urgently to lecturers and students to adapt to the distance education.

In the theme of negativities regarding the exams, 26.76% of the students stated a negative opinion that the exams were conducted as required by the procedure and that they were not intended for evaluation. When the negatively expressed opinions are examined in general; the students expressed that the exam questions are difficult, the assessment is not fair and objective, the exam questions are not in the lecture notes and the lecturers do not read the exam paper.

In the theme of positive aspects regarding the exams, 18.03% of the students stated that they found the exam method applied at Bingol University positive. When the positively expressed opinions are examined in general; it has been determined that the practices of Bingol University regarding exams have positive aspects, such as the fact that the period of taking online exams is one week and the grades increase due to the ease of exam questions. It has also been found in numerous studies that the average of remote assessment exams is higher than the average of face-to-face exams (George, 2020; Solak, Ütebay, & Yalçın, 2020).

When the negative (26.76%) and positive (18.03%) student opinions about the exams are evaluated together, it is seen that the negative aspects are predominant. Based on these data, the establishment of a process-oriented and transparent system that is not result-oriented can provide solutions to negatively expressed opinions. For this, the digital footprints created by students during their education should be observed and used in evaluation (Bozkurt, 2020).

In the section where the negative aspects were taken, 8.26% of the students stated that there is no negative aspect of distance education. In the section where positive aspects were taken, 26.57% of the students stated that there is no positive aspect of distance education, and they want to switch to face-to-face education.

When the negative (26.57%) and positive (8.26%) opinions are evaluated together, it can be said that the students are not satisfied with distance education, and they prefer face-to-face education. This result of the research coincides with the results of the studies conducted by Barış (2015) and Tuncer and Bahadır (2017). As a result of the study conducted by Özkul and Aydın (2012), it was determined that half of the students preferred blended learning over face-to-face and completely open and distance learning. Based on these data, it is seen that blended or hybrid learning is the most preferred method among the options. Considering the health conditions, it can be said that it may be beneficial to use hybrid education even if a little.

In the theme of negativities arising from lecturers, 26.20% of the students stated that the lecturers were indifferent, insensitive, and inexperienced. When the negatively expressed opinions are examined in general; it has been identified that there are negative aspects such as lecturers do not guide students; lecturers cannot be reached (mail, telephone) in distance education, which is applied due to the pandemic and is new. Students stated that they lack guidance in distance education and that they solved the use of the system intuitively (İlgaz, 2014). It is better understood that the roles of teachers should change as guiding during the pandemic process (Bozkurt, 2020). For educators to guide students, they need to adapt to this new situation much faster and earlier than students.

In the theme of positive aspects arising from the lecturers, 4.04% of the students expressed a positive opinion that the lecturers provided benefits and contributions to them in this process. When the positively expressed opinions are examined in general; it has been found that there are positive aspects such as that the lecturers regularly send lecture notes, some of the lecturers are understanding, act responsibly, their interest has increased, and they upload the exam documents on time.

When the opinions of the students on the negative (26.20%) and positive (4.04%) themes arising from the lecturers are evaluated together; it has been concluded that the negative aspects are more than the positive ones. One of the most important components of distance education is the lecturers (İlgaz, 2014). Based on these data, it can be said that the most striking negative aspects of distance education are those caused by the lecturers. Lecturers have different duties and roles in distance education compared to face-to-face teaching. These tasks must be fulfilled for distance education lectures to be efficient (İlgaz, 2014). These data coincide with the studies conducted in the literature (İlgaz, 2014; Sümer, 2016; Karatepe et al., 2020; Tuncer & Bahadır, 2017; Öztaş & Kılıç, 2017).

In the transition to distance education, it is stated that the insufficient skills of some lecturers to use technology negatively affect the distance education process (Nenko, Kybalna, and Snisarenko, 2020). In fact, it is stated that lecturers should increase their competencies in distance education (Karatepe et al., 2020). Lecturers should use body languages, gestures, and mimics to provide “social here” that affects student motivation, satisfaction, and success (Clark & Kwinn, 2007; Aragon, 2003; Richardson & Swan, 2003; Rourke, Anderson, Garrison, & Archer, 1999).

In the theme of negativities regarding student motivation and self-efficacy, 13.24% of the students stated negative opinions that they had serious difficulties in adapting and focusing on lectures. When the negatively expressed opinions are examined in general; it has been stated that distance education causes low motivation, not being able to study the lectures regularly, follow and focusing on the lectures, and decreasing the interest and learning enthusiasm and alienation towards the lectures. Students without self-study habits and discipline cannot get efficiency from distance education (Akyürek, 2020) and therefore their motivation decreases (Karakuş et al., 2020). It is observed that students have a significant low

motivation problem in distance education lectures (Karatepe et al. 2020). This finding is consistent with Kırmacı and Acar's (2018) finding that students find synchronous lectures boring. Distance education reduces group work by directing students to individual work (Keskin & Özer-Kaya, 2020). With the flexibility it provides, distance education can cause students to behave too comfortably and postpone their responsibilities (Djalilova, 2020).

In the theme of positive aspects regarding student motivation and self-efficacy, 11.8% of the students stated that they made more progress in terms of self-efficacy and were motivated due to the individual homework and research. When the positively expressed opinions are examined in general; it has been found that positive aspects such as students' focusing more on the lectures, increasing the desire for research due to the individual nature of the research, the permanent and quality of learning, learning how to do research and not needing to memorize were expressed. According to Salleh et al. (2020), distance education promotes self-discipline and responsibility taking.

When the negative (13.24%) and positive (11.8%) opinions about student motivation and self-efficacy were evaluated together, it was concluded that the negative aspects were slightly higher than the positive ones. To minimize the problems experienced in the context of motivation in the distance education process, it can be suggested to use motivational design model strategies effectively in the design of teaching environments (Uçar, 2016: 148).

In the theme of the disadvantages of the university's distance education infrastructure, announcement, and information, 8,36% of the students expressed a negative opinion that the university had problems adapting to the distance education process. When the negatively expressed opinions are examined in general; it has been determined that there are negative aspects such as the limitations and the problems experienced in OBS, the lack of informing and

announcements by the university (exam dates, how the lectures will be processed), the university's orientation and adaptation services (using OBS, how to follow the lecture). The most crucial factor affecting students' satisfaction in distance education is the stable operation of the platform used for distance learning (Chen, Peng, Yin, Rong, Yang, & Cong, 2020; Jowsey, Foster, Cooper-Ioelu & Jacobs, 2020). Technical problems experienced at the very beginning of distance education or negative student perceptions about usefulness can lead to failure and abandon the program (Park & Choi, 2009, Yükseltürk & İnan, 2006).

Under the theme of positive aspects in terms of the university's management of distance education, 2.82% of the students stated that the university administration managed the process well. When the positively expressed opinions are examined in general; it has been found that there are positive aspects such as taking care of the university students and understanding the value of the university. The establishment of distance education centers by universities and the cooperation of some universities with universities experienced in distance education enable the development of distance education (Nenko et al., 2020).

In the theme of negativities arising from being at home, 6.67% of the students stated negative opinions that the home environment is not suitable for studying. When the negatively expressed opinions are examined in general; it has been determined that there are negative aspects such as not being able to study regularly; being at home is tiring, the responsibility of housework, and exposure to family troubles.

In the theme of positive aspects arising from being at home, 17.00% of the students stated that being at home during the pandemic was positive. When the positively expressed opinions are examined in general; it has been identified that there are positive aspects such as being with our family and loved ones during the pandemic, being

comfortable in the home environment, spending time with our family during the pandemic and not being alone.

When the negative (6.67%) and positive (17.00%) aspects of being at home were evaluated together, it was concluded that the positive aspects were more than the negative aspects. In nutshell, students stated that being at home is a positive situation during the distance education process.

In the theme of negativities arising from the "Social Distance" rule, 22.16% of the students stated that this rule makes their lives difficult. When the negatively expressed opinions are examined in general; it has been stated that there are negative aspects such as decreased social interaction, activity, and environment, causing anxiety, stress, and pessimism, psychological problems, students not meeting with their friends and students being deprived of social relations. Physical distance reduces the sense of commitment among people involved in the distance education process (Ilgaz, 2014), and limits students' communication with their friends and faculty members (Djalilova, 2020). Students, who had to stay at home due to the pandemic and whose daily life routines changed, also had to struggle with the stress, anxiety, and depression that emerged due to the pandemic (Al Lily, Ismail, Abunasser & Alqahtani, 2020).

In the theme of internet access, teaching materials, lecture notes, and the negativities regarding technology, 16.81% of the students stated that they lack internet and technological tools. When the negatively expressed opinions are examined in general; it was concluded that there are negative aspects such as lack of internet access, technical problems, insufficient technological means of students, and lack of internet infrastructure in the places where students live. In many parts of the world and in our country, significant expenditures and investments are made in distance education technology (Kaçan & Gelen, 2020). For effective distance education, it is necessary to establish a distance education infrastructure, enrich the lecture

contents, and have a technical support team against any problems that may arise (Salleh et al., 2020). Technical problems and other negativities experienced in the distance education process negatively affect the perception of students and their families towards distance education (Nenko et al., 2020; Al Lily et al., 2020). Distance education infrastructure and some technological devices are needed to conduct distance education (Karakuş et al., 2020). Due to socio-economic reasons, there are inequalities among students in terms of access to information in underdeveloped regions (Karakuş et al., 2020). Problems in accessing the internet and distance education technologies in rural areas cause the digital divide (Bozkurt, 2020). In the theme of negativities regarding the results of distance education, 7.79% of the students expressed a negative opinion that distance education may be a source of serious social, political, and economic problems in the future. When the negatively expressed opinions are examined in general; it has been stated that there are negative aspects such as students' inability to gain experience; deficiencies may cause problems in their future professional life, the education given causes rote learning and dependence on technological devices.

In the theme of positive aspects in terms of health, 43.57% of the students stated that it is necessary for health, to continue with distance education during the pandemic period. When the positively expressed opinions are examined in general; it has been found that the continuation of schools with distance education has positive aspects and advantages such as preventing the spread of the pandemic, minimizing the risk of contamination, providing social isolation to a considerable extent, away from crowded environments such as schools and dormitories.

In the theme of positive aspects in terms of time and place, 21.50% of the students positively stated that distance education does not have a certain time and place limit. When the positively expressed

opinions are examined in general; it has been determined that there are positive aspects and advantages such as increasing the time of students to study, working at the desired time for the lectures, and getting rid of the traffic of going to and from the school. During the pandemic process, students can do this from anywhere with internet access, as distance education removes the space limitation (Djalilova, 2020).

In the theme of economic reasons, 3.10% of the students expressed a positive opinion that they do not spend money. When the positively expressed opinions are examined in general; it has been determined that there are positive aspects and advantages such as a decrease in financial concerns and expenses, a decrease in the cost of education, and no financial problems. Distance education is economical (Salleh et al., 2020) and since there is no need for any means of transportation to go to the university in the distance education process, transportation costs and time used for transportation are eliminated (Djalilova, 2020).

Data availability Data sharing for this study is not applicable as no datasets were generated.

Declarations

Conflict of interest Not Applicable.

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CHAPTER IV

Undesirable Student Behaviors Encountered in Primary Schools After the Earthquake, Methods, and Solution Suggestions

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1. Introduction

Earthquakes and their effects

Turkey, due to its geographical location, is at risk of experiencing natural disasters. Earthquakes are among the most destructive, uncontrollable natural disasters that threaten life the most (Wu et al., 2014). Natural disasters occurring in or near residential areas can trigger a major outcome, which is migration. Depending on the magnitude of the disaster, hundreds of thousands

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of people may have to leave their homes (Parin et al., 2022). After an earthquake, people may experience psychological problems directly or indirectly due to the traumas they have lived through (Coşkun, 2023). Another significant issue caused by earthquakes is the destruction of people's safe living spaces, which shakes their fundamental sense of security. Initially unnoticed or ignored psychosocial problems become evident as earthquake victims adapt to a new life (Avcı et al., 2023). During this process, earthquake victims may need material and moral support to continue their lives in a better way (Yıldırım, 2023).

Studies have shown that children, like adults, are affected by the events they are exposed to during and after an earthquake. Many parents have reported that their children reenact the moment of the earthquake in their play (Darga, 2023). Most parents mention reactions such as fear, anxiety, quick anger, numbness, feeling unsafe, behaving like a younger child, regressing to earlier developmental stages, not wanting to be separated from parents, insomnia, excessive startling, loss of appetite, nausea, stomach pain, headaches, and fatigue in their children after disasters (Sönmez, 2022). Some children are more resilient to negative life events and cope better with stressful situations, while others may be more affected by such negative events. Recognizing risk factors that facilitate the emergence of psychiatric disorders, especially stress-related psychiatric disorders, is essential for prioritizing individuals for post-disaster interventions (Sönmez, 2022). In a study conducted by Karakuş (2014), the earthquake perceptions of students who have and have not experienced an earthquake were examined through metaphor analysis. It was found that students who experienced the earthquake often used metaphors like "doomsday," "Azrael," and

"death," while students who did not experience the earthquake used metaphors like "unexpected event" and "natural event."

After an earthquake, students and their families may have difficulty focusing on and adapting to education and school due to the psychological challenges they face. The anxiety and stress caused by the earthquake can negatively affect students' academic performance during this process (Yamamoto and Altun, 2023). This situation can lead to problems in schools post-earthquake, such as disciplinary issues, unwanted behaviors, adjustment difficulties, failure in lessons, lack of interest in school and classes, difficulty getting along with friends, bullying, and communication problems with teachers and friends. The problems encountered in schools after the earthquake are listed as follows (Bayar et al., 2024): increase in unwanted behaviors, increase in class size, decrease in academic success, psychological problems, emotional burnout, and economic difficulties. According to a research result related to the post-earthquake period, most participants experienced both negative and positive changes after the earthquake. All participants agreed that our country is inadequate in earthquake preparedness and emphasized that disaster education should be provided practically at every education level, compulsory first aid training should be offered to every individual, and building inspections should be conducted meticulously (Filiz, 2024). Considering that the process of behavior acquisition and development can be more effective with education provided at an early age, individuals should be made aware of disasters from a young age and necessary precautions should be taken (Dağcı, 2024).

1.2. Undesirable Student Behaviors, Their Causes, and Teacher Attitudes

Schools and classrooms are not only teaching but also socializing environments. School and classroom environments are places where undesirable behaviors are also encountered. (Sarigoz and Ozgur, 2024). These behaviors can vary depending on students' age, gender, and psychological characteristics (Aydın, 2007). These undesirable student behaviors that teachers face in schools create a significant discipline problem and a great challenge in effectively continuing the educational process. These behaviors can negatively affect classroom management and the delivery of lesson content to students (Çetin, 2013). Among the undesirable situations frequently encountered in classrooms are lying, making noise, teasing, constantly complaining, using foul language, lack of attention, denial, bullying, disrespect, fighting, disinterest, and stubbornness (Korkmaz et al., 2024). The most common negative behaviors encountered by teachers include making noise, lying, using foul language and teasing, lack of attention, bullying, fighting, disrespect, and lack of interest in the lesson (Gönül et al., 2024). In schools, dealing with discipline problems and undesirable student behaviors can generally be challenging for teachers (Sarigoz, 2022). Some of these problems can be related to the teachers' attitudes, while many are associated with the students' personalities, emotional and social lives, family environments, and surroundings (Gündüz and Konuk, 2016). Additionally, students' adaptation problems to school and classroom rules can also be a fundamental cause of undesirable student behaviors.

Resilience to adverse experiences, i.e., psychological resilience, is an important subject. Children exposed to negative life events such as natural disasters, violence, poverty, family problems, economic difficulties, and unhealthy living environments are at risk in this regard (Karairmak, 2006). Traumatic events and processes can lead to issues like undesirable student behaviors in schools. After a natural disaster like an earthquake, students and their families go through a psychologically challenging process, and it can be difficult to cope with education during this time. Students may experience fear due to the anxiety and stress experienced after the earthquake, which can negatively affect their school success (Yamamoto and Altun, 2023). The recurring symptoms of fear, panic, and anxiety after the earthquake indicate the need for an appropriate approach considering students' psychological conditions (Kurt and Gülbahçe, 2019). Early detection of problems and early intervention if they are resolvable can prevent the worsening of behaviors and significantly contribute to the solution of problems. Teachers should initially delve into the roots of undesirable student behaviors and determine the fundamental causes of these behaviors (Şahin and Arslan, 2014). Then, teachers should integrate methods to deal with these behaviors into the educational process. Research on coping with undesirable behaviors shows that teachers use various strategies and methods. Teachers employ strategies such as talking with students, setting rules, meeting with parents, reporting the situation to the administration, assigning responsibilities to students, disciplining, rewarding, self-assessment, and in some cases, ignoring to prevent undesirable behaviors (Korkmaz et al., 2024). It has been determined that teachers use methods such as warning students, showing empathy, establishing effective communication, and making lessons

more engaging to manage negative behaviors (Bayar et al., 2024). Again, it has been observed that teachers use methods such as talking to the student, setting rules, meeting with parents, reporting to the administration, assigning responsibilities, disciplining, rewarding, and ignoring to cope with undesirable behaviors in classrooms (Gönül et al., 2024).

2. Method

In this research, a case study approach within the framework of qualitative research method was preferred. Case studies aim to analyze the results of a specific event or situation. One or several cases are examined in detail in this design. In this study, the undesirable student behaviors encountered by primary school teachers in their classrooms after the earthquakes in Kahramanmaraş on February 6, 2023, the methods teachers use to cope with these behaviors, and their solution suggestions were examined. Undesirable behaviors, methods used, and solution suggestions were considered as a whole in a single case.

2.1. Study Group

The purposive sampling method, which ensures the selection of cases with rich information relevant to the research topic, is used for in-depth investigation of special cases with specific characteristics (Başaran, 2019). In forming the study group, the typical case sampling type was preferred. Accordingly, typical schools with teachers who experienced the earthquake in Hatay province were included in the research. Interviews were conducted with a total of 15 primary school teachers, 7 women and 8 men, in these schools.

2.2. Data Collection Tool

The data of the research were collected through semi-structured interview questions. The interview form consisted of 5 questions containing demographic information of the participants and 8 open-ended questions related to the research topic. The questions were arranged and finalized based on expert opinion and pilot interviews. Participants' consent was obtained on a voluntary basis, and interviews were conducted using note-taking and voice recording techniques. In remote districts of Hatay, interviews were conducted by phone, and the audio recordings were transcribed into Word documents. Data collected from teachers working in the earthquake zone were obtained through semi-structured interview questions.

2.3. Data Analysis

The findings section was summarized with tables under the subheadings of "code, category, and subcategory" from the participants' responses, and the data were analyzed using content analysis method. Each participant was assigned codes starting with the letter "T" (T1, T2,...T15), and their opinions were supported by direct quotations.

3. Results

In this section, themes are presented under headings according to the research questions.

3.1. Theme 1: Findings Related to Undesirable Student Behaviors

This part of the research includes the codes and categories of the undesirable student behaviors encountered by classroom teachers.

Table 1. Undesirable Student Behaviors Encountered by Classroom Teachers in Schools

Category	Sub Category	Codes
To your friends oriented	Violence	Peer tyranny
		Abusive to talk
		Breaker behaviors
	Rapport	Fight Don't
		Intolerant behaviors
		Communication Problems
		Group in his studies mismatch
Education to the teaching oriented	Class Intra	Game in playing strain
		Attention disorganization , inability to focus
		In class with friends speech
		To the rules noncompliance
	Class Affecting	Lesson vehicle
		your supplies not bringing
		High with voice speech
Personal Behaviors	Psychological	Complaint Don't behaviors
		Discontinuity
		To the lesson late coming
		Hyperactivity
		Egoism
	Responsibility	Fear
		Lie Don't say
		Continually help don't want
		Responsibility not taking
		Messy And irregular being
	Dependence	To your belongings owner inability to go out
		Nail eating habit
		Telephone and internet addiction

When the findings in Table 1 are examined, categories such as behaviors related to education, behaviors towards peers, and personal behaviors emerged. Among the undesirable behaviors

encountered towards peers, it was found that teachers mostly focused on bullying under the subcategory of violence and using foul language. Direct quotes related to this category are presented below:

"Undesirable student behaviors I encountered at my school include swearing, physical violence, egoism..." (T2).

"Primarily, behavior disorders, difficulty in playing games, and incompatible behaviors among students." (T3).

"...Undesirable student behaviors I encountered at school include the culture of complaint, meaning students reporting each other." (T4).

"...Additionally, I observed students talking to their friends during the lesson, and occasionally talking among themselves." (T9).

"Undesirable student behaviors I encountered at school include frequently asking for help with problems and issues that could be easily solved, being selfish in peer relationships..." (T7).

"Among the undesirable student behaviours, I encountered at our school are behaviors such as unhappiness, hyperactivity, irritability, impatience, inability to complete tasks on time, phone addiction, eating disorders, and nail-biting habits." (T14).

Table 2. Most Frequently/Least Frequently Encountered Undesirable Student Behaviors

Category	Sub Category	Codes
Discipline Problems	Rule	Peer Bullying
		Failure to comply with school and classroom rules
	Social	Inability to communicate
	Violence	Argument
		Billingsgate
		Inappropriate conversations in class and outside of class
	Individual	Don't make others do your work.
		Language problems
	In Class	Not bringing school supplies and equipment
		Discontinuity
Personal Behaviors	Psychological	Being self-centered
		Don't be unhappy
		Don't be angry
		Fear, crying
		Lie
	Dependence	Phone, internet addiction
Physical Environment		Don't throw garbage on the ground
		Leaving the toilet dirty

When the findings related to the most frequently and least frequently encountered undesirable student behaviors in Table 2 are examined; categories such as disciplinary problems, personal behaviors, and physical environment emerged. The most frequently encountered undesirable student behaviors are bullying under the category of disciplinary problems, not complying with school and classroom rules, inability to communicate, and using foul language. The least frequently encountered undesirable student behaviors are in the categories of personal behaviors and physical environment. Direct quotes related to the most frequently/least frequently encountered undesirable student behaviors are presented below:

"The most frequent undesirable student behavior is having someone else do their work. For example, they ask teachers for help with tasks like opening a bottle cap or pulling a zipper. The least frequent behavior is absenteeism." (T7).

"The most frequent physical violence among students is bullying, while the least frequent is lying." (T9).

Table 3. Differences Between Undesirable Student Behaviors Encountered Before and After the Earthquake

Category	Sub Category	Codes
Increase in Unwanted Behaviors	Psychological	Fear and startle behaviors
		Reacting to sudden sounds, shouting
		Sleep problems
		Pessimism
		Fatigue, weakness
		Stress
		Sleep problems
	Violence	Expressing anger, tendency towards violence
	Indifference	Don't care about anything
		Indifferent behavior of parents
Decrease in Unwanted Behaviors	Irregularity	Disobedience
	Responsibility	Failure to fulfill responsibilities
	Rapport	I don't complain
	Lesson	Desire to come to school and attend classes
No Difference		No difference in undesirable behaviors before and after the earthquake

When the findings related to the differences between undesirable student behaviors encountered before and after the earthquake in Table 3 are examined; three categories emerged: increase in undesirable behaviors, decrease in undesirable behaviors, and no difference.

"There was no difference in undesirable student behaviors between before and after the earthquake among my students." (T5).

"There was no different situation among my students after the earthquake. They behave the same as they always do." (T7).

"Yes, there were differences after the earthquake due to the trauma they experienced. These behaviors include fear, being startled, and reacting to sudden noises." (T14).

"Some undesirable behaviors increased after the earthquake. These include expressing anger outwardly and problems in communicating with others..." (T10).

The subcategory of indifference included not caring about anything, and an increase in indifferent behaviors among parents was noted. Direct quotes from participants related to the subcategory of indifference are presented below: "

There were changes in some behaviors. After the earthquake, students did not want to fulfill their responsibilities, which I think is due to parents giving them fewer responsibilities." (T2).

"...our disorganized life, not being able to enter the house after the earthquake, resulted in disorganization in children. They became more indifferent and irresponsible." (T3).

"...The most common undesirable behaviors in students are not listening and acting without rules." (T11).

Table 4. Most Frequently Encountered Undesirable Student Behaviors After the Earthquake

Category	Subcategories	Codes
For Education and Training	In Class	Inability to focus on lessons for long periods of time
		Discontinuity
		Lack of interest in lessons
Family Oriented		Indifference of parents
Personal Behaviors	Psychological	Monophobia
		Sleep problems
		Sudden and extreme reactions to loud noises
		Egocentric behaviors
		Fatigue, weakness
		Stress
		Pessimism
		Crying fits
	Dependence	Phone and internet addiction
Discipline Problems	Irregularity	Communication problems
		Disobedience
		Disorderly behavior
		Argument
		Don't complain
	Insignificance	Irresponsibility
		Not caring about anything, not valuing anything
No Difference		No different situation encountered

Findings related to the most frequently encountered undesirable student behaviors after the earthquake are presented in Table 4. Direct quotes related to this category are presented below:

"There is no difference between before and after the earthquake. These problems are not due to the earthquake." (T7).

"...Also, they cannot focus on lessons for long periods in the classroom, which is a frequently encountered situation." (T9).

"After the earthquake, students showed unwillingness to come to school and reluctance to do schoolwork." (T12).

"...They spend most of their time on their phones, and parents do the same. I think parents have concerns about making a living, which is becoming increasingly difficult due to economic conditions. I think this leads to parents not paying attention to their children. Parental interest has decreased.

" (T3). "The most common behaviors in students after the earthquake are stress and pessimism." (T8).

"After the earthquake, students could not stay at home alone, had fears, sleep problems, waking up screaming due to traumas, sleeping in the same room with the family, excessive reactions to the slightest noise, crying crises. Some students did not attend school at all after the earthquake." (T14).

"The most common undesirable behavior in students after the earthquake is irresponsibility. Students became more egocentric, not caring about or valuing anything or anyone." (T2).

"Some undesirable behaviors increased after the earthquake. These include expressing anger outwardly, problems in communicating with others, tiredness and fatigue due to sleep problems becoming more pronounced." (T10).

3.2. Theme 2: Findings Related to the Causes of Undesirable Student Behaviors

In this part of the study, "the causes of undesirable student behaviors encountered" are presented.

Table 5. Findings Related to the Causes of Undesirable Student Behaviors

Category	Sub Category	Codes
Originating from the Family	Education	Wrong attitudes of the family, their inability to educate their children
	Emotional	Failure of the family to be a role model
		Lack of love and attention from the family
	Income Status	Family's anxiety about the future
Student-Related	Psychological	Fear, anxiety
		Mismatch
		Peer bullying
		Inability to express oneself
	Academic	Staying away from school for long periods of time
		Academic failure
	Physiological	Attracting attention and competing
		Transition to puberty
		Unbalanced and irregular nutrition
Originating from Social Environment	Dependence	Internet, telephone, social media
	Technology	Negative impact of social environment
		TV, media, news
Originating from School	Physical Environment	Inadequate physical infrastructure
	Nutrition	Unhealthy diet
	Teacher	The teacher's monotonous teaching of the lesson

When the findings related to the causes of undesirable behaviors in Table 5 are examined; it is seen that the most focused categories are those related to family and student factors. Direct quotes related to this category are presented below:

"Parents taking responsibility for their children, not giving responsibilities to students. Parents' wrong attitudes cause undesirable student behavior." (T2).

"...I can say that parents' lack of awareness in child-rearing is one of the causes of undesirable student behavior. Parents say they don't have time and spend their time on other things, getting too caught up in the struggle for survival and forgetting that our main

goal is to raise human beings. However, that child needs attention and love, needs to be set an example.

" (T3). "News, fear of the future, and negative influences on families can cause undesirable behaviors." (T8).

"I think the long-term disconnection from school and lessons after the earthquake and changes in their life patterns may have caused undesirable behaviors." (T14).

"The causes of undesirable student behaviors, as far as I have observed in my class and students, may be environmental characteristics and factors outside the classroom." (T10).

Table 6. Teachers' Feelings When Encountering Undesirable Behaviors

Category	Codes
Negative	Sadness
	Anxiety
	Pessimism
	Despair
	Exhausted
	Uneasiness
	Wince
	Unhappiness
	Despair
	Disappointment
Positive	Empathy
	Patience and calmness
	Heat
	Extinguishing negative behavior

When the findings related to teachers' feelings when encountering undesirable student behaviors in Table 6 are examined; two categories emerged: positive and negative. It is seen that teachers focus more on the negative category. Direct quotes related to this category are presented below:

"When encountering undesirable behaviors, I think the education given to children by families is lacking in some areas, which makes me anxious and unhappy." (T1).

"Primarily, I feel hopeless and anxious. Seeing that my efforts are not reciprocated is a sad situation, which makes me feel unmotivated and causes professional deformation." (T3).

In the attitude subheading of the positive category in the table; codes such as empathy, being calm and patient, showing warmth and smiling, and extinguishing negative behavior were reached. Direct quotes related to the positive category are presented below:

"Initially, the tendency to show negative reactions comes to the forefront, but the psychology of correction due to the profession becomes dominant. The tendency to show patience comes to the forefront." (T4).

"I try to understand them and be warmer and more smiling." (T12).

3.3. Theme 3: Findings Related to Methods and Solution Suggestions Used by Classroom Teachers to Reduce and Prevent Undesirable Behaviors in Schools

In this category, the methods and solution suggestions used by classroom teachers to reduce and prevent undesirable behaviors are specified in Tables 7 and 8.

Table 7. Methods Used to Reduce and Prevent Undesirable Student Behaviors

Category	Sub Category	Codes
Education Teaching Process	Education	Guidance towards correct behavior, educational events
		The problem source of find
		Encouraging them to empathize
		Giving responsibility
	Intervention	On time intervention do not warn
		Ignore to come
	Example Behaviour	Being a role model
Motivation	Physically	Prize
	Emotional	Interest And love display
		Use "I language"
Collaborating	Family	Family with meeting
	Student	Student with meeting
	Expert	Guidance from the service getting help

When examining the findings related to the methods teachers use in their classrooms to reduce and prevent undesirable behaviors in Table 7, categories such as the educational process, motivation, and cooperation were identified. The most focused category for teachers is the educational process. Direct quotes related to the educational process category and its subcategories are presented below:

"When I see a wrong behavior, I correct and advise them. For example, if they litter, I have them pick up the trash. If I hear them talking disrespectfully or using foul language, I tell them those words shouldn't be used." (T1).

"In my classroom, I first establish classroom and school rules... I conduct activities that encourage virtuous behaviors, and tell stories and fairy tales." (T4).

"In my classroom, I primarily use 'I' statements. I play empathy-developing games with example cases. I reward correct behaviors." (T2).

"I reward students for good behaviors and ignore undesirable student behaviors..." (T9).

"In my classroom, I conduct one-on-one conversations with students to reduce undesirable behaviors..." (T13).

"I behave more sensitively in the classroom environment. I seek help from the school counseling service. I organize seminars tailored to my classroom's needs... I direct my students to social activities outside of school. We help students we cannot reach to receive psychological support." (T14).

Table 8. Solution Suggestions to Reduce and Prevent Undesirable Student Behaviors

Category	Sub Category	Codes
Education Teaching Process	Education	Student And to families oriented trainings
		The student by observing the problem source of find
		Eyelash theme building
		Being a role model
		Giving responsibility
		Empathy to do providing
	School Intra	Class And school rules creation
	School Female	Social And art activities
Collaborating	Family	School family cooperation, family visits
	Guidance	Professional help and expert support
	Student	Student with meeting
Education System	Teacher	Teacher reputation increase
	In education quality	The school physical infrastructure
		Lesson your watch reduction

When looking at the findings related to solution suggestions for reducing and preventing undesirable student behaviors in Table 8, categories such as the educational process, cooperation, and

education systems were identified. Direct quotes related to these categories are presented below:

"My suggestion is that students of all age groups should be educated on environmental cleanliness appropriate to their age, shown videos explaining the importance of respect and love, and that families and teachers should model what respect and love are." (T1).

"I recommend continuous family visits in cooperation with families." (T15).

"I think schoolyards could be developed to allow students to perform physical activities more healthily..." (T9).

"... I think school hours could be reduced or one day of the week could be dedicated solely to social activities." (T12).

4. Discussion, Conclusion, and Recommendations

In this research, the aim was to reveal the undesirable student behaviors encountered by teachers in their classrooms before and after the February 6, 2023 Kahramanmaraş-centered earthquakes, and the solutions to these behaviors based on teachers' opinions. The magnitude of the impacts of earthquakes results from the interaction of many factors (Akkan and Arık, 2024).

The most frequently encountered undesirable student behaviors in classrooms are "talking with friends during the lesson, distraction, inability to focus, using foul language, peer bullying, not following rules, and inability to take responsibility." The most observed undesirable student behaviors after the earthquake include "reacting to sudden noises, shouting, fear, startle reactions, expressing anger, and an increase in tendencies toward violence." Wu et al. (2014) found similar findings. In this study, it was found

that among the survivors of the 2008 earthquake in China, post-traumatic stress disorder, depression, and anxiety were prevalent, and earthquake survivors needed positive, adaptive social support. According to a similar study by Çağatay (2024), it was determined that post-earthquake trauma positively affects burnout and negatively affects life satisfaction. Another study conducted after the February 6, 2023, Kahramanmaraş earthquakes found that the majority of the affected population faced significant difficulties and disruptions in accessing education for a long time due to displacement, destruction, and the lack of suitable educational environments (Yamamoto and Altun, 2023).

In this research, classroom teachers identified families as the primary cause of undesirable student behaviors, stating that families could not provide the right education to their children, could not be role models, and that indifference, lack of love, anxiety about the future, as well as the influence of social environment, peer groups, social media, and the internet, were factors. Supporting our research, Korkmaz et al. (2024) identified factors affecting undesirable behaviors in the classroom as family, technology, media, socio-cultural conditions, personal characteristics, academic differences, teacher attitudes, and classroom rules. According to Özer et al. (2021), teachers complain about families not being interested in their students, believe families should continuously monitor their children, be role models, and that teacher-parent cooperation is necessary.

The study found that when classroom teachers encountered undesirable behaviors, they mostly experienced feelings of "anxiety,

sadness, unhappiness," and professional deformation resulting in "disappointment."

The methods and solution suggestions used by classroom teachers to prevent these undesirable behaviors include "directing towards correct behavior, conducting educational activities, observing the student to identify the source of the problem, fostering empathy, making eye contact, rewarding, providing training to parents, establishing classroom and school rules, seeking expert support, and making home visits in cooperation with parents." A similar finding is that, after the earthquake disaster, policies for student discipline should be determined and implemented to overcome the encountered problems, additional lessons should be organized to increase academic success, class sizes should be reduced, psychological support should be provided, various activities should be organized to emotionally support students, and schools and families should be economically supported (Bayar et al., 2024). Wolmer et al. (2005) stated that early intervention for children after disasters would help reduce visible symptoms in schools and address classroom issues. The conclusion of this study is that early intervention is necessary for students after an earthquake.

The finding of the priority of parent support in this research aligns with Çayak and Ergi's (2015) findings, which indicate a positive relationship between teacher-parent communication and attitudes, and preventing undesirable student behaviors. School-parent communication offers an opportunity to actively involve parents in their children's education and convey the message that they are valued. Informing and involving parents in the process can

help control many issues and problems that may arise in the classroom (Kitishad and Al-Friehat, 2013).

It was determined that teachers encountering undesirable behaviors often resort to methods such as warning, drawing the student's attention to the lesson, communicating, and meeting with the family (Çetin and Öznacar, 2024). Abdulwahab (2023) revealed that teachers' techniques for managing undesirable student behaviors depend on various factors such as the teacher's qualifications, gender, personality, years of experience, and class size. Less experienced teachers tend to focus primarily on imitation.

5. Recommendations

Based on the findings of this research, various recommendations have been developed:

- After the earthquake, classroom rules should be clearly and explicitly re-established with primary school students. When rules are not followed, transparent, equal, and consistent sanctions should be fairly applied.
- Students should be shown the situations caused by undesirable behaviors through activities such as games, drama, theater, and educational programs, and their empathy skills should be developed. Students should be encouraged to communicate among themselves and improve their self-expression skills.
- The post-earthquake classroom environment, and the physical conditions of the school and classroom

should be re-planned. The educational environment and schoolyards should be adequately equipped and designed in a way that provides peace to students.

- The functionality of the guidance service in primary schools should be enhanced and made interesting. Access to the guidance service for students should be supported and facilitated. Expert support should be sought for problems that cannot be resolved at school, and students and parents should be directed to experts.
- The negative conditions experienced after the earthquake should be addressed by making the primary school building and classrooms suitable for education and instruction. Social cohesion, psychological, and economic support should be provided for the earthquake-affected region to recover quickly and return to its previous state.

6. Ethics Statement

This research was produced from a non-thesis master's degree project completed under the supervision of Dr. Tuba Yavaş in 2024 at the Department of Educational Sciences, Institute of Social Sciences, Hatay Mustafa Kemal University. This research was completed in accordance with the "research implementation permit" of Hatay Provincial Directorate of National Education dated 28/05/2024 and numbered 32889839/605.01-103174114

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CHAPTER V

Comparison of Studies Based on Adaptive Learning Environments in Physics-Chemistry-Biology and Science Education with Other Fields: An Example of Systematic Review

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Introduction

Adaptive learning systems are an innovative approach that aims to optimise individual learning processes using the possibilities offered by modern educational technologies. These systems offer personalised learning experiences in line with learners' preferences, knowledge levels, interests and goals. Adaptive learning ensures that each individual is supported with content and strategies appropriate to their different learning styles, speeds and needs (Brusilovsky, 1996).

Hypermedia is a digital learning environment that includes static materials such as pictures, tables, graphics as well as dynamic

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materials such as animations, diagrams, videos and audios. These environments offer enriched learning experiences through various multimedia elements and enable learners to access interactive and versatile information (Ceran, 2021; Tolhurst, 1995; cited in Karadeniz, 2006).

Adaptive learning systems personalise and optimise learning processes using hypermedia technologies. These systems provide access to the most appropriate pieces of information by organising content and links according to the individual characteristics of learners. Thus, the learning process is managed in a more targeted and effective way (Brusilovsky, 1996).

Skinner's learning mechanisms have an approach that prioritises the learning object rather than learners' interests and needs. These mechanisms aim to learn information through immediate feedback and reinforcement, regardless of the learner's motivation and learning characteristics (Wegner et al., 1987). Skinner's behaviourist learning theory focuses on the reinforcement of responses to certain stimuli. This approach predicts that learning takes place through automatic and mechanical processes.

Carroll (1963) argued that a more effective learning environment can be created by providing learners with certain opportunities and appropriate time. Carroll's model provides adaptability by allowing the learner to organise the learning objects. This approach allows the learning process to be shaped according to individual speed and needs. In Carroll's model, it is accepted that each individual's learning capacity and duration may be different and learning materials and processes are adjusted accordingly.

Keller (1968) advocates an individualised learning approach. Keller's model prioritises individual differences based on the learner's needs and learning speed. This model optimises the learning process by taking into account the unique learning speed and style of each individual. Keller emphasises that learning processes should be designed by taking into account individual differences and aims to increase the motivation and success of learners with this approach.

Bloom (1971) developed the complete learning model by combining the approaches of Skinner, Carroll and Keller. Bloom's complete learning model envisages instructional design according to learner characteristics. This model provides adaptations with appropriate materials after determining the learner's prior knowledge and academic self-perception. Bloom's model shows that learning objects and attributes are adaptive. Bloom argues that every learner can achieve success in the complete learning model and in this direction, he suggests that teaching methods and materials should be organised according to individual needs.

The development of computer technology and artificial intelligence applications has increased the effectiveness of adaptive learning systems (Gültekin & Burak, 2019; Güngören, 2015). Technology allows the learner's individual characteristics to be determined more precisely and more effective adaptations to be made. Therefore, adaptive learning systems cannot be considered independent of technology.

Kerr (2016) defines adaptive learning as "educational technology that provides an automated, dynamic and interactive teaching process". Today, adaptive learning systems have become more advanced and effective with the developing technology. Artificial intelligence and machine learning algorithms offer personalised learning experiences by analysing the needs and preferences of individual learners more accurately. These technologies increase the success and satisfaction of learners by making learning processes more flexible and dynamic (Wang & Hannafin, 2005).

The approaches that form the basis of adaptive learning can be listed as "Macro", "Ability-Method", "Micro", "Ability, Task Performance and Response Sensitive" and "Constructivist-Collaborative". Macro adaptive learning is the grouping of students according to the achievement level determined by teachers in the classroom environment and managing the learning process with activities appropriate to this grouping.

This approach involves more large-scale and general adaptations. Macro-adaptation is used to identify general teaching strategies and objectives and makes adaptations to the needs of large groups of students. In this approach, learners are grouped and supported with specific strategies to achieve general learning goals. Teachers form groups according to the achievement levels of students in the classroom environment and provide activities and materials suitable for each group. Micro-adaptive learning involves smaller scale and detailed adaptations according to the needs of individual learners. This approach aims to optimise the individual learning journey of each learner. Micro-adaptations enable learning materials to be tailored and personalised to individual learner needs. In this approach, each student's learning process is individually assessed and tailored to their needs. Learners are supported with materials appropriate to their pace and style and receive personalised feedback.

E-learning systems enable learners to receive education independent of time and space. In these systems, the learning process is largely dependent on the efficiency and effectiveness of individual learners. E-learning provides access to learning materials from anywhere thanks to the possibilities offered by technology. These systems allow learners to use learning materials according to their own pace and time.

Applying different learning strategies in accordance with different learner characteristics and realising the learning process in various ways are effective in increasing learner success and satisfaction (Tuna & Öztürk, 2015). E-learning provides access to learning materials from anywhere thanks to the possibilities offered by technology. These systems allow learners to use learning materials according to their own pace and time.

Adaptive learning is an educational approach that personalises the learning experience in accordance with students' individual needs and learning styles. This approach recognises that each student has a different learning pace, preferred learning methods and strengths/weaknesses. Adaptive learning adapts to

these differences by providing students with specific feedback, personalising learning materials and content, and monitoring students' progress. Adaptive learning aims to ensure that each student learns in the best way possible, taking into account individual differences. This approach makes the learning process more flexible and dynamic.

Adaptive learning systems are an approach that personalises and optimises learning processes by focusing on individual learning needs and preferences. These systems combine technology and education to increase the success and satisfaction of learners. Adaptive learning, which developed with the combination of the approaches of educators such as Skinner, Carroll and Keller in the historical perspective, has become more effective today with the opportunities provided by artificial intelligence and computer technologies.

In the future, these systems are expected to be used more widely and effectively in education. Adaptive learning systems will continue to open new horizons in education by offering flexible and dynamic learning experiences suitable for individual differences. These systems provide the necessary tools and resources to ensure that each individual learns in the best way possible. The importance of adaptive learning systems is increasing day by day to improve the quality of education and maximise the potential of learners. Therefore, the development and dissemination of adaptive learning systems will be the key to success and innovation in education.

In this study, it is aimed to conduct a systematic literature review of postgraduate theses and articles indexed in some databases (Scopus (ELSEVIER), ERIC, Google Scholar) on adaptive learning in educational fields between 2014-2024 in Türkiye.

Method

The model of this research is a qualitative systematic literature review. In the research, academic studies on adaptive learning method between 2014-2024 were analysed. In order to examine the studies systematically, the review form developed by Gültekin and Burak (2019) was used (Güyer & Çebi, 2015; Özyurt & Özyurt, 2015). Articles indexed in Scopus (ELSEVIER), ERIC,

Google Scholar databases and theses in YÖK Thesis Centre were scanned. The keywords "adaptive learning, adaptive learning" were used during the search. Firstly, the studies conducted outside the field of education were eliminated and the remaining 35 studies were reduced. In the selection phase, the studies conducted by review and meta-analysis method were eliminated and only experimental studies remained. As a result, a total of 28 studies, 11 thesis studies and 17 articles, were analysed. Information about the theses and articles used in the study is given in Appendix 1.

Of the eleven (11) theses used in this study, six (5) are master's theses and eight (7) are doctoral theses. Seventeen of the articles used in the study were research articles. All studies were coded and listed. Theses were coded as "T" and articles were coded as "A".

The examination form used in the study consists of 3 main basic questions. These are;

1. For what purposes were the theses and articles carried out within the scope of adaptive learning method?
2. What are the methodological applications in theses and articles conducted within the scope of adaptive learning method?
3. How did the process of adaptive learning environment design progress in the theses and articles conducted within the scope of adaptive learning method?

Findings

In the systematic literature review, the articles and theses examined in the study were examined in a way to include the general purpose of the research, research design, model, sample size, sample group, study area, data collection tools, learning environment design processes and results, and the findings were tabulated.

The findings related to the general aims of the studies are shown in Table 1.

Table 1: General Purpose of the Research

General Purpose of the Research	Thesis	Article
	f	f
The effect of adaptability levels and participants' academic achievement, satisfaction, cognitive load	8	3
Designing, implementing and evaluating adaptive learning environment	5	3
The effect of student navigation strategies on navigation time, number of visited links, perception of getting lost in an adaptive learning environment	1	
Focus on the gap in understanding the factors influencing the scaled implementation of adaptive learning		1
To examine whether preschool teachers' adaptive mathematics learning support at micro and macro level can be developed separately		1
Determination of gamification design principles based on adaptability	1	
Opinions of Students Using Adaptive Online Learning Environment		2
Implementation of adaptive learning in higher education institutions through Moodle LMS		1

When Table 1 is analysed; 11 studies are related to the effect of adaptability levels on participants' academic achievement, satisfaction and cognitive load. 8 studies are related to designing, implementing and evaluating adaptive learning environments. The aim of 2 studies is the opinions of students using adaptive online learning environment. Other studies include objectives such as student navigation strategies in adaptive learning environment, navigation time, number of links visited, effect of perception of getting lost, focusing on the gap in understanding the factors affecting the scaled implementation of adaptive learning. It also aims to examine whether adaptive mathematics learning support for preschool teachers at micro and macro levels can be developed separately, to determine the principles of adaptive gamification design, and to implement adaptive learning in higher education institutions through Moodle LMS.

Table 2: Methodological Findings

Sub Dimensions	Features	Thesis	Article
		f	f
Research Design/Model	Mix	4	2
	Experimental	4	10
	Development design	-	1
	Factorial design	2	-
	Qualitative	2	4
Sample Size	1-10	-	1
	11-100	7	10
	101-200	2	4
Sample group	Student	9	9
	Teacher	-	3
	Field Specialist	4	3
School level	Pre-school		1
	Primary education	3	1
	Secondary education		2
	Higher Education	8	10
Data Collection Tools	Scale	5	6
	Academic achievement test	3	4
	Questionnaire	3	2
	Observation	1	-
	Interview	5	5
	Adaptive Learning Environment Usage Records	3	2
	Alternative Measurement Tools	1	1
	Rubric	1	-
	Inventory	1	-
	Delphi method	1	1
Data Analysis Techniques	t-test	4	2
	ANOVA	2	2
	Wilcoxon Signed ranks	1	2
	Mann Whitney U	2	1
	Kruskal Wallis	2	-
	ANCOVA	3	1
	Content analysis	2	2
	Descriptive analysis	2	3
	Thematic analysis	1	

When the theses and articles on adaptive learning are

examined in Table 2, mixed research method was used in 6 studies in the research design and model category. In 14 studies, experimental designs are seen. In 6 studies, qualitative research method was applied. In 2 theses, researchers used factorial design. When the studies are analyzed according to the sample size, the sample size of 1 study is 1-10 people, the sample size of 17 studies is 11-100, and the sample size of 6 studies is between 101-200.

When the sample groups are analyzed, it is seen that 18 studies were conducted with students, 7 studies were conducted with field experts and 3 studies were conducted with teachers. When analyzed in terms of the education levels at which the studies were conducted; 18 studies were conducted at higher education level, 4 studies were conducted at primary education level, two studies were conducted at secondary education level and one study was conducted at pre-school level.

When the data collection tools of the studies are examined; scales were used in 11 studies, interview forms in 10 studies, academic achievement tests in 7 studies, questionnaires in 5 studies, alternative measurement methods in 2 studies, adaptive learning environment records in 5 studies, Delphi technique in 2 studies, observation, rubric and inventory in one study. When the data analysis techniques of the studies were examined; t-test analysis was used in 6 studies, ANOVA analysis in 4 studies, Mann Whitney-U test in 3 studies, Wilcoxon signed-rank analysis in 3 studies, Kruskal Wallis analysis in 2 studies, and ANCOVA analysis in 4 studies. In qualitative studies, content analysis was conducted in 4 studies, descriptive analysis in 5 studies and thematic analysis in one study.

In Table 3, the sub-dimensions of adaptive learning environment design in the studies on adaptive learning are analyzed. According to the individual characteristics taken as basis in learner modeling, the studies were conducted as follows; 7 studies addressed prior knowledge level, 7 studies addressed learning styles, 4 studies addressed the use of adaptive learning environment, 3 studies

addressed cognitive styles, 1 study addressed learning approach. When the adaptation was examined according to the type of modeling; 9 studies used content modeling, 2 studies used strolling modeling. 6 studies used both content and strolling modeling.

Table 3: Design Processes for Adaptive Learning Environments

Design Process Sub Dimensions	Techniques and Tools	Thesis	Article
		f	f
Individual Characteristics Based on Learner Modeling	Prior knowledge level	5	2
	Learning styles	5	2
	Cognitive styles	1	2
	Use of adaptive learning environment	3	1
	Approach to learning	1	
Adaptation Modeling Type	Content	2	7
	Strolling	2	-
	Content and strolling	5	1
Updating Approach of Adaptive Learning Environment	Statics	1	2
	Dynamic	5	4
	Static and Dynamics	2	-
Adaptive Learning Environment	Classroom Environment	5	4
	Distance Learning	3	2
	Hybrid	1	2

When analyzed according to the updating approach of the adaptive learning environment; it is seen that 3 studies used static updating and 9 studies used dynamic modeling. 2 studies used both static and dynamic modeling. When the studies are analyzed according to adaptive learning environments, it is seen that 9 studies were conducted in classroom environment, 5 studies were conducted remotely and 3 studies were hybrid.

In the systematic literature review in Table 4, when all the studies that constitute the study group of this research are taken into consideration, it is seen that all theses related to adaptive learning environments are in the fields of computer instructional technologies, social sciences, English and Turkish language

teaching, and pre-school teaching other than the fields of physics education, chemistry education, biology education and science education.

Table 4: Distribution of related studies according to fields

Field	Thesis	Article
	f	f
Physics Education	-	-
Chemistry Education	-	3
Biology Education	-	2
Science Education	-	1
Others	11	12

When the articles were analyzed, it was found that most of the articles were in the fields of chemistry and biology among the PSE (physics-chemistry-biology) courses. There was one article each in the fields of Physics education and Science education. This situation shows that the inclusion of adaptive learning in teaching in the fields of science is still not widespread. It was seen that most articles and theses were in the field of computer and instructional technology education.

Discussion and Conclusion

In this study, a systematic literature review of the studies on teaching based on adaptive learning environments in postgraduate theses in Turkey between 2014 and 2024 and in journals indexed in the previously mentioned indexes was conducted. For this purpose, the studies constituting the study group of the research were examined by considering their aims, methodologies used, types of dimensions in the adaptive learning environment design process, and their distribution according to physics-chemistry-biology-science and other branches.

According to the findings of the study, it is seen that the purposes of the theses and articles examined in the research are

mostly to examine the effects of adaptive learning environments such as achievement and satisfaction of the sample. In addition, it is seen that the researchers designed and implemented a new adaptive learning environment and evaluated the effects of these environments on education. When the postgraduate theses on adaptive learning environments are examined, it is seen that adaptive learning is significantly different in favor of adaptive learning in terms of academic achievement, productivity and navigation strategies in the majority of theses (Baz, 2016; Burak, 2020; Cesur, 2023; Güngören, 2015). There are also a small number of theses in which adaptive learning does not cause a significant difference in terms of academic achievement, productivity and navigation strategies (Çebi, 2014; Özkeskin, 2018).

When the methodological findings of the study are examined, we can see that the studies were mostly conducted with mixed and experimental research designs (Aslan et al., 2018; Aydoğdu et al., 2019; Burak, 2020; Çetinkaya & Keser, 2018; Erdoğan, 2020; Mirata et al., 2020; Özkeskin, 2018; Wullschleger et al., 2023). It is seen that the studies are mostly on students and students in higher education institutions (Aydoğdu et al., 2019; Erdoğan, 2020; Mirata et al., 2020; Baz & Tetik, 2017). The reason for this can be considered that there should be a technical infrastructure for the creation of adaptive learning environments. It is seen that quantitative data analysis is mostly used in the data in the studies.

When the findings of the adaptive learning design process are examined, prior knowledge level and learning styles are emphasized in the individual characteristics based on learner modeling (Aslan et al., 2018; Erdoğan, 2020). When adaptive modeling types are examined, content / content navigation types were mostly used (Doğan & Çakır, 2019). When the approaches to updating the adaptive learning environment are examined, it is seen that dynamic/static and dynamic approaches are in the majority (Baz, 2016; Burak, 2020; Cesur, 2023; Çetinkaya & Keser, 2018).

In the postgraduate theses on adaptive learning environments, it was determined that there were no postgraduate theses in the fields of physics-chemistry-biology and science in the selected date range. When the articles were analyzed, it was found that most of the articles were in the fields of chemistry and biology among the PSB (Physics-chemistry-biology) courses. In the field of chemistry, three articles were found to be related to adaptive learning (Agbonifo et al., 2020; Fautch, 2019; Gabriel & Osuafor, 2021). There are two articles in the field of biology education (Aleksandrovich, 2024; Aguar et al. 2017). There is one article in the field of science education (Aguar et al. 2017). This shows that the incorporation of adaptive learning into teaching in science fields is still not widespread. It was seen that most articles and theses were in the field of computer and instructional technology education (Aydın, 2021; Cesur, 2023; Emek, 2019).

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Appendix 1: Information about the theses and articles used in the study

Year	Name of the study	Author	Type
2014	Uyarlanabilir öğrenme ortamlarında gezinme stratejisinin gezinme süresi ve yolu ile kaybolma algısına etkisi	Çelebi, 2014	master's thesis
2015	Uyarlanabilir eğitsel web ortamlarının öğrencilerin akademik başarılarına ve motivasyonuna etkisi	Güngören, 2015	doctoral thesis
2016	Web tabanlı bir uyarlanabilir çevrimiçi öğrenme ortamının harmanlanmış öğretim modeline uygun olarak tasarlanması ve öğrenci başarısına etkisi	Baz, 2016	doctoral thesis
2018	Çevrimiçi dersler için uyarlanabilirliğe dayalı oyunlaştırma tasarımı ilkelerinin incelenmesi	Sezgin, 2018	doctoral thesis
2018	Yarılanabilir açık ve uzaktan öğrenme sisteminin tasarımı, geliştirilmesi ve değerlendirilmesi	Özkeskin, 2018	doctoral thesis
2019	SQL öğrenimi için oyunlaştırma destekli uyarlanabilir öğrenme ortamı: geliştirme, uygulama, değerlendirme	Emek, 2019	master's thesis

2020	İlkokul sosyal bilgiler öğretimine yönelik uyarlanabilir bir öğrenme ortamının tasarlanması, uygulanması ve değerlendirilmesi	Burak, 2020	doctoral thesis
2021	Ortaokul öğrencilerinin kodlama öğretimine yönelik uyarlanabilir eğitsel oyun ortamının tasarlanması ve değerlendirilmesi	Aydın, 2021	doctoral thesis
2021	Bilgi güvenliği eğitimine yönelik uyarlanabilir öğrenme ortamının geliştirilmesi	Ceran, 2021	doctoral thesis
2023	Uyarlanabilir öğretimin kaybolma ve bilişsel yüklenmeye etkisinin öğrencilerin bilişsel stilleri açısından incelenmesi	Cesur, 2023	master's thesis
2023	Bilişim etiği öğretiminde oyunlaştırma tabanlı uyarlanabilir bir öğrenme ortamının öğretmen eğitiminde etkililiğinin incelenmesi	Konuk, 2023	master's thesis
2017	Uyarlanabilir çevrimiçi öğrenme ortamı kullanan öğrencilerin ortam kullanımına ilişkin görüşleri	Baz & Tetik	article
2017	Considerations on interdisciplinary instruction and design influenced by adaptive learning. A case study involving biology, computer science, mathematics, and statistics.	Aguar, vd. 2017	article
2018	Uyarlanabilir uzaktan hizmetiçi eğitimin başarı ve eğitimin tamamlama süresine etkisi ile öğretmen görüşleri	Aslan, Göksu & Karaman, 2018	article
2018	Uyarlanabilir eğitsel içerikli web ortamlarının tasarım ilkeleri: öğrenen modeli	Çetinkaya & Keser, 2018.	article
2019	İngilizce öğretiminde kişiselleştirmenin üniversite öğrencilerinin başarılarına etkisi ve uygulamaya dair öğrenci görüşleri	Doğan & Çakır, 2019	article
2019	Adaptive Learning Technology in General Chemistry: Does It Support Student Success?.	Fautch, J. M.	article
2019	Uyarlanabilir öğrenme ortamlarında felder ve silverman öğrenme stillerine göre geliştirilmiş içeriklerin öğrenci başarısı üzerindeki etkisinin incelenmesi	Aydoğdu, Aydoğdu & Ocak, 2019	article

2020	Constructing a design framework and pedagogical approach for adaptive in Higher Education: A Practitioner's Perspective	Cavanagh, vd. 2020	article
2020	Challenges and contexts in establishing adaptive learning in higher education: findings from a Delphi study.	Mirata vd., 2020	article
2020	Uyarlanabilir motivasyon stratejileri kullanmanın öğrenci motivasyonu ve başarısına etkisi	Erdoğan, 2020	article
2020	Implementation of adaptive learning at higher education institutions by means of moodle lms	Morze, vd., 2020	article
2020	When adaptive learning is effective learning: comparison of an adaptive learning system to teacher-led instruction.	Wang, vd., 2020	article
2020	A chemistry laboratory platform enhanced with virtual reality for students' adaptive learning.	Agbonifo, vd., 2020	article
2021	Effect of Adaptive Learning Approach on Students' Achievement in Chemistry in Awka Education Zone of Anambra State.	Gabriel & Osuafor, 2021	article
2023	Improving the quality of adaptive learning support provided by kindergarten teachers in play-based mathematical learning situations.	Wullschleger, vd., 2023	article
2023	Role of organisational readiness and stakeholder acceptance: an implementation framework of adaptive learning for higher education	Mirata & Bergamin, 2023	article
2024	Transformative applications in biology education: A case study on the efficacy of adaptive learning with numerical insights.	Aleksandrovic vd., 2024	article

