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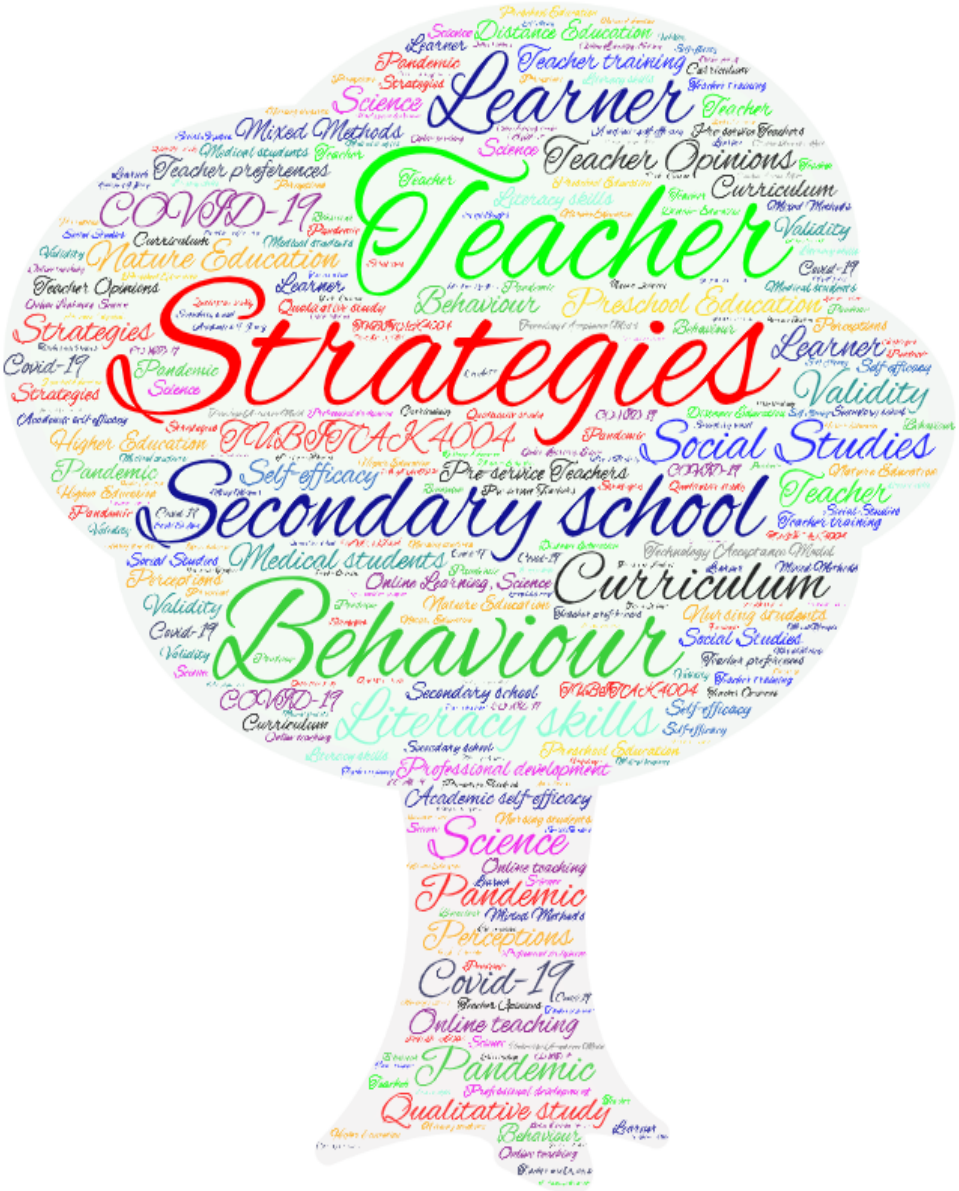

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Literacy Skills in Social Studies Curriculum

Yılmaz DEMİR*

***Abstract*:** In this study, it is aimed to examine the learning outcome in the social studies course (SSC) curriculum in Turkey in terms of seven literacy skills as "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy". This research is designed according to the case study that is often used in qualitative research. In the study, literacy skills in the current SSC curriculum in Turkey were evaluated as a situation; interviews and documents constituted multiple sources of information of the research. As a result of the research, it was determined that a significant part of the learning outcome in the curriculum of SSC (84%) was related to literacy skills. While the highest gain was in the "financial literacy" (f=25) skill area, it was determined that the least gain was in the "media literacy" (f=6) skill area. In addition, it was determined that the gains related to literacy skills were included on the basis of grade level, the maximum fifth grade (f=31); at least at the fourth grade level (f=24). However, the most "environmental literacy" and "financial literacy" at the fourth and fifth grade level, "legal literacy" and "political literacy" at the sixth grade, and gains in "political literacy" skills at the seventh grade level were included the most.
Keywords: Literacy skills, Social Studies, Curriculum.

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Introduction

Literacy was only expressed as the ability to read and write in the past. However, with the industrial revolution, its meaning has expanded and started to be used in a certain field, in the sense of being well educated in the subject and having a wide accumulation of knowledge. Hence, the meaning of the concept of literacy today has been significantly developed to include the ability to read and write, which is its origin. (McBride et al., 2013). As a matter of fact, with social change and transformation, the concept of literacy has gained different functions (Önal, 2010). Especially in the last half century, what is expected from a literate citizen; can understand, make informed decisions, and act on the complex issues and events faced by today's society (McBride et al., 2013). This has brought with it new types of literacy (Önal, 2010). New literacy concepts have started to be used in many different discourses such as "computer literacy", "ecological literacy", "cultural literacy", "art literacy", "mathematical literacy" (McBride et al., 2013).

Today's individuals are expected to be literate in many skill areas such as "critical literacy", "cultural literacy", "historical literacy", "technology literacy", "scientific literacy", "political literacy", "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy". As Duman and Girgin (2007) state, in today's information age, it is inevitable for individuals to be multiple literates to understand the format in which information is produced and used. Therefore, one of the objectives of educational activities is to ensure that students have multiple literacy skills. In this context, when the specific objectives and objectives of the curriculum of the SSC are taken as a basis, it should be emphasized that the content of this course is of a quality that will enable students to have multiple literacy skills.

As a matter of fact, in the curriculum of the SSC, students are entitled to "media literacy" with the "Individual and Society" learning area, "historical literacy" and "cultural literacy" with the "Culture and Heritage" learning area, "geography literacy" with the "People, Places and Environments" learning area, "environmental literacy" and "map literacy", "technology literacy" and "digital literacy" with the "Science, Technology and Society" learning area, "financial literacy" with the "Production, Distribution and Consumption" learning area, They are expected to acquire many literacy skills in the teaching of this course, especially "legal literacy" with the "Active Citizenship" learning area and "political literacy" with the "Global Connections" learning area. In this context, in the current study, seven literacy skills [Ministry of National Education (MoNE), 2018] were examined in the context of the learning outcome of "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy" under the heading of skills in the SSC curriculum in Turkey. First, it is useful to clarify these seven concepts of literacy briefly.

Environmental Literacy

Karatekin (2013, p. 60) defines environmental literacy as "being aware of how natural systems function and how these systems interact with the systems formed by humans". Roth (1968), who first used the concept of environmental literacy; has used this concept in the form of individuals having basic consciousness, awareness and understanding of environmental problems. Rockcastle (1989) defined environmental literacy as an understanding of the interaction between the natural environment consisting of living and inanimate beings and man.

Digital Literacy

When the definitions made about what digital literacy is examined, it is understood that digital literacy is the ability to create meanings and communicate with others by making use of

digital tools including the skills of searching, evaluating, synthesizing from digital sources and critical literacy skills (Martin, 2005; Ng, 2012). “Digital literacy includes the complex, cognitive, sociological, and emotional skills necessary for users to work effectively in the digital environment. Reading the instructions on the graphic screens, as well as creating new meaningful materials in this environment, evaluating the quality and validity of the information in the digital environment are among the digital literacy activities” (Karabacak & Sezgin, 2019, p. 322). “This newly emerging concept of digital literacy may be used as a measure of the quality of learners’ work in digital environments and provide scholars and developers with a more effective means of communication in designing better user-oriented environments” (Eshet Alkalai, 2004, p. 93).

Financial Literacy

Remund (2010) defined financial literacy as the ability to understand the most basic financial issues, to make the right short-term decision while making long-term planning by following the differentiating and developing economic conditions. Mandell (2008) defined this concept as the ability to have knowledge about financial instruments (securities, stocks, bonds, etc.) that change over time and become difficult to understand, and to make effective decisions in the long term. Diri & Arı (2020) defines financial literacy as individuals having the knowledge and skills to effectively manage their own financial resources to achieve sustainable financial well-being and supporting this with their behaviour and experience.

Map Literacy

Kimerling et al. (2016) define map literacy as map use and divide map use into three categories. These categories consist of map reading, map analysis, and map interpretation. Koç et al. (2017) emphasize that individuals should have developed map skills or be good map literate in order to benefit effectively and efficiently from maps in their daily lives (location, navigation, etc.) for various purposes of military and economic life (preparation of development plans, ensuring homeland defense and security, determination of road routes and land use studies, etc.). Sönmez (2013) states that children should use maps and spheres effectively from a young age to understand geography and to recognize the environment in which students are located.

Legal Literacy

Legal literacy can be defined as the ability to recognize and understand words used in the context of law, to reach the rights of access to the justice system, to recognize foreign legal terms. Legal literacy cannot be explained as turning students into experts in the field of law, but rather making them aware of their duties and responsibilities as a citizen within the scope of law (Oğuz, 2013). Similarly, Zariski (2014) emphasizes the purpose of legal literacy as ensuring that individuals are aware of their rights and responsibilities within the scope of law as an effective citizen and that they are able to transform their knowledge of law into behaviour in their lives, rather than specializing in the field of law.

Media Literacy

Media literacy is defined as the ability to access, analyse, evaluate, and transmit messages in different written and non-written formats (cinema, video, television, advertisements, internet, etc.) (Aufderheide, 1993). According to Masterman (1992), the most important goal of media literacy is to provide students with the ability to critically judge media tools by developing the necessary competence, personal confidence, and awareness against the media tools they will encounter in the future. In particular, the acquisition of media literacy,

which includes knowledge and skills related to students' understanding and interpretation of news, is of great importance in the education process (Deveci & Çengelci, 2008).

Political Literacy

Political literacy can be defined as having the ability to think critically and have basic political knowledge about the political processes that become a part of daily life to understand how social life works (Selanik-Ay & Yavuz, 2016: 36). Although there is no common definition of political literacy, in its narrowest sense, it means that citizens have a say over the rulers and political decisions taken within political systems (Doğanay et al., 2007). Participation serves as a mechanism that ensures the integration of society with the values of the regime and the participation of individuals in the system. With political participation, it is envisaged that citizens will internalize democratic values and judgments and accordingly maintain their loyalty to the democratic regime (Uysal, 1981). As a matter of fact, children should be sufficiently shown from a young age that politics directly or indirectly touches everyone and affects everyone's lives (Tarhan, 2015). For this reason, early ages are the most ideal ages to introduce children to the functions of democracy (Selanik-Ay & Yavuz, 2016).

The Purpose and Importance of the Study

It is seen that social studies education, which includes different disciplines of social sciences, has a wide and rich range in terms of literacy (Güleç & Hüdavendigar, 2020). As a matter of fact, seven literacy skills are included in the curriculum: “environmental literacy”, “digital literacy”, “financial literacy”, “map literacy”, “legal literacy”, “media literacy” and “political literacy”. From this point of view, the aim is to provide students with these literacy skills in the curriculum of SSC. However, since the curriculum is a general framework, it is seen that no explanation is made about which achievement is related to which literacy skill area and the level of inclusion of literacy skills in the program. In addition, when the relevant literature was examined, this deficiency was found. As a matter of fact, some literacy skills are evaluated in the context of individual SSC (Aksoy et al., 2019; Görmez, 2018), but in Turkey, in the context of SSC, there was no study in which the learning outcome in the curriculum were examined in terms of literacy skills by applying for expert opinion.

For this reason, in the current study, it is aimed to examine seven literacy skills in terms of learning outcome as “environmental literacy”, “digital literacy”, “financial literacy”, “map literacy”, “legal literacy”, “media literacy” and “political literacy” of the SSC curriculum in Turkey and the level of inclusion of literacy skills in the program has been determined. Considering the importance of these seven literacy skills and the objectives of the SSC, it is thought that the analysis of this course in terms of literacy skills will be a guide for the relevant studies and the practitioners of the curriculum.

In this respect, it is foreseen that the study will make an important contribution to the relevant literature. In this direction, the problem sentence of the research is “the learning outcome in the curriculum of the SSC; Which of the skills of environmental literacy, digital literacy, financial literacy, map literacy, legal literacy, media literacy and political literacy are related, and how are the literacy gains distributed by grade level and learning areas?” is determined as.

The sub-problems of the current research are as follows:

1. “What are the learning outcome related to environmental literacy skills in the social studies curriculum, and how is the distribution of these gains according to class level and learning areas?”

2. “What are the learning outcome related to digital literacy skills in the social studies curriculum, and how is the distribution of these gains according to class level and learning areas?”

3. “What are the learning outcome related to financial literacy skills in the social studies curriculum, and how is the distribution of these gains according to grade level and learning areas?”

4. “What are the learning outcome related to the map literacy skill in the social studies curriculum, and how is the distribution of these gains according to the grade level and learning areas?”

5. “What are the acquisitions related to the legal literacy skill in the social studies curriculum, how is the distribution of these acquisitions according to the grade level and learning areas?”

6. “What are the learning outcome related to media literacy skills in the social studies curriculum, and how is the distribution of these gains according to class level and learning areas?”

7. “What are the learning outcome related to political literacy skills in the social studies curriculum, how is the distribution of these gains according to class level and learning areas?”

Method

This research is designed according to the case study that is often used from qualitative research designs. Case study work can be defined as “analysing one or several situations holistically within their own limits (environment, time, etc.)” (Yıldırım & Şimşek, 2016, p. 75). In other words, “a case study survey is a qualitative approach in which the researcher collects detailed and in-depth information about real life, a current limited system (a situation) or multiple limited systems (situations) over a period of time (e.g., observations, interviews, audio visual materials, and documents and reports) through multiple sources of information and presents a situation description or situation themes” (Creswell, 2016: 97). Condition; it can be individuals, groups, institutions, cultures, programs, regions, neighbourhoods, nations, and states, but they can also be something that is specified as important events in a program (Patton, 2014). In this study, literacy skills in the current SSC curriculum in Turkey were evaluated as a situation; interviews and documents constituted multiple sources of information of the research.

Collection of Data

Data in case studies; interviews can be collected using multidimensional data collection techniques such as focus group, observations, and document analysis (Yıldırım & Şimşek, 2016). In the current research, data were obtained by reviewing documents and interviewing experts. Therefore, data were obtained according to multiple data collection techniques in the study. In the study, the current social studies course curriculum was determined as the data source (MEB, 2018). In other words, the principle of actuality was considered when determining the social studies course curriculum as the data source. Social studies course curriculum is available at https://mufredat.meb.gov.tr/ProgramDetay.aspx?PID=354.

Analysis of Data

Since the contents of the documents are analysed at a certain stage of all qualitative research, it is stated that what is done in the data analysis is the content analysis (Merriam, 2013). As a matter of fact, content analysis is “a scientific approach that investigates social reality by objectively and systematically classifying, transforming into numbers and making inferences about the message contained in verbal, written or other materials in terms of meaning and/or grammar” (Tavşancıl & Aslan, 2001, p. 22). In this research, the expert opinion of the

researcher was consulted and the general structure and learning outcome of the SSC curriculum were subjected to content analysis in terms of literacy. In this context, firstly, eight experts who have academic studies in the field of social studies education literacy were interviewed face-to-face and the classification/coding of 131 learning outcome in the curriculum in terms of "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy" was made (Table 1). While coding, it was possible to associate the gains with more than one literacy area. Then, the codes reached were brought together under the relevant categories and presented in the form of tables, described, and interpreted. The term frequency (f) was used to determine the intensity of the results reached quantitatively in the tables. To clear the research from personal errors in coding, attention has been paid to the consensus between experts. This process, also known as intercoder reconciliation, is very important for the reliability of the study. As a matter of fact, in the research, attention was paid to the fact that the consensus between coders was over .80 (80%) for each gain coded according to literacy areas. In the literature, it is emphasized that the consensus between coders is above .80 (80%) is a sufficient result in terms of reliability (Miles & Huberman, 2019). It was concluded that the consensus between coders for the whole study was .87 (87%). According to these results, it can be said that the consensus or reliability between the coders is quite good. Therefore, a common opinion was obtained by determining what the findings obtained in the research meant not only to the researcher person, but also to more than one person.

Table 1
Demographics of experts

Gender	The titles	Professional experience
Man	Professor Doctor	20-30
Man	Associate Professor	20-30
Man	Associate Professor	20-30
Woman	Associate Professor	20-30
Woman	Associate Professor	20-30
Man	Doctor	20-30
Man	Doctor	10-20
Woman	Doctor	10-20

Findings

It was determined that 110 of the total 131 learning outcomes in the SSC curriculum were related to at least one literacy skill. Therefore, it is possible to say that a significant part of the learning outcome in the curriculum (84%) is related to literacy skills. In addition, the distribution of the learning outcome in the curriculum of the SSC according to literacy areas was also examined. In this context, it was determined that the literacy skill area, in which the highest gain was included in the curriculum, was financial literacy skill with 25 learning outcomes. This skill area is followed by political literacy with 24 learning outcome, legal literacy with 22 learning outcome, environmental literacy with 16 learning outcome, digital literacy with nine learning outcome and map literacy with eight learning outcomes. It was determined that the skill area in which the least gain was included in the curriculum was media literacy skill (f=6). When the distribution of learning outcome according to grade level was examined, it was found that 24 gains at the fourth grade level, 31 gains at the fifth grade level, 28 gains at the six grade levels, and 27 gains at the seventh grade level were related to the literacy skill area. At the fourth and fifth grade level, the most gains related to environmental literacy (f=5) and financial literacy (f=5) skills, sixth grade level legal literacy (f=8) and political literacy (f=8) skills, and seventh grade level political literacy (f=10) skills were included (Table 2).

Table 2
Distribution of literacy gains in the curriculum according to grade level

Literacy skill area	Grade level				
	4th Grade (f)	5th Grade (f)	6th Grade (f)	7th Grade (f)	Total (f)
Environmental literacy	5	9	1	1	16
Digital literacy	4	3	1	1	9
Financial literacy	5	9	6	5	25
Map literacy	3	1	3	1	8
Legal literacy	2	6	8	6	22
Media literacy	1	1	1	3	6
Political literacy	4	2	8	10	24
Total	24	31	28	27	110

In the current research, the distribution of the gains related to literacy skills in the SSC curriculum according to learning areas was also examined. In this context, the learning area where the most gains related to literacy are found is the "Production, Distribution and Consumption" (f=26) learning area. This learning area is followed by "Active Citizenship" (f=24), "People, Places and Environments" (f=16), "Global Connections" (f=16), "Science, Technology and Society" (f=11) and "Culture and Heritage" (f=9). The learning area where there is the least gain in literacy is the "Individual and Society" (f=8) learning area. Moreover, the highest number of legal literacy skills in the "Individual and Society" and "Active Citizenship" learning area, the most political literacy in the "Culture and Heritage" and "Global Connections" learning area, the most environmental literacy in the "People, Places and Environments" learning area, the most digital literacy in the "Science, Technology and Society" learning area, and the most financial literacy skills in the "Production, Distribution and Consumption" learning area are placed (Table 3).

Table 3
Distribution of literacy gains in the curriculum according to learning areas

Learning area	**Literacy skill area**							
	Environment (f)	Digital (f)	Financial (f)	Map (f)	Legal (f)	Media (f)	Political (f)	Total (f)
Individual and Society	-	-	-	-	5	3	-	8
Culture and Heritage	2	-	-	-	-	-	7	9
People, Places and Environments	8	-	-	7	1	-	-	16
Science, Technology and Society	1	8	-	-	1	1	-	11
Production,	4	1	20	-	1	-	-	26

Distribution and Consumption								
Active Citizenship	-	-	1	-	14	-	9	24
Global Connections	1	-	4	1	-	2	8	16
Total	**16**	**9**	**25**	**8**	**22**	**6**	**24**	**107**

Findings on Environmental Literacy

In the curriculum of the SSC, it was determined that a total of 16 learning outcome, five at the fourth grade level, nine at the fifth grade level, and one at the sixth and seventh grade levels, were related to environmental literacy. Therefore, the grade level with the most gains is the fifth grade of secondary school (Table 2). When the distribution of the gains related to environmental literacy according to the learning areas in the curriculum was examined, it was determined that the learning area with the most gains was "People, Places and Environments" with eight learning outcomes. This learning area is followed by the "Production, Distribution and Consumption" learning area with four learning outcome (Table 3). Therefore, it is seen that a significant part of the learning outcome related to environmental literacy in the curriculum (66.7%) are included in these two learning areas. The distribution of environmental literacy-related outcomes across other learning areas is presented in Table 3.

The most agreed sample learning outcome of the experts related to environmental literacy in social studies course curriculum (SSCC) are as follows:

"Distinguishes between natural and human elements in the environment in which he lives" (SSCC, 4.3.3.).

"Makes inferences about the landforms and population characteristics in and around the place where he\she lives" (SSCC.4.3.5.).

"Introduces the surrounding natural assets and historical places, objects and artifacts" (SSCC.5.2.2.).

"Compares the cultural characteristics of various parts of our country with the cultural characteristics of the environment in which it lives and determines the similar and different elements between them" (SSCC.5.2.3.).

"Analyses the effects of unconscious consumption of resources on living life" (SSCC.6.5.2.).

"Together with his\her friends, he\she develops ideas for the solution of global problems" (SSCC.7.7.4).

Findings on Digital Literacy

In the curriculum of the SSC, it was determined that a total of nine learning outcome, four at the fourth grade level, three at the fifth grade level, and one at the sixth and seventh grade levels, were related to digital literacy. Therefore, the grade level with the most gains is the fourth grade of primary school (Table 2). When the distribution of digital literacy learning outcome according to the learning areas in the curriculum was examined, it was determined that the learning area with the most gains was "Science, Technology and Society" with eight learning outcomes. Therefore, it can be said that almost all of the learning outcome related to digital literacy in the curriculum (88.9%) are included in this learning area. The other

achievement is included in the "Production, Distribution and Consumption" learning area. In the remaining learning areas, there is no gain in digital literacy (Table 3).

The most agreed sample learning outcome of the experts related to digital literacy in social studies course curriculum (SSCC) are as follows:

"Classifies the surrounding technological products according to their areas of use" (SSCC.4.4.1.).

"Compares past and present uses of technological products" (SSCC.4.4.2.).

"Question the accuracy and reliability of the information it obtains in the virtual environment" (SSCC.5.4.2.).

"Observe security rules when using the virtual environment" (SSCC.5.4.3.).

"Puts forward ideas about the effects of scientific and technological developments on future life" (SSCC.6.4.2.).

"Analyses the changes that digital technologies bring about in the production, distribution and consumption network" (SSCC.7.5.6.).

Findings on Financial Literacy

In the curriculum of the SSC, a total of 25 learning outcome, five at the fourth grade level, nine at the fifth grade level, six at the sixth grade level and five at the seventh grade level, were related to financial literacy. Therefore, the grade level with the most gains is the fifth grade of secondary school (Table 2). When the distribution of financial literacy related learning outcome according to the learning areas in the curriculum was examined, it was determined that the learning area with the most gains was "Production, Distribution and Consumption" with 20 gains. As can be seen, a significant part of the financial literacy related learning outcome in the curriculum (80%) is included in this learning area. Other learning outcome related to financial literacy were included in the "Global Connections" (f=4) and "Effective Citizenship" (f=1) learning areas. In the remaining learning areas, no financial literacy gains were included (Table 3).

The most agreed sample learning outcome of the experts related to financial literacy in social studies course curriculum (SSCC) are as follows:

"Creates its own exemplary budget" (SSCC.4.5.4.).

"Uses the surrounding resources without wasting them" (SSCC.4.5.5.).

"Analyses the production, distribution and consumption network of products to meet basic needs" (SSCC.5.5.4.).

"Collaboratively develops new ideas based on production, distribution and consumption" (SSCC.5.5.5.).

"Prepares investment and marketing project proposals by taking into account the geographical characteristics of Turkey" (SSCC.6.5.3.).

"Analyses the place and importance of qualified manpower in the development of the Turkish economy" (SSCC.6.5.5.).

"Evaluates the effects of developments in production technology on social and economic life" (SSCC.7.5.2.).

"Recognize the economic zones and organizations with which Turkey has relations" (SSCC.7.7.2.).

Findings on Map Literacy

In the curriculum of the SSC, a total of eight learning outcome, three at the fourth and sixth grade levels, and one at the fifth and seventh grade levels, were related to map literacy. Therefore, the grade level with the most gains is the fourth and sixth grades (Table 2). When the distribution of the learning outcome related to map literacy according to the learning areas in the

curriculum was examined, it was determined that the learning area with the most gains was "People, Places and Environments" with seven learning outcomes. Therefore, almost all the learning outcome related to map literacy in the curriculum (87.5%) are included in this learning area; the other achievement was determined to be in the field of "Global Connections" learning. In the remaining learning areas, no gains in map literacy were included (Table 3).

The most agreed learning outcome of the experts related to map literacy in social studies course curriculum (SSCC) are as follows:

"Makes inferences about the position of any place in its vicinity" (SSCC.4.3.1.).

"Draws a sketch of the spaces he uses in his daily life" (SSCC.4.3.2.).

"Introduces various countries around the world" (SSCC.4.7.1.).

"Maps generally describe the landforms of the place on which it lives and its surroundings" (SSCC.5.3.1.).

"Defines the geographical position of continents, oceans and our country using concepts related to location" (SSCC.6.3.1.).

"Examines the basic physical geographical features of Turkey, landforms, climatic features and vegetation on relevant maps" (SSCC.6.3.2.).

"Shows the basic human geographical features of Turkey on the relevant maps" (SSCC.6.3.3.).

"Interprets the demographic characteristics of Turkey based on the factors affecting the distribution of the population in Turkey" (SSCC.7.3.2.).

Findings on Legal Literacy

In the curriculum of the SSC, a total of 22 learning outcome, two at the fourth grade level, six at the fifth grade level, eight at the sixth grade level and six at the seventh grade level, were related to legal literacy. Therefore, the grade level with the most gains is the sixth grade of secondary school (Table 2). When the distribution of the learning outcome related to legal literacy according to the learning areas in the curriculum was examined, it was determined that the learning area with the highest gain was "Effective Citizenship" with 14 learning outcomes. This learning area is followed by the "Individual and Society" learning area with five learning outcome (Table 3). Therefore, a significant part of the learning outcome related to legal literacy in the curriculum (86.4%) are included in these two learning areas. The distribution of the remaining legal literacy gains across learning areas is presented in Table 3.

The most agreed examples of legal literacy related experts in social studies course curriculum (SSCC) are as follows:

"Gives examples of the rights he had as a child" (SSCC.4.6.1.).

"Takes responsibility for his words and actions in family and school life" (SSCC.4.6.2.).

"Gives examples of the enjoyment of rights as a child and the violation of these rights" (SSCC.5.1.4.).

"Explain fundamental rights and the importance of exercising these rights" (SSCC.5.6.3.).

"Argues that solutions to a problem must be based on rights, responsibilities freedoms" (SSCC.6.1.5.).

"Declare that their rights and responsibilities as an active citizen of the Republic of Turkey are constitutionally guaranteed" (SSCC.6.6.5.).

"Exercise their rights and fullfil their responsibilities while making use of communication tools" (SSCC.7.1.4.).

"Gives examples of adverse situations that will arise if freedom of residence and freedom of movement are restricted from fundamental rights" (SSCC.7.3.4.).

Findings on Media Literacy

In the curriculum of the SSC, a total of six learning outcome, one at the fourth, fifth and sixth grade level and three at the seventh grade level, were associated with media literacy. Therefore, the grade level with the highest gains related to media literacy is the seventh grade of secondary school (Table 2). When the distribution of the gains related to media literacy according to the learning areas in the curriculum was examined, it was determined that the learning area with the highest gain was the seventh grade "Individual and Society" learning area with three learning outcomes. The distribution of the remaining gains in media literacy by learning areas is presented in Table 3.

The most agreed learning outcome of the experts related to media literacy in social studies course curriculum (SSCC) are as follows:

"Compares the cultural elements of different countries with the cultural elements of our country" (SSCC.4.7.3.).

"Question the accuracy and reliability of the information it obtains in the virtual environment" (SSCC.5.4.2.).

"Question the effects of popular culture on our culture" (SSCC.6.7.4.).

"Uses positive means of communication in individual and social relations" (SSCC.7.1.2.).

"Discusses the role of media in social change and interaction" (SSCC.7.1.3.).

"Exercise their rights and fullfil their responsibilities while making use of communication tools" (SSCC.7.1.4.).

Findings on Political Literacy

In the curriculum of the SSC, it was determined that a total of 24 learning outcome, including four at the fourth grade level, two at the fifth grade level, eight at the sixth grade level and 10 at the seventh grade level, were related to political literacy. Therefore, the grade level with the most gains is the seventh grade of secondary school (Table 2). When the distribution of political literacy related learning outcome according to the learning areas in the curriculum was examined, it was determined that the learning area with the highest gain was the "Effective Citizenship" learning area with nine learning outcomes. This learning area is followed by "Global Connections" with eight learning outcome and "Culture and Heritage" with seven learning outcomes. All of the learning outcome related to political literacy in the curriculum are included in these three learning areas. (Table 3).

The most agreed sample learning outcome of the experts related to political literacy in social studies course curriculum (SSCC) are as follows:

"Explains the relationship between the independence of his country and his individual freedom" (SSCC.4.6.4.).

"Comprehend Turkey's relations with its neighbours and other Turkic Republics" (SSCC.4.7.2.).

"Values our Flag and the National Anthem, one of our symbols of national sovereignty and independence" (SSCC.5.6.4.).

"Explains the importance of tourism in international relations" (SSCC.5.7.3.).

"Compares different forms of government in terms of the basic principles of democracy" (SSCC.6.6.1.).

"Explains the relationship between the legislative, executive and judicial powers in the Republic of Turkey" (SSCC.6.6.2.).

"Relates the basic characteristics of the Republic of Turkey to practices in social life" and "Gives examples of international organizations of which Turkey is a member" (SSCC.7.6.3.).

Conclusion and Discussion

In the current study, seven literacy skills as “environmental literacy”, “digital literacy”, “financial literacy”, “map literacy”, “legal literacy”, “media literacy” and “political literacy” of the SSC curriculum in Turkey were evaluated in the context of learning outcome. In this context, it was concluded that environmental literacy is one of the skills included in the curriculum. Accordingly, it was determined that a total of 16 learning outcome in the program, including five at the fourth grade level, nine at the fifth grade level, and one at the sixth and seventh grade levels, were related to environmental literacy. In the study conducted by Karatekin and Yılmaz (2019), it was found that a total of 39 learning outcome, including 12 at the fourth grade level, 11 at the fifth grade level, 10 at the sixth grade level and six at the seventh grade level, were related to environmental literacy. Therefore, it is seen that the findings of the current research and the findings of the study conducted by Karatekin and Yılmaz (2019) differ. It is thought that this difference may be due to the difference of opinion among experts. However, in the current study, data were collected by applying expert opinion and attention was paid to the fact that the consensus between experts for each gain was 0.80 (80%) and above. Gains that are thought to be related to environmental literacy and below 0.80 of the inter-expert consensuses were found to be meaningless in the current research and were not evaluated in relation to environmental literacy. This also applies to other literacy skills.

In the current research, it was determined that the gains related to environmental literacy in the curriculum of SSC were mostly included in the “People, Places and Environments” learning area. As a matter of fact, “this learning area, which aims to provide students with the spatial basic knowledge, skills and values necessary for human life, is basically geography oriented. With the People, Places and Environments learning area, it is aimed to recognize the human environment and interaction, to understand the causes and consequences of this interaction by using various skills and values in this regard and to gain an individual or social perspective for the future. The interaction of people, place and environment creates a wide and colorful spectrum. Thanks to the People, Places and Environments learning area, it is aimed to provide students with research, environmental literacy, perception of change and continuity, observation, map literacy and perception of space skills at all grade levels where the SSC is taught” (MoNE, 2018, p. 10). As can be seen, the “People, Places and Environments” learning area is focused on environmental literacy and map literacy. In the study conducted by Karatekin and Yılmaz (2019), it was revealed that the gains related to environmental literacy were given more space in the “People, Places and Environments” learning area. Therefore, this result is in line with the relevant finding of the current study.

Another literacy skill included in the curriculum of the SSC is the digital literacy skill. In the current research, it was concluded that a total of nine learning outcome in the social studies curriculum, four at the fourth grade level, three at the fifth grade level, and one at the sixth and seventh grade levels, were related to digital literacy. In the study conducted by Yeşiltaş (2019), a total of 11 sample learning outcome, including three at the fourth grade level, five at the fifth grade level, one at the sixth grade level and three at the seventh grade level, were associated with digital literacy. In addition to this small difference, the current research shows that the learning outcome associated with digital literacy in the curriculum of SSC are mostly included in the “Science, Technology and Society” learning area; It was determined that the same result was reached in the study of Yeşiltaş (2019). Therefore, it can be said that the findings of the current research and the findings of the study conducted by Yeşiltaş (2019) coincide with each other.

Another of the seven literacy skills included in the social studies curriculum is financial literacy skills. In the current research, a total of 25 learning outcome in the social studies curriculum, including five at the fourth grade level, nine at the fifth grade level, six at the sixth

grade level and five at the seventh grade level, were associated with financial literacy. In the study conducted by Adalar (2019), financial literacy skills at the fourth grade level of SSC were analysed and it was determined that five outcomes were related to financial literacy. All of the gains associated with financial literacy in Adalar's (2019) study were also associated with financial literacy in the current research. In this respect, it can be said that the findings of the two studies coincide with each other. In addition, it was determined that a significant part of the financial literacy-related gains, which were included the most in the curriculum with 25 learning outcomes, were in the "Production, Distribution and Consumption" learning area. As a matter of fact, "the basis of this learning area is the development of students' entrepreneurial and conscious consumer skills. They are expected to understand that resources are limited in the country's economy, to believe in the importance of the need to protect existing resources, to reveal differences and similarities by comparing their own economic life with those of others, to examine the economic conditions of the place where they live and to strive to improve these conditions. Production, Distribution and Consumption is the typical theme of economic issues. Students learn basic concepts related to production, distribution and consumption. It is aimed that students know the professions they are interested in by knowing the features required by the professions they are interested in" (MoNE, 2018, p. 10).

Map literacy is one of the skills included in the curriculum of SSC and gained to students at primary and secondary school level through social studies lessons. In this study, it was determined that the gains in map literacy in the curriculum of the SSC were quite low. Accordingly, a total of eight map literacy gains, three in the fourth and sixth grades and one each in the fifth and seventh grades, were included in the program. The findings of the study conducted by Sönmez (2019) and the findings of the current study overlap significantly. However, the results differ for a gain found to be related to map literacy in the current research and for the two gains found to be related in Sönmez's (2019) study. In addition, both in the current study and in Sönmez's (2019) study, it was determined that almost all of the learning outcome related to map literacy were included in the "People, Places and Environments" learning area.

Another of the seven literacy skills included in the curriculum of the SSC is the legal literacy skill. In the current research, it was concluded that a total of 22 learning outcome in the social studies curriculum, including two at the fourth grade level, six at the fifth grade level, eight at the sixth grade level and six at the seventh grade level, were related to financial literacy. In the study conducted by Oğuz-Haçat (2019), a total of 21 learning outcome, including five at the fourth grade level, seven at the fifth grade level, six at the sixth grade level and three at the seventh grade level, were related to legal literacy skills. Therefore, it is observed that the findings of the study in question and the findings of the current study overlap significantly. However, in the current research, seven learning outcome related to legal literacy were not related in the study of Oğuz-Haçat (2019); On the other hand, it should be noted that the six learning outcome related to Oğuz-Haçat's (2019) study were not related to legal literacy in this study. In addition, both in the current study and in the study of Oğuz-Haçat (2019), it has been determined that a significant part of the learning outcome related to legal literacy is included in the field of "Effective Citizenship" learning.

In this research, it was concluded that media literacy is the literacy skill in which the least gain is included with six gains in the literacy skills in the curriculum of the SSC. In the literature, there was no study in which the current SSC curriculum was analysed in terms of media literacy. For this reason, the findings of the current study could not be compared with the studies in the literature. However, Altun (2010), who examined the curriculum of the 2005 SSC in terms of media literacy, found that a total of 19 learning outcome in the past curriculum, including four at the fourth grade level, three at the fifth grade level, four at the sixth grade level and eight at the seventh grade level, were related to media literacy skills. In this context, it can

be said that the number of learning outcome related to media literacy has been reduced with the current SSC curriculum. The reason for this situation can be attributed to the media literacy course, which was opened as an elective course at the secondary school seven and eighth grade level. Because there are gains in media literacy given as a separate course, there may not be a need for many gains of this literacy in the curriculum of SSC.

The last of the literacy skills included in the curriculum of the SSC is the political literacy skill. In the current research, it was concluded that a total of 24 learning outcome in the social studies curriculum, including four at the fourth grade level, two at the fifth grade level, eight at the sixth grade level and 10 at the seventh grade level, were related to political literacy. In the study conducted by Görmez (2018), 33 learning outcome, including nine at the social studies fourth grade level, eight at the fifth grade level, 10 at the sixth grade level, and six at the seventh grade level, were associated with political literacy. In this respect, it can be said that the findings of the current research and the findings of the study conducted by Görmez (2018) differ from each other.

Based on the findings of the research, the following recommendations can be made in the current research:

In the curriculum of the SSC (MoNE, 2018), there are seven literacy skills under the heading of "Skills": "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy". However, when the curriculum is examined, it is observed that the subjects and learning outcome related to "historical literacy", "geographical literacy", "cultural literacy", and "visual literacy" are also included. For this reason, these literacy skills can be included under the heading of "Skills" in the curriculum.

In the current research, the curriculum of the SSC was analysed in terms of learning outcome in the skills of "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy". The curriculum of the SSC can also be analysed in terms of learning outcome in "historical literacy", "geography literacy", "cultural literacy" and "visual literacy" skills.

Based on the findings of the current research, social studies textbooks can be subjected to content analysis in terms of "environmental literacy", "digital literacy", "financial literacy", "map literacy", "legal literacy", "media literacy" and "political literacy".

It was determined that the gains related to "media literacy", "map literacy" and "digital literacy" from the literacy skills in the curriculum of SSC were insufficient. For this reason, it may be suggested that the number of learning outcome related to these literacy areas can be increased in updating the program.

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An Investigation of the Views of Preschool Teachers Participating in the 'Forest Teaches, I Discover' Project Carried Out within the Scope of Tübitak 4004 on Nature Education

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Abstract: The aim of the study is to reveal the expressions of the preschool teacher, who participated in the teacher nature workshops in the 'Forest Teaches, I Discover' project carried out within the scope of TÜBİTAK 4004 Nature Education and Science Schools Support Program, about the awareness, views and skills of transferring the experiences gained in the workshops to the learning processes of the students. In the project, the presentation of the theoretical framework on the subject, wood production and various nature activities were carried out in teacher nature workshops. The participants are 10 pre-school teachers selected by convenient sampling method, working in Kocaeli. Phenomenology (phenomenology) research design, one of the qualitative research methods, was used in the project. Data were collected through semi-structured interview questions and analyzed by content analysis method. As a result of the analysis of the data, Views on Nature Education in terms of Professional and Personal Development, Views on the Effect of Children's Science Process Skills in Nature Education, Teachers' Emotions and Thoughts on Nature Education, Views on Nature Education in terms of Values Education, Views on the In-Class Adaptation of the Achievements Acquired by Nature Education Teachers and Six themes were identified: Project Satisfaction, Creation of Similar Events, and Views on Recommending to Others. They stated that teachers have gained gains such as implementing nature-based activities in the classroom, creating a naturebased activity plan, using natural materials in the classroom, planning field trips, creating activity examples, creating awareness of nature in children, and enabling children to connect with living things. In addition, it was determined that they experienced a workshop process that exceeded their expectations, that they demanded the continuity of the project, and that they were motivated in terms of nature-based activity practices. According to the research findings, it is seen that teachers stated that many values can be gained to children in nature-based learning processes and that values education is a part of nature education. Finally, teachers; It has been revealed that nature-based learning processes contribute to the development of children's basic scientific skills such as observation, classification, measurement, implementation, communication, evaluation and problem solving.
Keywords: TUBITAK 4004, Nature Education, Teacher Opinions, Preschool Education.

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Introduction

The experiences that people have in their social and physical environment from the moment they are born have an important role in shaping their attitudes and behaviors. In this context, early childhood is a critical period in which attitudes and behaviors that will be carried into adulthood and cognitive, social and emotional development are provided (Köşker, 2019). Providing rich learning environments to children in the early childhood period covering the 0-8 age range supports all developmental areas of children (Poyraz & Dere, 2011). It is very important to introduce children to nature in their early childhood and to give nature awareness and love. Natural learning environments are places where children realize their experiences, learn by doing-living, and where effective and permanent learning is performed. In addition, it is stated that many attitudes and skills developed in the preschool period, and the use of natural environments in learning processes laid the foundation for the development of scientific concepts related to nature and the development of attitudes and skills related to science and nature (Gür, 2022). In the modern industrial world, with the effect of urbanization, many children cannot interact with the natural environment and grow up in closed areas away from physical activities and being exposed to technology (White, 2004). It is stated that if early childhood, which has a critical importance in all developmental areas, is deprived of insufficient experience and natural living environment, it will bring negative feelings such as anxiety, stress and hopelessness (Louv, 2018; Sobel, 2014).

Within the literature, some researchers have tried to reveal the views of children about nature. In the study conducted by Bonnet and Williams (1998), it was stated that nature is essentially important for children, that children see nature as the home of animals and that they do not want to be disturbed in their homes. Rickinson (2011) stated that children perceive nature as an unmanned and natural entity, and although they call it wild and dangerous, they also see it as an environment where they can have fun and spend time. In a qualitative study conducted by O'Brien (2009), children attending forest kindergarten were observed and it was concluded that at the end of the year, children showed improvement in self-confidence, motivation, language and communication and motor skills. In another study conducted by Waters and Begley (2007), it was observed that children who attend a forest kindergarten have more positive risk-taking behaviors than children who attend a traditional kindergarten both in the garden of the school and in the forest. Considering the results of the mentioned researches, it is thought that the contribution of nature to the development of children cannot be ignored.

When the historical processes of nature-based education are examined, it is seen that philosophers such as Jean-Jacques Rousseau, Locke, Johann Pestalozzi, Freobel, who are pioneers in child education, emphasized that children learn by exploring in the natural environment. These philosophers in question constantly developed the natural learning model, and they led the way to "kinder-gartens" or "children's gardens" model. Inspired by Froebel, McMillan opened the first open-air nursery school in England (Yalçın, 2017). These educational models include a learning process in which children directly experience, carry out learning practices, and build deep interactions with nature. It has been stated that children strengthen their attention, self-awareness and cognitive development with the research processes they carry out in the natural environment (Hargrave, 2013). The common denominator that many alternative education thinkers consider in education is nature. When the practices related to nature education are examined; these models have become widespread and started to be implemented in many countries such as Germany, England, Russia, Japan and Lithuania, especially Scandinavian countries, which have adopted the forest school approach (Hargrave, 2013). The forest school approach, which strongly deals with the relationship between nature and children, is an approach based on children's learning by exploring and playing freely in forest or wooded areas all year long, regardless of weather conditions. There are warehouses in the form of mobile or caravans and a shed where school materials are kept. In the approach

where the number of teachers is high and the curriculum is child-directed, the motto of the teachers is 'no rush, no panic'. It is among the characteristics of the teachers in these schools that the teacher respects the learning speed of the children, provides opportunities for exploration, and has the ability and experience to guide their learning (Amus, 2013).

In order for people to have a more livable nature, to respect natural life and other living things, to internalize that human beings are also a part of nature, and not to see their own race as superior to other stakeholders of the ecological system, nature education should be given systematically, continuously and at an early age. Yağcı (2016) stated that long-term and qualified nature education helps children become a part of nature and develops a new perspective on nature. Children's understanding of the details of the environment, their connection with the environment and their interest in natural events are closely related to their cognitive maturity. It is stated that children in middle childhood establish more realistic relationships with nature while children in early childhood establish more emotional relationships with nature (Legault, 1999). It is possible to strengthen this emotional bond of children with nature in early childhood with various naturebased activity contents. Cevher Kalburan (2009) stated that the early childhood period, in which children are curious and willing to explore, is the critical period in which the potential to acquire attitudes and behaviors is the highest. While explaining the basic policies in the 2023 Education Vision for a Strong Future of the Ministry of National Education of the Republic of Turkey, it is mentioned that education in the 21st century does not take place only in schools and learning takes place in various environments. In addition, it is stated in the education vision that raising consciousness and awareness in basic education will be the basis, children will get to know nature and culture starting from the environment they live in, and will play an active role in the process (Http-1, Accession Date: 30 September 2022). It is important for the teacher to be a positive model in creating knowledge, positive attitudes and behaviors about nature (Akköse, 2008; Güler, 2010). For this reason, pre-school teachers' tendencies, attitudes, perceptions and experiences about nature play a key role in the acquisitions that children will acquire about nature. In this context, early childhood teachers need to be able to use the close environment in activities and keep children's curiosity and exploration of nature vigorous (Gerrish, 2014). Teachers are expected to have sufficient knowledge and skills on nature-based education so that they can use the natural environment in the learning processes of children (Ernst & Theimer, 2011). The influence of nature on the development of children is too great to be ignored. For this reason, learning environments offered to children in schools should be planned in a way that prevents negative emotions and satisfies children's curiosity. On the other hand, it has been stated that providing rich stimulating learning environments, planning and implementing game-based and childcentered activities in learning processes and out-of-school learning environments where naturebased education takes place are related to the use of knowledge by preschool teachers (Ünser, 2021). Within the literature, in the study conducted by Ayvacı et al. (2002) it was stated that most of the preschool teachers participating in the study were not at a sufficient level in planning and conducting science and nature activities, using different teaching methods and techniques, and developing materials. In addition, it was stated that teachers could not reach the determined target due to limitations such as the activities being structured, not suitable for the purpose, and low sustainability (Demiriz & Ulutaş, 2000; Karamustafaoğlu & Kandaz, 2006; Kıldan & Pektaş, 2009; Ravanis & Bagakis, 1998). When the preschool education program of the Ministry of National Education (MoNE) is examined, it is seen that there are no direct gains and indicators for the learning and teaching processes of natural environments, and the concept and certain days-weeks are few in number (MoNE, 2013). On the other hand, there are many organizations and programs in Turkey that emphasize the importance of nature education and support learning processes. One of them is TUBİTAK 4004 Nature Education and Science Schools support program. TUBİTAK 4004 Nature Education and Science Schools support programs consist of activities carried out within the framework of a specific education program, which allow children to understand science and nature through observation and experience, in

order to raise awareness of individuals on nature, science and technology. The program aims to enable participants to expand their perspective on creativity, scientific literacy, science and nature, and provide interdisciplinary learning (TUBİTAK, 2022).

This study includes the implementation results of the teacher nature workshops included in the project number 524884 "Forest Teaches, I Discover" supported by the 2019/1 call of TUBİTAK 4004 Nature Education and Science Schools. The aim of the project is to increase the awareness of pre-school teachers, who have a key role in nature education, about nature, to develop their perspectives on nature and to enable children to use the natural environment in a qualified way in learning environments. Through the teachers participating in the project, it is aimed that children in early childhood can discover natural life, create an emotional bond with nature, create values of love, respect and responsibility towards nature, develop creative solutions to the problems they encounter by gaining experiences in nature and support their holistic development. Children's respect for natural life and the ecological cycle can only happen when they see themselves as a part of nature, but only when they are in touch with nature. The fact that science and nature activities carried out in institutions providing education to the early childhood period are structured, the importance of out-of-class education is not given much importance, the activities are limited in the classroom, and the teachers' awareness and environmental literacy are low, revealed the problem situation of this research.

In this context, in this study, it is aimed to reveal the views of 10 preschool teachers who participated in nature-based teacher workshops within the scope of TUBİTAK 4004 'The Forest Teaches, I Discover' project about their experiences regarding nature-based activities and their transfer to students' learning processes As a role model, pre-school teachers should first increase their awareness of natural learning environments in order to use natural environments in qualified learning processes. The contribution of the project to this requirement is considered important. It was stated in the teacher statements that there were positive changes in the attitudes of the preschool teachers who participated in the nature teacher workshops towards the subject. In this research, it is thought that determining the opinions of teachers will contribute to the literature in terms of determining the level of reaching the final goals of the project and its dissemination.

Method

Qualitative research method was used in the research carried out within the scope of TUBİTAK 4004 'The Forest Teaches, I Discover' project since it was aimed to determine the opinions of preschool teachers about teacher nature workshops in a given time and environment. Strauss and Corbin (1997) used qualitative research. Instead of statistical descriptions, it is a method that enables the data to be examined in more detail and in-depth and the questions about the problem situation to be examined. Phenomenology design was used as the research design. The phenomenology research design covers the phenomena that individuals are aware of in their daily lives but do not have a deep understanding of; it aims to reveal the individual's own experiences, meanings and perspectives attributed to events (Patton, 2018; Wilson, 2015). In the phenomenology research design, it is tried to reveal the basic features that are common in the experiences of individuals and the meanings they attribute to the events (Creswell, 2020, p. 82). In this context, data were collected from 10 pre-school teachers involved in the project by semi-structured interview technique.

Participants

The participants of the study consist of 10 pre-school teachers who participated in the teacher nature workshop within the scope of the TUBİTAK 4004 'Forest Teaches, I Discover'

project working in Kocaeli. The working group was formed by using the appropriate sampling method by creating a project implementation form. Appropriate sampling method is the selection of people or units suitable for the feasibility of the study in terms of time, cost and labor (Büyüköztürk et. al., 2012). Participants who have not participated in any TUBITAK project before were preferred. Ten preschool teachers were randomly included in the project among 21 applicants. Demographic information about the study group is given in Table 1.

Table 1
Demographic Characteristics of Participants

Name	Gender	School Type	Year of Service
Aslı	Female	Kindergarten in primary school	7 years
Anıl	Male	Independent kindergarten	6 years
Ayşe	Female	Independent kindergarten	7 years
Bahar	Female	Kindergarten in primary school	4 years
Hilal	Female	Kindergarten in secondary school	9 years
Melis	Female	Kindergarten in primary school	10 years
Özge	Female	Kindergarten in primary school	4 years
Sevcan	Female	Kindergarten in primary school	6 years
Yeliz	Female	Kindergarten in secondary school	13 years
Zeynep	Female	Kindergarten in secondary school	6 years

***** Participants were given pseudonyms.

With Table 1, it is seen that teachers work in various school types. Considering the years of service, it was determined that 9 participants were in the first 10 years of their duties.

Data Collecting

In the study, data was collected by interview technique. In-depth interview is a technique that cares about the details and essence of the subject that the participant wants to tell with deepening questions in line with the general answers of the participants, without a certain category and question list (Akmehmet Şekerler, 2015). A semi-structured interview form (Appendix-1) was used as a data collection tool. The semi-structured interview form consists of five open-ended questions, and it was revised and finalized by taking the opinions of three different experts working in the field of pre-school education.

At the end of the project, data were collected through interviews in the spring term of the 2020-2021 academic year from the teachers who participated in the teacher nature workshops, which included theoretical framework, wood production and nature activities, which lasted for three days in total.

Analysis of Data

In the study, interviews with preschool teachers were transcribed and evaluated with content analysis. Content analysis aims to emphasize similar or different aspects in the text by categorizing the concepts, words or themes in many texts in a meaningful way (Weber, 1990). The data were analyzed by reaching a consensus by the researchers to ensure consistency between the themes and codes. Then, two different expert opinions were taken for the themes and codes created, and the final version of the data analysis was created by revising it. While analyzing the data, pseudonyms were given to the participants and quotations from the interviews were given to support the results.

Implementation Phase of the Study

Supported by TUBİTAK 4004 nature education and science schools in the 2019/1 call period, the project numbered 524884 "Forest Teaching, I Discover" was carried out in Kocaeli in the 2020-2021 academic year. With the idea that nature is children's homes, the aim of the project is to love and respect nature, learn by discovering and living, to develop children's sense of curiosity and creativity, to increase their cognitive and language skills, and to develop preschool teachers' perspectives on nature, to raise awareness and to develop their creativity by using different methods and techniques. The target audience of the project is the preschool teachers in the district and the preschool students studying in their classrooms. The project consists of two phases: In the first phase, there are teacher-nature workshops, where teachers gain new experiences in nature education and the theoretical information on nature education, wood production and activity content on nature education take place within three days. The second phase of the project consists of the process of practicing nature activities by spending a school day in nature, where teachers and students have different perspectives on nature education. In the second phase of the project, an additional group of permanent students was provided to spend a day in nature, one day a week for 10 weeks, and the long-term results of the project were revealed.

This study includes the results of the first phase of the project. At the end of the project, the data were collected through a semi-structured interview form applied to preschool teachers in order to reveal the opinions and experiences of the teachers. The course of the day and contents of teacher-nature workshops are given in Table 2.

Table 2
Course Of The Day and Contents of Teacher-Nature Workshops

	Teacher-Nature Workshops
1. Day (Theoretical Training)	**Purpose:** It is aimed to convey the philosophical foundations of the approach of Forest Kindergartens, to inform teachers about innovative developmental approaches to nature education and the role of nature in the development of their children. **Description:** Educators first got to know each other through the introduction game. Afterwards, teachers were informed about the role of nature in child development and the contribution of unstructured materials to brain development. By introducing forest kindergartens in alternative education, good project examples in the world in nature education were given. The workshop was concluded by evaluating the teachers' experiences, feelings and experiences during the activity.
2. Day (Nature Diary)	**Purpose:** The aim of this workshop is to develop a product that will connect with nature and to prepare a material for educators to use throughout the project. **Description:** After designing the page design of the nature diary (the subject is trees and plants) with natural felt and wet felt, the second page of the nature diary was designed (the subject is edible plants). After the design, the parts prepared using different hand tools were combined. The workshop was concluded by evaluating the teachers' experiences, feelings and experiences during the activity.
3. Day (Education in Nature)	**Purpose:** It is aimed to ensure that teachers have information about the activities to be done in nature by making observations in nature, and to enable them to use nature in their activity plans. **Description:** In order for the teachers to get to know the activity space in nature, they were first given the opportunity to make observations, and then the examples of activities that they could do with the children in nature were presented to the teachers by practice. After the activity

	examples, a game activity for language education was applied within the scope of visual perception and memory activities within the scope of attention and focus activities in nature, and language development activities in nature. In the continuation of the workshop, the teachers designed a picture of a well-known artist with materials from nature within the scope of art education activities in nature. Then, a pattern study was carried out with natural materials within the scope of mathematics education activities in nature. The workshop was concluded by evaluating the teachers' experiences, feelings and experiences during the activity.

With Table 2, it is seen that the preschool teachers involved in the project gained experience with the basics of the philosophy of nature education, product development to be used in the project, and implementation examples of activities targeting different development areas and achievements that will support the holistic development of children. The project consists of three days in total, including teacher nature workshops, theoretical framework, nature diary production and nature education activities.

Findings

In this section, the analysis of the interviews conducted to determine the opinions of the teachers involved in the project are included. The thematic components used by the teachers in the interview forms are given in Table 3.

Table 3
Thematic Components Used by Teachers in Interview Forms

Themes	Codes
Views on Nature Education in terms of Professional and Personal Development	Obtaining Philosophical Knowledge Gaining Nature Awareness Gaining Perspective Gaining Experience Developing Creativity Creating a product Obtaining Concrete Examples
Views on the Effect of Children's Science Process Skills in Nature Education	Observation Classification Measuring Implementation Communicating Evaluation Problem solving
Teachers' Emotions and Thoughts on Nature Education	Interesting Fun Pleasurable Exciting Efficient
Views on Nature Education in Terms of Values Education	Patience Sensitivity Rapport Attitude Partnership Sharing
Views on the In-Class Adaptation of the Achievements Acquired by the Teachers in	In-Class Nature Based Activity Implementation Creating a Nature Based Activity Plan

Nature Education	Use of Natural Materials in the Classroom Field Trip Planning Creating Event Instances Creating Awareness of Nature in Children Getting Children to Connect with Living Things
Views on Project Satisfaction, Creation of Similar Events, and Recommending to Others	Time Limitation Project Continuity Satisfaction Expectation Level Dissemination of the Project Encouragement

Whit Table 3, the themes and codes created from the answers given by the teachers to the interview questions within the scope of the project are seen. The themes created were analyzed in six categories. Themes: Views on Nature Education in terms of Professional and Personal Development, Views on the Effect of Children's Science Process Skills in Nature Education, Teachers' Emotions and Thoughts on Nature Education, Views on Nature Education in Terms of Values Education, Views on the In-Class Adaptation of the Achievements Acquired by the Teachers in Nature Education and Project Satisfaction, Views on Creation of Similar Events, and Recommending to Others.

The themes determined for the interview questions of the project named 'The Forest Teaches, I Discover' and the statements of the teachers regarding the themes were included.

Theme 1: Views on Nature Education in terms of Professional and Personal Development

Within Table 3, the theme 'Views on Nature Education in terms of Professional and Personal Development' from the opinions of 10 teachers is analyzed. With the codes in this theme, it is revealed that the teachers state their gains from Obtaining Philosophical Knowledge, Gaining Nature Awareness, Gaining Perspective, Gaining Experience, Developing Creativity, Creating a product and Obtaining Concrete Examples workshops. The reasons and statements of the preschool teachers involved in the project regarding the theme of 'Views on Nature Education in terms of Professional and Personal Development' are given below.

> ‘"On the first day, theoretical information about forest schools was shared with us. I am interested and researching these schools and activities in nature. For this reason, it was very instructive that we were presented with concrete examples about the problems that the countries participating in an international conference experienced as a forest school, what they did and how they progressed." (Ayşe Teacher, Obtaining Concrete Examples).

> "The theoretical information given on the first day and the work we did on the other days gained meaning for me. On the second day, I realized how enjoyable it is to produce exciting things with work that I have not experienced before in the wood workshop." (Zeynep Teacher, Gaining Experience).

> "We experienced a new and unfamiliar process. Being in the process contributed in many ways. How we evaluate nature, how it affects our perception of nature, our differences, our awareness, what children can experience in nature and what triggerstheir creativity... It helped me to get ideas and gains on many topics." (Aslı Teacher, Gaining Nature Awareness, Developing Creativity).

Theme 2: Views on the Effect of Children's Science Process Skills in Nature Education

According to Table 3, the theme of 'Views on the Effect of Children's Science Process Skills in Nature Education' is analyzed from the opinions of eight teachers, and it is the total number of codes. Considering the codes in the theme, it is seen that the teachers stated they support children's scientific process skills such as Observation, Classification, Measurement,

Implementation, Communication, Evaluation and Problem Solving. The reasons and statements of the preschool teachers involved in the project regarding the theme of 'Views on the Effect of Children's Science Process Skills in Nature Education" are given below.

> ‘"Unlike classical learning methods, theoretical knowledge was integrated with nature studies with the activities prepared by an expert educator and nature itself was used as a laboratory. Observing nature and living things on the spot, the inner motivation of children, the thought of children encountering a problem in the forest, discovering a new plant gave me the courage to do many activities in nature." (Sevcan Teacher, Observation, Problem Solving).
>
> "I think that in nature education, both children and teachers will get many gains such as enriching their knowledge, skills and experiences, broadening their perspective, observation, measurement, research and curiosity." (Hilal Teacher, Measuring, Observation).
>
> "With activities in nature, children expand their cerebral schemas while using their exploration, observation, awareness, curiosity and creativity." (Melis Teacher, Observation).
>
> "I aim to develop the skills of creating awareness on nature, working together, adapting to the group, problem solving and self-management in students. I think that in case of a problem, children will communicate with each other in their active practices and decide with a common evaluation." (Özge Teacher, Implementation, Communicating, Evaluation).

Theme 3: Teachers' Emotions and Thoughts on Nature Education

In Table 3, the theme of 'Teachers' feelings and thoughts on nature education' is analyzed from the opinions of 10 teachers and when the codes are examined, the teachers stated that the activities were Interesting, Fun, Enjoyable, Exciting and Efficient. The reasons and statements of the preschool teachers involved in the project regarding the theme of 'Teachers' feelings and thoughts about nature education' are given below.

> "In our three-day workshops, seeing different implementations on the first day and integrating them with the educator's own life created an interesting learning environment. The second day was a lot of fun for me as our work in the wood workshop was hands-on and it was an area of my interest. I consider the third day as an efficient day as it offers creativity opportunities in the forest and I experience it by doing examples of activities." (Yeliz Teacher, Efficient, Interesting).
>
> "During the workshop, it was very fun and enjoyable to design and learn by doing. I could not understand how the time passed. I've never done anything like this before. It was a good experience for me, and the concrete implementation of examples of what we can do with children in nature, by associating them with the achievements, gave me a different perspective. They were workshops to raise awareness." (Ayşe Teacher, Pleasurable).
>
> "The last day of the training was the most crucial point for me. It was important in terms of pre-school education to give art, mathematics and language activities that can be given in nature in an integrated way. The content of the activity and its implementation were beneficial in terms of professional development. The tricks of education in nature, being creative, harmonious and fun, increased our learning level." (Anıl Teacher, Fun)

Theme 4: Views on Nature Education in Terms of Values Education

In Table 3, it is seen that the theme of 'Views on nature education in terms of values education' is analyzed from the views of seven teachers, and when the codes in the theme are examined, it is seen that the teachers stated that there are values such as Patience, Sensitivity, Harmony, Attitude, Cooperation and Sharing in the nature education activity processes. Below

are the reasons and statements of the preschool teachers involved in the project regarding the theme of 'Views on nature education in terms of values education'.

> "Especially on the third day, I saw that the aims and achievements presented to us in written form in the activities held in nature can be brought to children in their own flow in the natural environment. In every activity we held, I observed how important it can be to cooperate and have a common idea through group work. I realized that nature refreshes human creativity. I saw once again that patience and obtaining products in the wood workshop are very important for children." (Bahar Teacher, Patience, Cooperation, Sharing).

> "I think it is necessary to include children's meeting with nature at least once a month in the curriculum because I believe that the basis of the sensitivity of the next generation to the benefit of nature should be established. I believe that the education applied to us should be expanded and that at least one teacher from all schools should receive this education and make it widespread." (Hilal Teacher, Sensitivity).

> "We shared with other preschool teachers in the district where I work. We experienced very well how different designs come out in an event. Working collaboratively in the process is also very important for children. We experienced what can be done with natural objects. This showed me that children can do something creative together in harmony with patience." (Melis Teacher, Harmony, Cooperation, Patience).

> "We have seen that we can apply many of the activities we implement in the classrooms by combining them with the opportunities in nature to teach by doing and experiencing, and while doing this, we can bring many values such as awareness and respect, protection, sharing, cooperation, group dynamics to children." (Aslı Teacher, Respect, Cooperation, Sensitivity).

Theme 5: Views on the In-Class Adaptation of the Achievements Acquired by the Teachers in Nature Education

According to Table 3, the theme of 'Views on the In-Class Adaptation of the Achievements Acquired by the Teachers in Nature Education' is analyzed from the views of eight teachers, and when the codes in the themes are analyzed, it is seen that the teachers were asked to implement a nature-based activity in the classroom, to create a nature-based activity plan, and to use natural materials in the classroom. It is seen that they stated that they would carry out adaptations such as Planning a Field Trip, Creating Activity Examples, Creating Nature Awareness in Children, Enabling Children to Connect with Living Things. Below are the reasons and statements of the preschool teachers involved in the project regarding the theme of 'Views on the In-Class Adaptation of the Achievements Acquired by the Teachers in Nature Education'.

> "I think that I can easily apply it in all kinds of activities within the framework of education by including nature trips in my plan and bringing natural objects to the classroom environment." (Hilal Teacher; Field Trip Planning, Use of Natural Materials in the Classroom).

> "I realized that I would integrate nature with many of my classroom activities and I am thinking of having every material in nature in my classroom and bringing nature to my classroom." (Özge Teacher; Creating a Nature Based Activity Plan, Use of Natural Materials in the Classroom).

> "Once again, I realized how beneficial it can be to do activities with natural materials, both for our world and for us. Simply extending the duration of gardening activities, growing a plant in the classroom, etc. I am thinking of including myself and my children in the nature education process with the beginning activities. I would definitely like to try the mathematics (activity related to animal nutrition) activity we do in nature in my classroom." (Bahar Teacher Creating Event Instances; In-Class Nature Based Activity Implementation).

Theme 6: Project Satisfaction, creation of similar events and views on recommending to others

In Table 3, the theme of 'Project Satisfaction, Creation of Similar Activities and Suggestions to Others' is analyzed from the opinions of 10 teachers and when the codes are analyzed, it is seen that the teachers' views are such as Time Limitation, Continuity of the Project, Satisfaction, Expectation Level, Dissemination of the Project, Encouragement. Below are the reasons and statements of the preschool teachers involved in the project regarding the theme of 'Project Satisfaction, Creation of Similar Activities and Suggestions to Others'.

> "In my opinion, the continuity of education and its reach to all pre-school teachers should be ensured. Training can be increased as a day, as the number of days increases, more different activities can be included." (Anıl Teacher, Project Continuity, Dissemination of the Project).

> "The content of the project was good, but it was short. I would like to spend a little more time in more projects to reach more teachers in order to support the work to be done with children more." (Özge Teacher, Dissemination of the Project, Project Continuity, Satisfaction).

> "I would like to thank all of our friends who contributed to this work for their dedication, interest and efforts, for bringing us together with such an enjoyable project. During the training, I gained a lot of new information that contributed to my personal and professional development. Thanks to the experiences transferred and given to us throughout the project, it made me enjoy the project, benefit from it and be enthusiastic and excited for the continuation of the project. I hope that we will be able to bring our students together with nature more often and that we will be provided with more opportunities to improve ourselves in this field. (Aslı Teacher, Satisfaction).

Conclusion and Discussion

The 'Forest teaches, I discover' project aims to increase children's love of nature, respect for nature, learning by exploring, doing and living, improving their creativity, and increasing their cognitive and language skills. On the other hand, it aims to raise awareness of preschool teachers about nature-based activities and to give more space to children's learning processes. After the activities carried out in the project, it is thought that the objectives of the project have been achieved to a great extent by analyzing the data obtained from the research. The data, analyzes and evaluations discussed in the findings section of the research form the basis of this idea.

According to the findings, when the themes and codes that emerged from the interviews with the teachers within the scope of the research are examined, it is seen that the teachers internalized the philosophical foundations of nature education in terms of professional development, gained different perspectives and experiences, gained concrete examples through unstructured processes, and gained awareness of nature education by improving themselves in creativity, producing knowledge and guiding children. expressions have been identified. In addition, it is striking that they stated that they gained information about the measures to ensure a safe environment in the education processes in nature. Within the literature, in the study conducted by Sönmez (2018), it is determined that nature-based activity processes increased teachers' experience and awareness of nature and contributed to their professional development. Studies have shown that when nature education takes place in nature and with unstructured processes, it becomes easier to transform experiences into permanent knowledge (Farmer et al., 2007; Rice & Torquati, 2013; Wells & Lekies, 2006). In this context, it is seen that the results obtained in the theme of "nature education in terms of professional and personal development" are supported by similar studies in the literature.

It is determined that the teachers stated that the stages of Observation, Classification, Measurement, Application, Communicating, Evaluation and Problem Solving in nature education emerge with an unstructured process within the scope of scientific process skills in nature education. In addition, teachers stated in their statements that they can reveal their scientific process skills by running nature, and that children can be encouraged to question and research. It can be said that nature education contents enable children to gain scientific process skills at their own learning levels by actively including them in the learning process. According to Wilke and Straits (2005), basic process skills include observing, classifying, designing and recording, measuring, predicting, relating, analyzing, applying, summarizing, communicating, evaluating, synthesizing, creating, and problem solving. Gaining basic science process skills in early childhood is important as it will form the basis of high-level scientific process skills (Padilla, 1986). In addition, it has been stated that nature-based activities are child-centered activities that enable children to participate actively and develop scientific process skills (Toprakkaya, 2016). Within the literature, Bartan and Başal (2018) examined the views of preschool teachers on scientific process skills. In that study they state that while teachers were teaching scientific process skills to children, most of them used the demonstration-have and experiment method, and some of them used case studies and out-of-class learning environments. In addition, in the research conducted by Özoğlu (2020), the relationship between pre-school teachers' proficiency in science and nature activities and the basic scientific process skills of 60-72 month-old childre is examined. It is stated that the proficiency of the preschool teacher in science activities, the materials and methods they use affect the classification skills of the preschool students. On the other hand, in another study, within the scope of the TUBİTAK 4004 project, an applied training program is implemented for preschool teachers to prepare nature-based (using nature and natural materials) science, mathematics and art activities in preschool. It is stated that after the teachers participated in the project, they prepared more structured nature-based activities that would contribute to the development of scientific process skills such as collecting data, taking notes, and interpreting children's observation skills (Temiz & Karaarslan Semiz, 2019). Within the scope of science and nature activities, it can be said that teacher competence, use of materials and use of out-of-class environments in the implementation of nature-based activities have an important place in the cognitive development of children.

When the theme covering the feelings and thoughts of the teachers involved in the project is examined, it is seen that they are happy to participate in the project, that the educational content is interesting, enjoyable and fun, and that they are excited during the implementation process and that they have a productive education process. In addition, when we look at the theme of project satisfaction, creation of similar activities and suggestions to others, it is seen that the duration of the project is limited, but they have an educational process that exceeds their expectations, they want to spend more time and experience the continuity of the project, and that all preschool teachers should benefit from the dissemination of the project. It is remarkable that they thanked TUBİTAK and the project staff for their role in the realization of the project. It is thought that the positive feelings and thoughts of the teachers about the project and the encouragement towards continuity is an indication that the project has achieved its purpose.

When the answers given by the teachers to the interview questions are examined, it can be said that the nature education process shows its role in the acquisition of values that have an important place in early childhood. Considering the theme of views on nature education in terms of values education, the teachers stated that values such as harmony, sensitivity, patience, attitude, cooperation, and sharing can be taught to children in the content of nature education. Since nature education content takes place in unstructured learning environments at each child's own learning pace, values can be gained in activity content. It can be said that children gain values in activities created for other purposes in an informal way. Kale (2007) stated that various environmental problems and measures to be taken regarding environmental problems

should be included in the education process in values education. When the literature was examined, no study was found in which the relationship between nature education and values education was examined. However, in the philosophy of the forest schools approach, 'If you make the child love nature, the child will protect herself.' applies (Yalçın, 2017). It can be said that values such as love, protection and respect are included in the philosophy of nature education. Tahiroğlu et al. (2010), in their study aiming to determine the effect of environmental education activities developed according to values education methods on secondary school students' attitudes towards the environment, stated that environmental education using values education methods is more effective in developing positive attitudes towards the environment than traditional environmental education. As a result of this study, it shows that nature education provides holistic development of children, and it is also possible to gain values that are a part of social life.

At the end of the project teachers have expressed that they have gained various experiences such as implementing nature-based activities in the classroom, creating a naturebased activity plan, using natural materials in the classroom, planning field trips, creating activity examples, creating awareness of nature in children, enabling children to connect with living things, and creating a safe environment in out-of-class educational environments. It is stated that teachers have an important role in the positive attitudes and behaviors towards nature in children in early childhood (Güler, 2010). Today, it can be said that in order for children who are deprived of nature to interact with nature again, there should be activities that will enable children with nature awareness to meet with nature. For this reason, it has been stated that preschool teachers' experience and competencies with nature education should be developed (Davis & Macleod, 2006; Kennelly et al., 2012). The results of the project, in which it is tried to determine how the knowledge and experience of teachers in nature education are transferred to in-class practices, are supported by similar results in the literature. For example, in the study conducted by Temiz et al. (2019), a nature-based education program was applied to 25 preschool teachers so that they could prepare activities using natural materials in science, nature, art and mathematics activities within the scope of TUBİTAK 4004 project. They were asked to prepare a nature-based activity file consisting of art activities. The results of the study indicated that nature-based activities were not used frequently before the study, and at the end of the study, teachers prepared a wide variety of activities using nature and natural materials. In the study conducted by Güler (2010), 12 days of ecology-based environmental training was applied to 24 teachers. The teachers, who stated that they felt inadequate about environmental education before the application, stated that they gained versatile information about education after the application, their self-efficacy increased, their awareness of the environment increased, they would share the information they gained in their classrooms and their environment, and that there were many activities that they could apply in their branches. In this project, preschool teachers experienced that nature offers rich opportunities to learning environments, that all activities in the preschool education program can be applied in nature, that they can give children all development areas and achievement indicators in the preschool education program. In addition, they realized that unstructured natural environments can also be instructive for children's individual learning. At the end of the project, it is expected that the preschool teachers participating in the project will research and apply how nature will be used in learning processes, employ nature in educational environments, and use nature's guidance. It is stated that nature-based applied studies are important in pre-school education because early childhood years are critical periods in order to gain awareness of nature, gaining values, and attitudes and skills related to nature (Gerrish, 2014).

In the twenty-first century, an interdisciplinary holistic understanding of education is gaining in importance. Qualified nature-based activities support the holistic development of children, enable children to acquire gains and indicators with integrated activities, and enable them to acquire basic scientific skills. Nature-based applied studies should be given more space

in early childhood. For this reason, it is thought that this study will contribute to knowledge, practices and experiences related to nature-based education.

In line with the research findings, the reasons for the preschool teachers' inability to perform their out-of-class practices can be investigated and studies can be carried out to remove the obstacles in the middle. School principals, teachers and parents can be informed to increase preschool teachers' use of out-of-class spaces. In-service trainings can be organized to expand the activity pools of preschool teachers for out-of-class learning environments. Nature-based activities can be offered within a comprehensive program that will benefit all education stakeholders.

Ethical Permissions

This research was carried out with the permission of Kocaeli Provincial Directorate of National Education with the decision numbered 99332089/605, 01/24058745 dated 04/12//2019.

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How Can I Become the Best Teacher? ELT Instructors' Professional Development Preferences

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***Abstract*:** It is well acknowledged that one of the most significant things contributing to a successful career in language teaching is ongoing professional development. It is difficult to determine which tool is the most effective for the development of teachers because of the variety of current strategies that are still being debated in terms of their usefulness and practicability as professional development practices. Furthermore, the perspectives that teachers hold regarding professional development practices vary widely. In this work, various strategies for aiding the professional growth of ELT teachers at a foundation university in Istanbul are presented and discussed. Additionally, their preferences for varied practices that enhance teacher development were identified through a survey investigation. The data were collected through a survey questionnaire, and then they were analyzed to demonstrate both the similarities and differences in the approaches to teaching. The findings revealed that the degree to which teachers valued and made use of the activities differed significantly based on several factors, including their gender, age, years of teaching experience, the undergraduate field of study, and level of qualification. The findings could serve as the foundation for a proposal made to educators who are interested in developing their approach to teaching more professionally.
***Keywords**:* Professional Development, Teacher Training, Teacher Preferences.

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Introduction

For many years, most instructors and teacher-trainers have been trying to find an answer to the question of being the best teacher. Many people have tried to identify the best ways that make a teacher at least "better" professionally. Language teachers, according to Wallace (1991), "can and even must, take on the responsibility for their development" as the necessity in language learning and teaching has become a sine qua non in such a globalized world. Teachers of foreign languages often find themselves in the unusual situation of "becoming trainers of language instructors, or in some way accountable for the professional development of language teachers," because of this need (Wallace, 1991, p. 2). Additionally, it was recognized, particularly following the outbreak of the COVID-19 pandemic that advancements in knowledge and abilities in professional and daily life compelled language instructors to update their knowledge in terms of technology, online learning, curriculum trends, second language acquisition research, or different ways of evaluation and assessment (Richards & Farrell, 2005). Because of this, the focus of teacher training extended from a narrow approach in training models towards a more extensive methodology in which developmental experiences are gained not only inside but also outside the classroom.

As Borko (2004) points out, educators can improve their skills in a variety of contexts, including in-class instruction, extracurricular activities, and continuing education. As a result, we need to examine teacher learning in a variety of settings, including interactions with peers and students, as well as the larger social systems in which teachers are embedded. Almost all teachers need different things at different times throughout their careers. Besides, the institutions they work in ask teachers to update their knowledge accordingly as the needs of institutions also change over time. Similarly, Jackson (1992) tries to define change and adds that many modifications are inevitable, and indeed all those having to do with aging are. He believed that some changes happen to some teachers but not to others; not all teachers grow increasingly cynical, for example, but some do; we may want to include some of these changes under the rubric of "development", but surely not all of them (Jackson, 1992, p. 63). This is why, regardless of specialization, many teachers are required to participate in a certain number of hours of in-service training (Neel, 2007). In this sense, it is clear that the help provided by the classroom experiences and the basis for practice provided by schools are invaluable in adapting to the changes in language education, as professional development is not only considered important for the well-being of the schooling but also the "quality improvement in teaching" (Daloglu, 2004, p. 677).

According to Lange (1990), the word *teacher development* is used in the literature to refer to the ongoing process of educators expanding their knowledge, skills, and perspectives through professional development opportunities. In addition, Head and Taylor (1997) state that a key component of teacher development is increasing educators' self-awareness of their potential for change and the factors that contribute to that change. They also note that this is a reflective procedure since new patterns of thought and action may only arise from examining and challenging established ones (Head & Taylor, 1997). To understand how effective teacher education and development can take place, James (2001) suggests that we should be aware of certain background issues namely, teachers' identities, professional knowledge, skills, attitudes, and feelings, and change and learning. These issues help practicing teachers develop their professional knowledge, skills, and attitudes to have a more efficient teaching process (James, 2001).

Teacher Identities

As is claimed by Gebhard and Oprandy (1999), the links between who we are as people and as teachers are rarely dealt with in teacher education programs. Still, it is important to

remember that instructors can draw on any aspect of their lives while discussing their profession, which promotes inquiry outside the confines of traditional classroom practice (Gebhard & Oprandy, 1999). Additionally, James (2001) supports the idea that teachers are "unique individuals, with their personalities, idiosyncrasies, hopes, and concerns". At this point, the importance of dealing with professional development tools becomes more visible to the teachers. Therefore, for effective teacher education, we must take into consideration that teachers have different personal and educational backgrounds, skills, or amounts of experience as well as professional knowledge about the subjects (James, 2001).

According to James (2001), teachers should also be considered social beings, who interact not only with their students but also with their colleagues. Besides, there is an ongoing interaction at every phase of instruction between curricula, syllabi, teaching materials, and classroom activities, which constitutes a three-way process. Classrooms and schools, and nowadays, online sessions as a means of distance education are the basic settings teachers have to interact with their learners. We can extend this context and get beyond "the school gates, consisting of layers including the school community, region, and international community (James, 2001). This is crucial because teachers' understandings and the ways they create meaning are shaped by the situations they work for. For this reason, this should also be taken into consideration while planning INSET courses or pedagogical adjustments in schools.

Teachers' professional knowledge and skills

When teachers join a training course, they already have professional knowledge in their subject area. They bring their own unique sets of values, perspectives, and preconceptions about the profession of education to the classroom (James, 2001). After each training session, all of these are reworked in light of the instructors' current knowledge and expertise (James, 2001). In this way, educators can reflect on their improvement as both teachers and educator-developers throughout their careers (James, 2001). For this reason, while preparing INSET courses for teachers, generalizations teachers make, their interpretations, principles, feelings, and priorities are of vital importance (James, 2001).

As their careers progress, most teachers realize they need to develop their expertise, and they begin doing so early on (Richards, 1990). Although prospective teachers may feel overwhelmed at first, they eventually develop a toolbox of techniques that they can use effectively in all their lessons (Richards, 1990). Teachers' preferences for professional development activities should be based on a wide range of skills, not just those directly related to language competence or the use of the target language in the classroom, but also on methodological skills like lesson planning or correcting mistakes, or decision-making skills, social skills, or presentation skills (James, 2001). Finally, in a study conducted by Uştu, et. al. (2016) professional development training that teachers need most turns out to be improving their communication skills, technological issues, teaching methods and techniques, student psychology, and body language.

Practices of professional development

Teachers may consider or evaluate their current practice by identifying those aspects which they are satisfied with; identifying other aspects which they feel the need of improving, exploring, and investigating alternative solutions and methods (James, 2001). As professionals, however, we grow only if we choose to, and the reasons for doing so can vary widely from one educator to the next (Bailey, et.al, 2001). Therefore, professional growth for educators is centred on teachers' unique requirements, which can take on a variety of shapes and sizes based on context and goal (Head & Taylor, 1997). In doing so, we might need to trust other teachers who will be helping us to develop as peers, mentors, teacher educators, or maybe as administrators.

Apart from individuals or institutions, there can even be publishers, educational manufacturers, and distributors who offer schools and teachers INSET sessions (Gough & James, 1990). Since the overall climate of education is changing and education is being exhorted to cooperate with industry and commerce, commercial organizations, as well, start to offer some forms of INSET sessions in which materials are provided and presentations are made (Gough & James, 1990). Considering this idea, we can conclude that there is a wide range of professional development practices, and we, as teachers, would like to take an opportunity to go further in our development.

Having said this, it becomes a more significant issue to find the best practices to learn and develop professionally. Lieberman (1995) argues that educators can get knowledge in one of two ways: through exposure to exemplary models or by participation in the creation of authentic difficulties of practice. Reflective analysis of teaching practices; examination of beliefs, values, and principles; conversation with peers on fundamental topics; and collaboration with peers on classroom projects are all suggested by Richards and Farrell (2005) as strategies for teacher development. They argue that this means professional development should involve more than just introspection. There are plenty of alternatives. Figure 1 illustrates how a subset of the opportunities for teacher development can be broken down into four distinct categories such as "individual", "one-to-one", "group-based" and "institutional" activities which teachers can choose from. Some activities can be found in more than one group because of their nature.

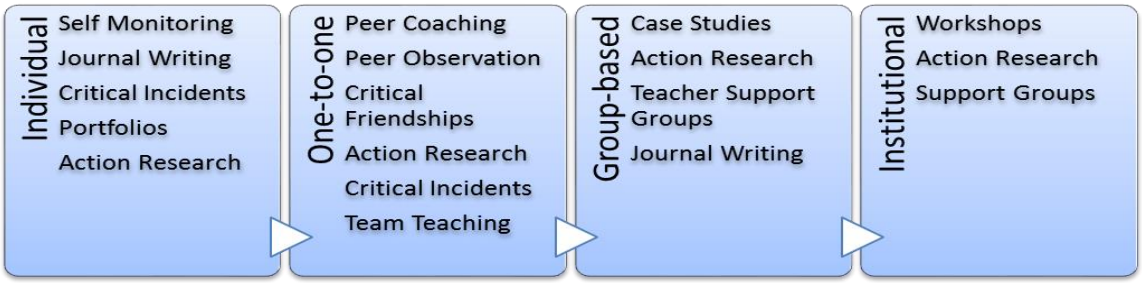

Figure 1. Activities for teacher development (Adapted from Richards & Farrell (2005, p. 14))

In addition to the activities listed in Figure 1, some other professional development activities such as seminars, national or international conferences, and workshops can be added to this list. University courses, M.A. degrees, and certificate programs such as CELTA and DELTA also offer many opportunities to teachers who want to develop more professionally. Finally, teachers can also make use of technology and join online networks, follow online bulletin boards, and can even take online courses or training. It is up to the teachers to choose the one that best fits them for their progress.

Research questions

This research investigates what kinds of professional development opportunities Turkish ELT teachers value most, as well as what factors contribute to the need for such options. The following are the research questions that guided this investigation:

1. What are Turkish ELT teachers' preferences for professional development?
2. How do background factors such as gender, age, teaching experience, undergraduate area of study, and qualification level affect ELT teachers' preferences for professional development activities?

Method

This research relied on a quantitative survey design that employed a questionnaire with 14 items about professional development activities. The study's goal necessitated a research strategy that would be aware of the significance of the meanings being constructed by the teachers in the context of their professional development as they participated.

Study Group and Setting

The participants in this study were chosen to employ convenience sampling from an accessible population of language teachers. Out of 67 instructors, 41 volunteered to participate in the research. 30 of the participants were female (73%) while 27% of teachers were male (N=11). Teachers had varying levels of teaching experience. The largest group of responders (68,3%) are instructors who have been in the profession for 0 to 10 years. The remaining teachers (N=12) have been in the field for over ten years.

This study was carried out at a private university in Istanbul, where the Department of Foreign Languages offers two distinct curricula: the English Preparatory Programme (PREP) and the Degree English Unit. PREP offers intense language classes with a teaching burden of 26 hours per week. Instructors in English degree courses instruct students ranging from freshmen to seniors. Some instructors work in units such as curriculum, assessment, and teacher training in addition to teaching.

Data Collection Procedure

Before a staff meeting, the questionnaires were distributed to instructors and collected within a week. The data were analyzed to understand the general perceptions of the instructors as well as differences among them in terms of professional development practices in an ELT context.

Data Collection Tool

A survey questionnaire on the preferences of ELT instructors for different professional development tools was utilized as the main data collection tool. It was drafted from the surveys conducted by Neel (2005), Richards and Farrell (2005), and Gough and James (1990), as well as the sources in the literature as a starting point and piloted with five instructors from the same department after the expert opinion was received from two faculty members of Faculty of Education in the same university. These respondents and their responses were not included in the main study but were used for testing. The questionnaire was then amended based on the suggestions of the responders, and unnecessary items were eliminated. In addition, unclear or complex terminology was simplified to facilitate comprehension.

The internal reliability of the research questionnaire was calculated through Cronbach alpha which was found to be 0.923 for 14 items. After receiving permission from the institution, the questionnaires were distributed to the instructors. The confidentiality of the participants was ensured by not disclosing their names or personal information in the research. The data were collected and then analyzed in the fall semester of the 2019-2020 academic year.

Data Analysis

Statistical Software for the social sciences (SPSS) Version 22.0 was used to conduct descriptive statistics, reliability estimates, and correlation analyses on the questionnaire data. All replies to closed-ended questions were analyzed descriptively. The data's percentages, means,

and frequencies were computed. Teachers' perceptions of their professional development were compared with independent variables such as age, gender, teaching experience, and educational background through inferential analyses. In addition, comments from a total of 25 respondents expressing their thoughts or offering advice on various aspects of professional development are included.

Findings

The questionnaires were distributed to 67 teachers, and a total of 41 usable questionnaires were returned, yielding a 61% response rate. Table 1 shows the demographic characteristics of the respondents based on independent variables such as gender, age, teaching experience, undergraduate area of study, and qualification level of the ELT teachers.

Table 1
Distribution of teachers according to independent variables

Independent Variables		*f*	%
Gender	male	11	26,8
	female	30	73,2
Age	22-30	19	46,3
	31-40	15	36,6
	41-more	7	17,1
Experience	0-10	28	68,3
	11- 20	8	19,5
	21- more	4	11,8
Undergraduate area of study	other	9	22
	teaching	17	41,5
	English lit.	12	29,3
	American lit.	3	7,3
The qualification level	Ph.D.	1	2,4
	B.A.	27	65,9
	M.A.	13	31,7

Professional Development Preferences of ELT Teachers

When the results obtained from the questionnaire were analyzed regarding the first research question, attending workshops or training seemed to be at the top of the list of preferences of the ELT instructors with a mean score of 4,12. This is followed by attending seminars and conferences ($\bar{X}$=3,98) and attending master's programs and peer observations with the same mean score of 3,95 as can be seen in Table 2 provided below.

Table 2
Descriptive statistics for professional development activities

Professional Development Activities	n	Mean	SD
Attending workshops or training	41	4,12	0,98
Attending seminars/ conferences	41	3,98	0,96
Attending master's programs	41	3,95	1,14
Observing peers	41	3,95	1,00

Having group discussions	41	3,90	1,00
Attending certificate programs	41	3,85	1,09
Reading ELT Journals, publications, or books	41	3,76	0,99
Requesting training from the institution	40	3,73	0,99
Receiving personal mentoring	41	3,56	1,07
Joining online teachers' networks to share info	41	3,56	1,12
Doing action research	40	3,35	0,98
Following online bulletin boards	41	3,24	1,07
Keeping diaries/portfolios	40	3,13	1,11
Taking online courses/training	41	3,05	1,09

When examining Table 2, it is observed that although taking online courses/training receives average scores ($\bar{X}$=3,05), it is the least preferred activity in the list of professional development activities. Considering the distance learning circumstances which have been experienced globally, it seems that instructors are still in favor of traditional face-to-face training settings for their progress. The other activities that receive less attention from the teachers are keeping diaries or portfolios ($\bar{X}$=3,13) and following online bulletin boards ($\bar{X}$=3,24). It might be concluded that because of the struggles instructors are experiencing nowadays, activities related to online environments might not be preferred as expected.

Preferences of Practices of ELT Teachers for Professional Development by Independent Variables

Using the independent samples t-test and One-Way ANOVA, it was determined whether there was a statistically significant difference between the preferences of teachers and the independent variables of the study, namely, gender, age, teaching experience, undergraduate area of study, and qualification level. Using the independent samples t-test and One-Way ANOVA, it was determined whether there was a statistically significant difference between the preferences of teachers and the independent factors. Here are given only the significant differences. The results obtained provide an answer to the second research question.

As shown in Table 3, gender appears to be strongly associated with teachers' responses to nine variables regarding their perceptions. According to the data, female teachers' choices for "attending seminars and conferences," "attending master's programs," "attending certificate programs such as CELTA", "attending workshops or training", "taking online courses/training", "receiving personal mentoring", "following online bulletin boards", "reading ELT journals", and "requesting training from the institution" differ significantly from those of male instructors at the .05 level.

Table 3
Preferences of professional development by gender

Professional Development Activities	Gender	n	Mean	SD	Sig.
Attending seminars/ conferences	male	11	3,09	1,30	0,00*
	female	30	4,30	0,53	
Attending master's programs	male	11	3,18	1,33	0,02*
	female	30	4,23	0,94	
Attending certificate programs	male	11	2,82	1,08	0,00*
	female	30	4,23	0,82	
Attending workshops or training	male	11	3,18	1,25	0,00*

	female	30	4,47	0,57	
Taking online courses/training	male	11	2,36	1,03	0,02*
	female	30	3,30	1,02	
Keeping diaries/portfolios	male	11	2,91	1,38	0,46
	female	29	3,21	1,01	
Observing peers	male	11	3,45	1,44	0,05
	female	30	4,13	0,73	
Having group discussions	male	11	3,64	1,50	0,31
	female	30	4,00	0,74	
Receiving personal mentoring	male	11	3,00	1,41	0,04*
	female	30	3,77	0,86	
Following online bulletin boards	male	11	2,64	1,12	0,04*
	female	30	3,47	0,97	
Joining online teachers' networks to share info	male	11	3,27	1,27	0,32
	female	30	3,67	1,06	
Reading ELT Journals, publications, or books	male	11	3,09	1,22	0,02*
	female	30	4,00	0,79	
Requesting training from the institution	male	11	2,64	1,03	0,00*
	female	29	4,14	0,58	
Doing action research	male	11	3,18	1,17	0,51
	female	29	3,41	0,91	

***** $p<.05$

As indicated in the table by the results obtained, female teachers agree with these statements while male teachers mostly stay uncertain. This means that female teachers prefer seminars/conferences, training, and certificate programs more when compared to male teachers. We can also say that in general, female teachers like to work on following publications about their field. These findings may imply that female teachers prefer learning out of school or at least requesting training from their institutions. They also like learning individually by doing field-related readings, if they cannot attend any courses or seminars. In addition to these findings, it is also worth it because female teachers tend to give higher points to the overall professional development activities when compared to male teachers according to the mean scores for each variable. In other words, it appears to be more important for female teachers to deal with developmental issues while male teachers tend to agree less with the professional development practices most of the time.

Unlike gender, *age* does not have any significant relation with teachers' preferences for professional development practices at the .05 level. Table 4 below reveals the results for professional development preferences of instructors by age.

Table 4
Preferences of professional development by age

Professional Development Activities	Age	n	Mean	SD	Sig.
Attending seminars/ conferences	22-30 years	22	4	1,07	0,89
	31-more	19	3,95	0,85	
Attending master's programs	22-30 years	22	3,82	1,26	0,12
	31-more	19	4,11	0,99	
Attending certificate programs	22-30 years	22	3,77	1,15	0,32
	31-more	19	3,95	1,03	
Attending workshops or training	22-30 years	22	4,09	1,11	0,94

	31-more	19	4,16	0,83	
Taking online courses/training	22-30 years	22	3	1,20	0,45
	31-more	19	3,11	0,99	
Keeping diaries/portfolios	22-30 years	21	3,10	1,04	0,54
	31-more	19	3,16	1,21	
Observing peers	22-30 years	22	3,91	1,11	0,95
	31-more	19	4	0,88	
Having group discussions	22-30 years	22	3,91	1,11	0,83
	31-more	19	3,89	0,88	
Receiving personal mentoring	22-30 years	22	3,5	1,14	0,76
	31-more	19	3,63	1,01	
Following online bulletin boards	22-30 years	22	3,36	1,18	0,42
	31-more	19	3,11	0,94	
Joining online teachers' networks	22-30 years	22	3,5	1,22	0,34
to share info	31-more	19	3,63	1,01	
Reading ELT Journals, publications	22-30 years	22	3,77	1,11	0,13
or books	31-more	19	3,74	0,87	
Requesting training from the institution	22-30 years	22	3,64	1,09	0,44
	31-more	18	3,83	0,86	
Doing action research	22-30 years	22	3,36	1,05	0,50
	31-more	18	3,33	0,91	

* $p<.05$

As can be seen in Table 4, statistical analysis shows that teachers at different ages have almost the same tendencies of agreeing with the variables. However, it is worth considering that teachers aged between 22-30 tend to agree more strongly with the variables such as "attend seminars/ conferences", "have group discussions", "follow online bulletin boards", "read ELT Journals, publications or books", and "do action research" when compared to older teachers who are 31 or over. As novice teachers are still climbing up the stairs in their careers, they are possibly more enthusiastic and feel more compelled to contribute to group conversations or online bulletin boards. In addition, they may feel excited to read publications and attend seminars as might have a bit freer time compared to older teachers who possibly have more responsibilities not only as a teacher but also as an individual with heavier duties in their lives. On the other hand, "attending an M.A. program", for example, seems to be more important for older teachers. Throughout the years, they might have realized what they lack in their teaching career and might have felt the need to fulfill this gap and develop professionally in their way of teaching.

In contrast, teaching experience is one of the independent variables that exhibit no significant correlations with the other variables. As revealed by Table 4 teachers with varying years of experience have nearly identical professional development choices. Even if the background variables of age and teaching experience are expected to be similar, there are disparities in the preferences of teachers, according to the data supplied.

Table 5
Preferences for professional development by experience

Professional Development Activities	Experience	n	Mean	SD	Sig.
Attending seminars/ conferences	1-10 years	28	4,00	0,86	0,95
	11-more years	12	3,92	1,24	
Attending master's programs	1-10 years	28	4,18	0,91	0,16
	11-more years	12	3,42	1,51	
Attending certificate programs	1-10 years	28	4,04	0,92	0,37

	11-more years	12	3,50	1,38	
Attending workshops or training	1-10 years	28	4,18	0,86	0,88
	11-more years	12	4,00	1,28	
Taking online courses	1-10 years	28	3,25	1,04	0,14
	11-more years	12	2,58	1,16	
Keeping diaries/portfolios	1-10 years	28	3,32	1,12	0,29
	11-more years	11	2,73	1,01	
Observing peers	1-10 years	28	4,04	0,84	0,35
	11-more years	12	3,75	1,36	
Having group discussions	1-10 years	28	3,96	0,79	0,83
	11-more years	12	3,75	1,42	
Receiving personal mentoring	1-10 years	28	3,71	0,94	0,26
	11-more years	12	3,17	1,34	
Following online bulletin boards	1-10 years	28	3,33	1,37	0,59
	11-more years	12	3,18	0,94	
Joining online teachers' networks	1-10 years	28	3,64	0,99	0,69
to share info	11-more years	12	3,33	1,44	
Reading ELT Journals, publications	1-10 years	28	3,89	0,79	0,29
or books	11-more years	12	3,42	1,38	
Requesting training from the institution	1-10 years	27	3,85	0,86	0,46
	11-more years	12	3,42	1,24	
Doing action research	1-10 years	27	3,44	0,89	0,72
	11-more years	12	3,17	1,19	

***** p<.05

Table 5 shows that as for attending M.A. courses, the mean for younger teachers ($\bar{X}$ = 3,82) is less than older teachers' ($\bar{X}$ = 4,11), here, while the mean for less experienced teachers ($\bar{X}$ =4,18) is higher compared to more experienced teachers' ($\bar{X}$ =3,42). Another example could be that older teachers ($\bar{X}$ =3,16) prefer keeping diaries more when compared to younger teachers ($\bar{X}$ =3,10) however, as the experience increases, the interest shown by older teachers ($\bar{X}$ =2,73) decreases and less experienced teachers ($\bar{X}$ =3,32) show more interest in keeping diaries than more experienced ones. This might be because the age groups and degree of experience may not overlap, or older teachers might have a shorter teaching career whereas a younger teacher might have worked as a teacher since the very beginning of his/her entire career.

Table 6 reveals that teachers' *undergraduate area of study* is not significantly related to any of the background variables at the .05 level. The results obtained from the questionnaire show that teachers who studied English Literature and English Language Teaching as their undergraduate areas of study have the same tendency to agree with the items in the questionnaire.

Table 6
Preferences of professional development by undergraduate area of study

Professional Development Activities	Area of Study	n	Mean	SD	Sig.
Attending seminars/ conferences	Teaching	17	4,12	0,93	0,49
	English Literature	12	4,00	0,85	
Attending master's programs	Teaching	17	3,88	1,32	0,53
	English Literature	12	4,25	0,87	
Attending certificate	Teaching	17	3,82	1,29	0,31
	English Literature	12	4,17	0,94	
Attending workshops or training	Teaching	17	4,29	0,99	0,47

	English Literature	12	4,17	0,94	
Taking online courses	Teaching	17	2,88	1,11	0,72
	English Literature	12	3,08	1,16	
Keeping diaries/portfolios	Teaching	16	3,00	1,10	0,71
	English Literature	12	3,17	1,19	
Observing my peers	Teaching	17	4,06	1,09	0,35
	English Literature	12	3,58	1,08	
Having group discussions	Teaching	17	4,06	1,03	0,12
	English Literature	12	3,58	1,08	
Receiving personal mentoring	Teaching	17	3,35	1,00	0,53
	English Literature	12	3,58	1,31	
Following online bulletin boards	Teaching	17	3,41	1,00	0,71
	English Literature	12	3,25	1,22	
Joining online teachers' networks to share info	Teaching	17	3,47	1,12	0,63
	English Literature	12	3,42	1,24	
Reading ELT Journals, publications, or books	Teaching	17	3,71	0,99	0,78
	English Literature	12	3,75	1,14	
Requesting training from the institution	Teaching	16	3,69	0,95	0,58
	English Literature	12	3,83	1,03	
Doing action research	Teaching	16	3,25	0,86	0,52
	English Literature	12	3,17	1,19	

* p<.05

According to the table, instructors who studied English Literature endorse the statement "attending an M.A. degree" more strongly when compared to the instructors from the ELT department. This may stem from the fact that they would like to learn about the theories of teaching rather than practices when compared to ELT graduates who are more knowledgeable in terms of theories of ELT. On the other hand, having group discussions is preferred more by ELT graduates.

According to the results shown in Table 7, the teachers' *qualification level* that they completed is significantly related to three of the variables at the .05 level. There is a statistically significant difference between the teachers with an M.A. and the teachers with a B.A. degree concerning the practices of keeping diaries/portfolios, joining online networks to share information, and doing action research.

Table 7
Preferences for professional development by the qualification level completed

Professional Development Activities	Degree	n	Mean	SD.	Sig.
Attending seminars/ conferences	B.A.	27	3,85	0,91	0,37
	M.A.	13	4,15	1,07	
Attending master's programs	B.A.	27	3,70	1,17	0,14
	M.A.	13	4,38	0,96	
Attending certificate	B.A.	27	3,67	1,14	0,24
	M.A.	13	4,15	0,90	
Attending workshops or training	B.A.	27	4,07	0,96	0,66
	M.A.	13	4,15	1,07	
Taking online courses	B.A.	27	2,96	0,98	0,41
	M.A.	13	3,31	1,32	
Keeping diaries/portfolios	B.A.	26	2,85	1,12	0,03*
	M.A.	13	3,77	0,83	
Observing my peers	B.A.	27	3,78	1,12	0,30

	M.A.	13	4,31	0,63	
Having group discussions	B.A.	27	3,70	1,07	0,16
	M.A.	13	4,23	0,73	
Receiving personal mentoring	B.A.	27	3,48	1,12	0,21
	M.A.	13	3,85	0,90	
Following online bulletin boards	B.A.	27	3,00	1,04	0,12
	M.A.	13	3,69	1,03	
Joining online teachers' networks to share	B.A.	27	3,19	1,14	0,00*
info	M.A.	13	4,31	0,63	
Reading ELT Journals, publications, or	B.A.	27	3,56	1,05	0,20
books	M.A.	13	4,15	0,80	
Requesting training from the institution	B.A.	26	3,58	0,99	0,44
	M.A.	13	4,00	1,00	
Doing action research	B.A.	27	3,00	0,96	0,00*
	M.A.	12	4,08	0,51	

* p<.05

As shown in Table 7, these findings may indicate that the more academic studies teachers do, the more interested they might get in doing research and expressing ideas –in diaries or online networks. It should also be noted that teachers with M.A. degrees (n=13) are more interested in action research whereas 28 teachers with B.A. degrees are uncertain about the issue. Another important point about this variable is that instructors with M.A. degrees agree more strongly with all the professional development activities listed in the questionnaire when compared to instructors with B.A. degrees. This might be because they might believe in professional development more and their M.A. degree already proves that they have completed at least one of the practices, which is their M.A. study, for their professional development. Given this context, it is not surprising that this questionnaire item yields such results.

Results of open-ended questionnaires

Out of 41 surveys distributed to the instructors, twenty-five of them were received having been completed.

The first question "What kinds of organized staff-development activities have you found most useful?" received a range of responses including "training sessions –from trainers who come from different institutions", "peer observation", "activities that add to our teaching in classroom", "presentations that were more practical rather than theoretical", "useful technology", "group discussions", "teacher training conferences-seminars especially given by British council trainers", and "practical activities that appeal to the learners, not something utopic". Seen in this light, some teachers are more in favor of doing activities that can be used in real teaching environments, rather than theory-based activities. The most frequently given answer to the same question, therefore, is the "workshops". Seven teachers believe the importance of workshops "instead of theory sessions" (17,8%). As one of the closed-ended items, attending workshops or training" is the top-rated item with the highest mean score ($\bar{X}$ =4,12) among the professional development activities stated in the second section of the questionnaire. This means that teachers' ideas are parallel to each other in both parts of the survey. However, even though "action research" comes as the second activity that was believed to be the most useful by four teachers (9,8%), as this practice allows the teacher "reflect more on teaching", we cannot say that the percentage this activity has is enough to generalize the findings to whole teachers at the institutions. Besides doing action research is among the bottom five activities with an average of 3,35 that teachers mostly feel uncertain about their preferences for professional development.

Question two required teachers to state their plans for their professional development in

the next few years. Taking a course on different subjects is one of the plans teachers have for their future careers. One of the teachers stated that he/she aims to equip him/herself "*as a teacher who is skillful in teaching Advanced English*". In addition to taking courses, eleven teachers plan to attend DELTA courses and nine of them have plans for receiving an M.A. degree, even though one of the teachers prefers to do an M.A. degree in a different subject! Responds to this question of the survey show that 25% of the teachers plan to have a DELTA certificate and this may explain why the item "attending certificate programs such as CELTA" is the 6th most preferred item. This also means that the rest of the teachers are not interested in the programs as such. However, although teachers rated "attending a master's degree" as the top third item, in the open-ended section of the questionnaire it does not receive so many responses. The reason might be that teachers might believe in the efficacy of having an M.A. degree but may not have an opportunity to achieve that, or that they already have an M.A. degree so do not include it as a plan, although they agree with it in the second section of the questionnaire.

Question three focused on what teachers personally understand by the term "teacher development". Here are the definitions of the respondents:

- Learn more, reflect more, share more.
- Be a better teacher and contribute more to the students.
- To improve one's teaching to be more open-minded.
- Teacher development is the self-development of a teacher's knowledge, skills, attitudes, and behaviors to perform his/her tasks more effectively in class or school.
- an ongoing/lifelong experience you learn from the students, they learn it from you.
- If a teacher doesn't develop, he can get bored. How can he/she become successful then?
- Being more experienced with the effects of certain behaviors and approaches.
- Adapting to changes and following them to catch up with the others and our students.
- Keep learning and updating yourself, keeping up with the trends, and exchanging ideas; and find new ways to facilitate students' learning.
- Self-improvement by learning new approaches, new techniques, and ideas that can be used in the class.
- Enjoying your job, thus enjoying your life. If you are bored, this means that you need to develop yourself and catch up with the developments in the area.
- It goes hand in hand with teacher training, becoming aware of the new approaches, and techniques; practicing them, assessing, evaluating them, and trying to go beyond your limits as a teacher.
- There is no end to learning and teaching. Considering this fact teachers should develop themselves to adapt to the latest changes & advances in the teaching field.
- Never-ending process including every single detail supporting my teaching style such as articles, visuals, conferences, discussions, feedback, etc.
- Increasing skills and competence NOT proving how much you've read/studied on paper.
- Ways to improve yourself professionally, reflect on your practice, develop new ideas, to renew yourself & your teaching skills.
- Learning while teaching and developing teaching skills to make the students acquire things we teach better.
- Seeking a solution for better classroom management, learning various techniques for different skills, updating, and following innovations in ELT.
- It is a self-reflective process, centered on personal awareness of the possibilities.

Looking at these comments, we can infer that most of the teachers take teacher development as a concept directly related to learning. It has been suggested by Richards and

Farrell (2005) that classrooms are not just venues for students to learn, but also for educators to gain new insights. According to Neel (2007), too, that learning exists at many levels, and in every situation for everyone including teachers. In addition to this aspect of teacher development, respondents seem to believe in the importance of self-improvement, seeking solutions, and reflecting on your teaching when they are asked their definition of teacher development. One of the teachers thinks that teacher development is becoming successful, and another says that it is becoming more experienced. All things considered, in terms of comments, maybe the statement which says teacher development is "increasing skills and competence, not proving how much you have read/studied on paper" could be the most realistic definition made by the respondents when we consider the results of the survey.

Concerning the final open-ended question that asked respondents to describe their best teacher development experience, the majority of the respondents gave different answers related to different professional development practices. Below are the answers:

Last year, when I attended teacher training sessions, I learned that the- er suffix (like the teacher, doer, or trainer) isn't important, the process/mutual understanding, and self-reflection is the most important thing.
I attended a testing course and I had the opportunity to questions. If you start questioning, the answers always come.
Taking up the classes and being have to organize everything by myself.
During my CELTA course, I had to teach a multilingual class and that was a great experience for me as I only teach monolingual Turkish classes in Turkey.
DELTA, the teaching practice aspect of it was helpful.
CELTA, because it involved both practice and Input sessions. Input sessions were great because each time I learned something. I can take it with me. And the feedback sessions after a teaching practice were very useful. I believe I learned to reflect on my teaching as well as get others' opinions on my lessons.
I've found Delta sessions most useful, but there is no end to teacher development.
Listening to Action Research presentations EVEN THOUGH (emphasized by intonation) the meetings for the presentations weren't organized well.
My MA contributed a lot in terms of my development as a professional teacher.
Active teaching. Real classroom environment.
MA course; presenting my research findings and experiences at an international conference.

Even though most of the answers differ from each other significantly, many teachers describe courses such as CELTA and DELTA as their best experiences. This constitutes only one item "attending certificate programs such as CELTA" ($\bar{X}$ =3,85) in the questionnaire. In addition to this M.A. courses also offer teachers good developmental practices as was suggested. However, teaching itself in real situations, not conferences or courses, is also considered to be of paramount importance for some teachers. As a result, it would not be wrong to think that the best activity is teaching itself. With some support, it is even better than the "best"!

Discussion

The findings show that there is a significant relationship between gender and several forms of professional development. Some professional development activities are more important for female instructors than for their male colleagues. It seems that male instructors are more inactive in utilizing such activities and investing energy in them. Another major finding of this study is that contrary to the literature reviewed, action research does not receive much attention from teachers. Of course, there are other activities such as taking online courses,

keeping diaries, and following online bulletin boards that are rated lower than action research. Nevertheless, action research receiving less agreement from the teachers is contradictory as was also found in the literature. One possible explanation is action research, a sort of self-reflection in which educators assess their practice, identify areas for improvement, and put these ideas to the test in their classrooms (Korkmaz, 2015). Parallel to the literature, this might mean that instructors are not knowledgeable about the meaning of action research, the ways to conduct it, and its benefits. In addition, contrary to the general belief, taking online training courses is another activity that received unexpected scores considering the conditions under which distance education methods are applied. The reason why teachers did not prefer it could be an interesting topic to conduct further research. In brief, the administrators may provide instructors with a wide range of voluntary activities and necessary resources as well as flexibility in their working hours or conditions for institution-wise progress.

Furthermore, novice instructors place more significance on some professional development activities than experienced instructors. It could be inferred that experienced instructors might have lost their interest in these exercises when contrasted with the young. Another study could be conducted to see why this is the case, yet in any case, it tends to be gathered that youthful and beginner instructors need to team up additional since they might be more needing finding support from experienced educators to improve their abilities. Therefore, it follows that teachers and their mentors should be considerate of teachers' needs and preferences throughout the various stages of their careers. To help proceed with these, the needs, abilities, and interests of teachers should be identified by the administration in the school. Particularly experienced educators could be urged to partake enthusiastically in a portion of exercises as such.

Conclusion and Suggestions

The study's key findings provide a foundation for making recommendations about how to improve education for teachers and the conditions in which they work. Teachers' levels of participation in professional development activities vary widely depending on demographic variables such as age, nationality, qualification level completed, or undergraduate area of study. However, we might need further investigation into why there are such differences might to understand the reasons, and if possible, to eliminate those differences. The extent to which self-development is achieved and the obstacles to progress could be the subject of additional research. Exploring, for instance, the challenges teachers confront throughout their professional development and their causes could be advantageous not just for the teachers but also for administrators and teacher trainers. Thus, it is suggested that educational institutions should adopt more practical INSET approaches. In addition, by gathering data from administrators and teacher trainers through observations, surveys, and interviews, it would be possible to gain a deeper understanding of how teachers value these activities and the extent to which they implement them.

Overall, the study's findings have implications for future research and practice in the profession, particularly because they highlight the perspectives educators take on the ever-evolving world. The study's findings could aid professional development for educators by illuminating ELT educators' choices for continuing education. Hence, administrators, curriculum developers, and teacher trainers can take more realistic steps while offering in-service training courses. It is unlikely that INSET courses will increase teachers' capacity for competent commitment over the long term if it does not take into account the growth phases of teachers and their intellectual and emotional development demands, as Day (1999) claims.

Through the results of this survey, teacher trainers may be able to find better ways to help teachers' professional development by communicating with them more efficiently. In this way, they would be able to come up with improved classroom results through professional development opportunities for teachers at the institution. Consequently, it is believed that this study may help teachers increase their awareness of professional development activities, and help them engage more with the professional aspect of their careers. Yet, as was also recommended by Korkmazgil (2015), there is still a significant dearth of studies that examine professional growth strategies used by Turkish EFL educators in classrooms serving students in grades K 12.

Limitations

The use of a convenient sampling technique to acquire the data is one of the study's weaknesses. It is important to note that this survey only collected data from 41 out of a total of 67 English language teachers at this university to prevent sampling bias and maintain the study's external validity. Therefore, it cannot be assumed to apply to all teachers of English as a foreign language in Istanbul or Turkey.

In addition, a questionnaire was used to collect the information. To help alleviate some of the questionnaire's restrictions, a free-form comments section was included. However, there may not be many people willing to fill out this survey section. The study would have benefited from including interviews with all of the faculty members, but that was impossible given the time commitment involved for the interviewers.

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Yüksek Öğrenim Öğrencilerinin COVID-19 Pandemisinde Uzaktan Eğitime İlişkin Görüşleri: Karma Yöntem

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***Öz*:** Bu araştırma, sağlık bilimleri fakültesi öğrencilerinin COVID-19 pandemisi sürecinde uzaktan eğitime ilişkin görüşlerini değerlendirmek için yapılmıştır. Bu çalışma, yakınsak paralel karma yöntem ile tasarlanmıştır. Nicel veriler; sosyo-demografik form ve Uzaktan Eğitime İlişkin Görüşler Ölçeği kullanılarak web tabanlı olarak uygulanmıştır. Nitel veriler video konferans aracı kullanılarak bilgisayar görüşmeleri yoluyla toplanmıştır. Analizlerde parametrik olmayan test tekniklerinden faydalanılmıştır. İkili karşılaştırmalarda Mann-Whitney U testi, iki grup üzerindeki karşılaştırmalarda Kruskal-Wallis H testi kullanılmıştır. Boyutlar arasındaki ilişki, Spearman Korelasyon testi kullanılarak analiz edilmiştir. Nitel kısımda içerik analizi yöntemi tercih edilmiştir. Sosyodemografik özellikler ile ölçek toplam boyutu ve alt boyutları için yapılan karşılaştırma analizinde anlamlı farklılıklar bulunmuştur ($p<0,05$). Araştırmanın nitel bölümünde öğrencilerin uzaktan eğitime ilişkin görüşlerinin analizinde altı tema ortaya çıkmıştır. Nicel kısımda belirlenen uzaktan eğitime yatkınlık ve uygunluk sonuçlarının nitel verilerin sonuçlarıyla paralellik gösterdiği görülmüştür.
Anahtar Kelimeler: Covid-19, Pandemi, Yükseköğretim, Uzaktan eğitim, Karma yöntem.

Mixed Method Analysis of University Students' Perspectives on Distance Education in the COVID-19 Pandemic

***Abstract*:** This study, designed with a convergent parallel mixed method, was conducted to assess the views of health sciences faculty' students on distance education during the COVID-19 pandemic. Quantitative data were applied in a web-based form with the socio-demographic form and the Views on Distance Education Scale. Qualitative data were collected by computer interviews using a video conference tool. Analyses were conducted using nonparametric test methods. For comparisons involving more than two groups, the Kruskal-Wallis H test was applied, and the Mann-Whitney U test was applied for comparisons involving two groups. The Spearman Correlation test was used to examine how the dimensions related. In the qualitative section, the content analysis method was preferred. Comparative analyses of the total scale dimension, sub-dimensions, and socio-demographic characteristics revealed significant differences ($p<0.05$). In the qualitative part of the study, six themes emerged in analyzing students' views on distance education. It was seen that the results of predisposition and eligibility for distance education determined in the quantitative part were parallel to the results of qualitative data.
Keywords: COVID-19, Pandemic, Higher education, Distance education, Mixed methods.

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Introduction

With the COVID-19 Pandemic, most countries have entered an extraordinary process of change to prevent the spread of the pandemic and transition to distance education by interrupting face-to-face education (Brooks et al., 2020; Daniel, 2020; Viner et al., 2020). Turkey, one of these countries, made a rapid transition to a distance education system accompanied by the appearance of the first cases on March 11, 2020 (WHO, 2020). Moreover, as of March 23, the transition to distance education in universities started (CHE, 2020). In this process, accepted as a crisis, distance education was a significant opportunity to prevent the unfavourable effects experienced in education (Sahu, 2020). It has made it possible to continue learning through distance education, which allows one to take advantage of modern technology while interacting with classmates, instructors, and course materials in various settings (Özgöl et al., 2017). As such, significant steps were taken to manage the process effectively, and attempts were made to prevent students from experiencing complaints such as not graduating and losing a semester (Kürtüncü & Kurt, 2020).

The rapid transition to distance education requires a rapid adaptation phase. It is inevitable to worry during this stage of harmony (Hodges et al., 2020; Owusu-Fordjour et al. 2020). The management process of distance education, among the factors causing concern, is limited from one day to a week while wanting to take six to nine months (Hodges et al., 2020). Even with a limited time frame, there are many elements to make distance education better (Hodges et al., 2020; Owusu-Fordjour et al., 2020). Ensuring interaction in distance education is one of these factors. Active and effective interaction between students and instructors is necessary for better learning (Utomo et al., 2020; Titan et al., 2017). The quality and availability of the network system is other crucial factor. The fact that it allows face-to-face meetings, discussion forums, homework, and exams via mobile and desktop devices via video conferencing shows the system's quality. Also, being appropriate for Internet infrastructure and cost will provide access to the system (Owusu-Fordjour et al., 2020). Distance learning, where significant interaction is established and accessible, can enable independent learning and improve students' ability to use online resources (Keskin & Özer Kaya, 2020). Ensuring that the student takes responsibility for the course is an essential element of distance education. Success is known to be directly proportional to the student's guilt (Cabı, 2016). Besides, students' feelings about distance education should be addressed in all educational environments. As a justification, like other elements, distance education's positive feeling is seen as providing learning (Anderson, 2020). When those mentioned above and similar elements related to distance education are fulfilled, the decision can be achieved, and student satisfaction increases (Karakuş et al., 2020; Yıldız & Seferoğlu, 2020). Otherwise, learning is negatively affected, and reluctance to distance education arises (Aktaş et al., 2020).

The impact of distance learning on students has been the subject of numerous studies (Owusu-Fordjour et al., 2020; Doğan & Tatık, 2015; Öztaş & Kılıç, 2017; Kör et al., 2013), there are no studies in the literature that describe how students feel about distance education in light of the COVID-19 pandemic. In light of this information, it is important to determine the experiences of students regarding distance education both quantitatively and qualitatively, and to reveal guiding information for preventing factors that affect the desired elements in distance education. This study was designed to test the students' perceptions of distance education during the COVID-19 pandemic and used a mixed-method approach to collect data.

Materials and Methods

The study was designed with a convergent parallel mixed method. Using two or more analysis or data collection methods in the same study is mixed. The use of quantitative and

qualitative methods is widespread in studies planned as a mixed-method (Creswell, 2017). In this study, quantitative and qualitative data were collected together and analyzed separately.

The case study method, one of the qualitative research designs, was used to conduct the qualitative portion of this study. A case study comprehensively analyzes a situation's circumstances, including its environment, people, events, and processes (Merriam, 2013; Ekiz, 2009; Yildirim & Simsek, 2013).

Ethical Consent

The Ethics Committee of Bilecik Şeyh Edebali University was applied to prior to the study, and ethics committee approval was obtained with decision no 19 of the meeting numbered 8, dated 29/06/2020.

Sampling

In the quantitative part of the study, the research universe comprises the students of Bilecik Şeyh Edebali University Faculty of Health Sciences. The universe of the study consists of 1120 students. The sampling selection method was not used to reach every population member. There were 239 surveys completed. Due to errors and incompleteness, sixteen questionnaires were not evaluated. Thus, a study involving 223 students was carried out. Purposeful sampling was preferred for the qualitative portion of the study. Twenty faculty of health sciences students who agreed to participate in the study made up the sample. Training in the COVID-19 pandemic process was delivered asynchronously through distance learning at the university where the study was conducted. These students continued their education after being part of the study sample.

Data collection process

For quantitative data, surveys were applied as web-based between 08.07.2020 and 26.08.2020 because of the COVID-19 pandemic. Since the survey was voluntary, no coercion was imposed on the participants. The principle of volunteerism in the informed consent form before conducting the survey was reported to the writing participants.

For qualitative data, interviews with the participants were done in a computer environment with a video conference tool. Each interview lasted approximately 30 minutes. Audio records were received during the interview, the audio descriptions were listened to, and the data were converted into Microsoft Word documents. The written documents were checked by listening to the audio records repeatedly by the researchers.

Data collection tools

The socio-demographic form comprises nine questions, such as the age, gender, and grade of the students. The Views on the Distance Education Scale was developed by Yıldırım et al. (2014), and the internal consistency coefficient (Cronbach’s alpha) was found as 0.864 (Yıldırım et al. 2014). The scale comprises 18 items and four sub-dimensions. The four sub-dimensions are Personal Convenience, Effectiveness, Instructiveness, and Predisposition. The total scores were used in the evaluation.

Semi-structured questionnaire

The researchers created a five-question semi-structured questionnaire with support from the literature to ascertain the opinions of students who continue their distance education during the COVID-19 pandemic. The questions in this form are as follows:

(1) Could you tell us about your experience in the distance education process?
(2) What are the repercussions of the distance education process on your learning motivation?
(3) What are the reflections of the distance education process on your learning?
(4) Could you tell us about your feelings before, during, and after watching any course videos as part of distance education?
(5) What would have been expected of you if you had completed this period with face-to-face education?

Data analysis

The SPSS 22.0 program was used to analyze and interpret the data gathered for the study's quantitative component. Nonparametric test methods were used (Table 2) because the analysis indicates that the distribution is not normal. When comparing two groups, the Kruskal-Wallis H test was applied, and the Mann Whitney-U test was used for paired comparisons. The Spearman Correlation test was used to examine how the dimensions related.

In order to thoroughly and systematically analyze and interpret the data to identify the patterns, themes, biases, and meanings pertinent to the study's core, the content analysis method was preferred in the qualitative portion of the study. Following the steps below enabled the content analysis of the interview-based data to be carried out:

(1) Encoding
(2) Finding codes, categories, and themes
(3) Editing of codes, categories, and themes
(4) Description and interpretation of the findings

Validity and reliability of the study

To ensure validity and reliability in the qualitative process of this study;

Research on the study's method, process, and results with the transferability phase are explained clearly and in detail. By this stage, it has been ensured that our study results can be generalized to similar environments. All researchers took part in the analysis phase so that the data collected in this study reflects the truth and contributes to the research results' validity. Analysis by researchers was carried out again a month later to ensure immutableness. The researchers queried the knowledge of expertise in the study's subject with a critical eye by doing a literature review and consulting a specialist.

An interrelated and consistent process has been followed, from collecting data to analyzing and reaching conclusions.

In the study's quantitative process, the reliability analysis results regarding the total and sub-dimension scores of the Views on Distance Education Scale are presented in Table 2 in the findings section.

Results

The study's findings are mentioned in two parts parallel with the quantitative and qualitative data.

Quantitative findings

Table 1.
Sociodemographic Information about the Participants

Age	***n***	***%***	***Grade level***	***n***	***%***
18-22	182	81.6	First class	97	43,5
23 and over	41	18.4	Second class	48	21,5
Gender	***n***	***%***	Third grade	48	21,5
Male	41	18.4	Fourth grade	30	13,5
Female	182	81.6	***Connection to the Internet***	***n***	***%***
Marital status	***n***	***%***	3G	26	11,7
Single	218	97.8	4,5G (LTE)	69	30,9
Married	5	2.2	I do not have Internet	12	5,4
Department	***n***	***%***	Fixed Internet	116	52,0
Child Development	58	26.0	Total	223	100,0
Nursing	113	50.7			
Healthcare Management	27	12.1			
Social Service	25	11.2			

The participants are mostly between the ages of 18 and 22, with an average age of 21. Also high is the percentage of people who are over 23. Male participants make up 18.4% of the total population, compared to female participants, who make up 81.6%. Only five of the participants are married. The nursing department accounts for more than half of the participants.

Regarding grade level, first graders' participation rate is higher than in other grades (43.5%). More than half of the participants use the fixed Internet (52%) (Table 1). Among the resources used for distance education, almost half of the participants (47.1%) stated that they only used online training documents. The participants who benefit from the books and online training documents are in second place, with 17.9%. It was observed that approximately 2/3 of the participants benefited from books and online training documents. The utilization rate of both sources is undeniably high. It is among the critical indicators that books and online education documents come to the fore in distance education.

Table 2.
Reliability, Normality Test, Descriptive Statistics, and Correlation Analysis of the Scale and Its Sub-Dimensions

Scale and Sub Dimensions	Number of statements	Cronbach ***α***	Shapiro Wilk* *p*	Min	Max	x̄±sd	1.1.	1.2.	1.3.	1.4.
1.Views on Distance Education	18	.724	.000	19	79	46.50±9.46	.880**	.823**	-.464**	.222**
1.1. Personal Convenience	6	.904	.000	6	30	14.28±6.70	-	.817**	-.667**	-.046
1.2. Effectiveness	5	.927	.000	5	25	9.90±5.34		-	-.665**	-.104

1.3. Instructiveness	4	.880	.000	4	20	16.81±4.22	-	.100
1.4. Predisposition	3	.817	.000	3	15	5.51±2.89		-

The Shapiro Wilk test was used for the normality of the distribution of quantitative data because the number of study groups was more than 20 (Büyüköztürk, 2017). When Cronbach's alpha (α) values are examined according to the scale's reliability analysis and its sub-dimensions, it is 0.904 in the personal convenience dimension, 0.927 in the effectiveness dimension, and 0.880 in the instructiveness dimension. It was found to be 0.817 in the predisposition dimension and 0.724 in the total scale dimension (Table 2).

When considering descriptive statistics, the dimension with the highest average is the dimension of instructiveness (16.81 ± 4.22). The lowest average is the predisposition dimension (5.51 ± 2.89).

Results of the correlation analysis revealed a statistically significant positive correlation between personal convenience and effectiveness (r=.817; p<0.01).

A negative and meaningful relationship between personal convenience and instructiveness was found statistically (r=-.667; p<0.01). It was found a negative and statistically significant relationship between effectiveness and instructiveness (r=-.665; p<0.01) (Table 2).

Table 3.
Comparison Analysis

Variables	N	Views on Distance Education	Personal Convenience	Effectiveness		Instructiveness	Predisposition
Age							
p for difference		***.011****	***.008****	*.152*		*.662*	***.010****
18-22	182	x̄	117.21	117.42	114.91	111.14	117.16
23 and over	41		88.87	87.93	99.07	115.80	89.07
Gender							
p for difference		*.652*	*.593*	*.284*		*.118*	*.232*
Female	182	x̄	112.92	113.09	114.18	115.06	109.60
Male	41		107.90	107.15	102.34	98.41	122.63
Department							
p for difference		*.853*	*.746*	*.602*		*.750*	*.261*
Child Development	58	x̄	111.54	112.33	115.09	117.80	102.56
Nursing	113		109.23	108.45	106.55	109.79	119.00
Healthcare Management	27		120.26	123.26	121.07	104.43	98.80
Social Service	25		116.64	115.12	119.66	116.72	116.52

Grade level							
p for difference		*.288*	*.530*	*.778*		*.179*	***.037****
First class	97		120.65	11926	116.81	111.08	121.94
Second class	48		109.36	107.33	106.39	127.65	113.61
Third grade	48	x̄	99.33	105.39	110.79	106.59	89.70
Fourth grade	30		108.52	106.57	107.35	98.58	112.97
Connection to the Internet							
p for difference		*.492*	***.030****	*.079*		*.251*	***.014****
3G	26		121.90	121.75	115.52	115.73	101.94
4,5G (LTE)	69		102.99	108.96	103.63	108.34	107.54
Fixed Internet	116	x̄	115.66	116.91	119.88	109.84	111.07
I do not have Internet	12		107.04	60.96	76.29	145.83	168.46

According to the Mann-Whitney U test conducted between age groups, there is a statistically significant difference between the total scale dimension and the personal convenience and predisposition dimensions ($p<0.05$). In the total scale dimension, the mean of the 18-22 age group (117.21) is higher than the score of the 23 and over age group (88.87). The average score of the 18-22 age group (117.42) in the personal convenience dimension is higher than the 23 and over (87.93). The mean score of the 18-22 age group (117.16) on the predisposition dimension is higher than the score of 23 and over (89.07) (Table 3).

In terms of the overall scale dimension and its sub-dimensions according to gender (as determined by the Mann-Whitney U test) and department (as determined by the Kruskal-Wallis H test), there is no statistically significant difference ($p>0.05$) (Table 3).

The Kruskal-Wallis H test performed between grade levels found that only the predisposition dimension ($p<0.05$) showed a statistically significant difference. The first and third grades were found to be the cause of the difference in the predisposition dimension as a result of the Bonferroni correction test ($p=0.004$), which was used to identify the difference's source (Table 3).

There is a statistically significant difference in personal convenience and predisposition, as determined by the Kruskal-Wallis H test on the students' Internet connection status ($p<0.05$). The difference in the personal convenience dimension was caused by Fixed Internet and No Internet ($p=0.004$), according to the Bonferroni correction test used to identify the source of the difference. The lack of Internet with 3G was the difference, according to the Bonferroni correction test used to identify the cause of the difference in the predisposition dimension ($p =0.005$). It was discovered that it came from people who do not have access to fixed Internet ($p =0.002$) or 4.5G (LTE) Internet ($p =0.002$) (Table 3).

Quantitative part discussion

In the study, students see distance education as instructive but are not inclined to distance education. In a study by Sun, Tang & Zuo (2020) on 39,854 students, nearly half said that the distance education model achieved the planned teaching goals. The research conducted

by Doğan & Tatık (2015) revealed that students regard distance education as disadvantageous because they cannot enter the system because of technical problems. Peloso et al. (2020), it was concluded that most of the students (51.4%) believed that education could be substituted with distance education (Peloso et al., 2020). However, in the study conducted by Al-Balas et al. (2020) on medical school students, distance education would be a significant challenge in obtaining clinical medical skills for most students (78.6%). This situation shows that it is impossible to replace education and training offered in disciplines requiring education, such as clinical practice and internship, with a distance education model. In the study conducted by Zavizion et al. (2020), it was concluded that long-term distance education causes a loss of motivation and burnout in students. As seen, the distance education model's low level of effectiveness and instructiveness reveals the importance of face-to-face education. Although it is acknowledged that the distance education model is beneficial and instructive in some fields (particularly the social sciences), it cannot be used to replace in-person instruction in the sciences, including the medical, health, and natural sciences. It was concluded that the distance education model negatively affected students in the health sciences, especially those with an application course. This negativity must be completed before starting their profession.

There is a parallel between personal suitability and the effectiveness of distance education. Distance education is more effective for students who have individual suitability. A study of Ghanaian students found that the pandemic harmed students' learning (Owusu-Fordjour et al., 2020). Despite being appropriate for the individual, distance education in teaching creates a negative image for students. According to Adnan and Anwar (2020), the majority of students (71.4%) believe that distance education is less motivating than face-to-face learning (Adnan & Anwar, 2020). Over half of the students (50.8%) believe it will only be possible to complete some courses with distance education. Face-to-face education is more effective than online or distance education. In a study conducted on medical school students by Al-Balas et al. (2020), 52.2% of the students stated that distance education could replace face-to-face education in theoretical knowledge presentation.

The personal suitability and predisposition of the younger ones for distance education are high. It has been observed that first-year students who have just started university life have adopted distance education more. They have started a new educational life because they are in an education system in which they are foreigners; maybe some motivational factors require students to adapt to the education and training system. It is thought that there may be exam and course passing anxiety, particularly, which may make them more prone to the distance education system.

Students who have access to the Internet are the only candidates for the model of distance education. Nonetheless, those without the Internet are significantly more inclined to remove training than those with the Internet. Students have adopted distance education in light of this result. In the study conducted by Öztaş & Kılıç (2017) with 2781 students, 45.04% of the students stated that the success of reaching the course outcomes with distance education depends on the student’s infrastructure and effort. At the same time, there is a very high opinion that there is a communication gap between faculty members and students in distance education. As seen in this study, it seems very difficult for students to be successful without the Internet in distance education. The educational connection established by the Internet is insufficient in the face-to-face education model.

Findings and discussion of the qualitative part of the study

In this section, the analysis of qualitative data is discussed. Twenty students in the Child Development, Nursing, Healthcare Management, and Social Work departments participated. There are 17 girls and three boys, and their average age is 20.57. As a result of the data analysis,

the participants' statements during the interviews were collected under six major themes and 17 sub-themes (Table 4).

Table 4.
Main Theme and Sub-Themes

Categories	Codes
Decrease In Interaction	The decrease in interest in education Inability to ask questions Limited time to reflect on the feeling of the teaching staff and to explain his/her experience
Current Situation	In the home environment; Lack of Internet Inability to focus Different responsibilities loaded
Awareness of Responsibility	Not feeling responsible Willingness to postpone responsibility and not being able to plan lessons Thinking that s/he is in control of the process
Gains	Learning to research Watching video recordings again To be able to reconcile the learned knowledge with real life Learning independent of time and space
Requirements	Learning methods specific to face-to-face education and application area requirements Self-improvement End of distance education or simultaneous distance education
Emotion Revealed	Anxiety, fear, excitement, and anger

Decrease in interaction

During the pandemic, students who switched from in-person instruction to distance learning reported less interaction with their friends and teachers. It was observed that the decrease in interaction reduces the desire to listen to the lesson. The reason for the decline in demand was that the teaching staff could not reflect her/his feelings as in face-to-face education, and the time to express her experiences was limited. Besides, it was determined that the students could not ask questions about the lessons, which caused a decrease in the request.

When examining the literature, similar to our study findings, it was noted that there is no tutorial in distance education where students may interact face-to-face, and their interest in courses decreases because they feel alone (Tunga & İnceoğlu, 2016). In a similar study, half of 652 university students stated that their interactions with instructors in distance education decreased (Keskin & Özer Kaya, 2020). Besides, in the study of Şenyuva (2013), it was determined that in addition to the decrease in interaction during distance education, students could not solve the learning difficulties they encountered during learning. Different communication activities are needed to continue the interaction in distance education (Al & Madran, 2004). Communication activities include discussion forums, lectures, and meetings via

videoconferencing and asynchronous online tools (Owusu-Fordjour et al., 2020; Yıldız & Seferoğlu, 2020). Students need to effectively use these communication activities (Reime et al., 2004), and the instructor has essential responsibilities to eliminate this need (Titan et al., 2017). It is known that quality communication environments contribute positively to the effectiveness and efficiency of learning (Karakuş & Yanpar Yelken, 2020). The comparative study by Titan et al. (2018) supported this finding, and it was observed that the academic score of the class with higher interaction was higher than that of the other class.

Current situation

As a result of the analysis, it was determined that the student's environment's qualities affect the learning perceived by the students. It was found that the students taking part in the study assume more responsibilities in the home environment, unlike the university environment, some stimuli would make it difficult to focus, and they had limited access to distance education.

Similar to our study findings, Keskin & Özer Kaya (2020) found that 53.9% of the students continuing with distance education during the pandemic had problems attending their lessons because of technical issues. Similarly, the study conducted by Doğan & Tatık (2015) revealed that students could not enter the system because of technical problems and saw this as a disadvantage of distance education. In Alvarez's (2020) study, most participants define internet accessibility as a challenge rather than an advantage. Erfidan's (2019) study examined the opportunities for access to lessons and found that 28% of students had to use Internet cafes and similar environments. In our study, it was not possible to use cafes and similar environments because of the pandemic process for students who do not have Internet in their home environment. One of the disadvantages of distance education, according to the studies, is not having access to the Internet (Özgöl, Sarıkaya & Öztürk, 2017; Kırmacı & Acar, 2018).

An unprepared and forced rapid transition to distance education, as well as the family's and the student's lack of experience in distance education, are two of the factors that contribute to the students in our study's findings' inability to concentrate independently of their home environment and to take on additional responsibilities. Students' inability to focus, depending on the home environment, is among the difficulties experienced in distance education (Zhang et al., 2020). In the literature, there was no data on taking on different responsibilities in studies in which student opinions on distance education were taken (Özgöl et al., 2017; Erfidan, 2019; Kırmacı & Acar, 2018; Süt & Küçükkaya, 2016). This difference is thought to be the result of the students in our study not applying to the distance education system in accordance with their preferences and being involved in the pandemic process. In light of this information, students have different responsibilities to be undertaken in an environment where the Internet cannot be accessed, and distractions affect the student's learning process. This environment with negative qualities can cause students to fail (Titan et al., 2017; Altıparmak et al., 2011).

Awareness of responsibility

As a result of the study's analysis, students were found to be not feeling responsible, unable to make appropriate work plans, willing to postpone their responsibilities, and being in control of the process. Besides, it has been determined that distance education allows students to feel responsible, get to know themselves, and give feedback.

Not feeling responsibility, one of our study findings can be explained by students' inability to adapt immediately due to the sudden decision to distance education depending on the pandemic process. There are studies in the literature that express that the student is motivated by self-discipline, takes responsibility, works regularly, and depends on his infrastructure and effort to achieve the desired success in distance education (Cabı, 2016; Öztaş

& Kılıç, 2017; Celen et al., 2018). It is said that an essential factor in achieving this success is the process the student is in (Somuah et al., 2018). In a pandemic and similar process, it is crucial to identify the factors that cause students to be unable to take responsibility and develop their skills for taking responsibility (Cabı, 2016).

Gains

This study took place in the students' statements that they learned by searching for the answers to the questions they wanted to ask with distance education and thus discovered the literature review. In particular, the ability to re-watch video recordings and stop them when they need them during the viewing of the tapes, and to be able to research the subjects they want, has been among the gains that make learning easier. Besides, being in a family environment allowed them to reconcile the information with real life. Distance education positively affects learning, especially for students who prefer to learn independently of time and place.

These results have shown that distance education allows us to do research with independent learning and learn the desired information. Some studies support this finding (Özgöl et al., 2017; Keskin & Özer Kaya, 2020; Altıparmak et al., 2011; Gök, 2015). In the study conducted by Süt & Küçükkaya (2016), students' views on the benefits of distance education include "supporting individual learning" and "minimizing time and space limitations." In another study, 39.8% of the participants think distance education improves the researcher's spirit (Serçemeli & Kurnaz, 2020).

Requirements

This study concluded that this process shapes the needs of students who continue their distance education during the pandemic. As a result of the data analysis, these requirements are 1) Learning methods and application area requirements specific to face-to-face education, 2) Self-improvement and 3) Ending of distance education or simultaneous distance education.

(1) Learning methods specific to face-to-face education and application area requirements

In the study's findings, there are expressions from the students regarding the use of learning methods specific to face-to-face education and their need for the application area. Besides, it was determined that the learning perceived by the students was negatively affected.

As a result of these findings, it was determined that students, especially in applied units, needed face-to-face education. This need arises due to the negative effect of the student's perceived learning. Studies support our study finding (Kürtüncü & Kurt, 2020; Keskin & Özer Kaya, 2020; Aktaş et al., 2020; Süt & Küçükkaya, 2016; Forehand, 2010). This result can be explained by learning knowledge resulting from gaining affective and psycho-motor behaviors (Korhan et al., 2020). Besides, evidence that distance education will not be sufficient in applying, synthesizing, analyzing, and interpreting information supports this result (Forehand, 2010; Polat et al., 2019). It is suggested that some lessons can be delivered more effectively via distance education rather than all lessons in programs with application areas in the recommendations on this topic (Şenyuva, 2013; Süt & Küçükkaya, 2016). Another suggestion is the addition of distance education in a supportive manner to theoretical and practical courses. Also, it is among the recommendations the post-graduation to continue the education process through distance education (Süt & Küçükkaya, 2016; Gürpınar & Zayim, 2008).

(2) Self-improvement

Considering that this study was conducted during the pandemic, it was observed that the students taking part in the study could not do activities that would contribute to their development because of their social isolation.

The concept of personal development means developing one's skills, abilities, knowledge, or other qualities (Kamiloğlu & Uluğ Yurttaş, 2014). An individual who wants to improve herself/ himself can continue this development by participating in clubs or department activities while she is a student and in business life (Balaban & Çakmak, 2016). The opportunities for students to develop themselves have become incredibly scarce since the pandemic began.

(3) Ending of distance education, or simultaneous distance education

This study determined that students who have difficulty in distance education and self-improvement, do not take responsibility, and do not feel successful want distance education to end as soon as possible. Besides, it was determined that students think that distance education should be simultaneous and more interactive if the pandemic continues.

Studies support the findings obtained regarding the completion of distance education or simultaneous distance education needs (Özgöl et al., 2017; Johnson et al., 2000; Özkul & Aydın, 2012). Similarly, in the study done by Aktaş et al. (2020) with 593 university students, 454 answered no to the question, "Would you want distance education under normal circumstances if it were not for isolation days?" Unlike our study finding, it is seen that more than half of the university students taking part in the study conducted by Erfidan (2019) preferred distance education.

Emotion revealed

This study discusses the emotions experienced by students in distance education. Students were asked about their feelings before watching any lesson videos, while watching a lesson video, and after watching a lesson video as part of distance education. It was determined that anxiety, fear, excitement, and anger appeared in students. Besides, the students shared their feelings related to the pandemic process.

The positive feelings of the students facilitate the achievement of a quality learning process (Marın, Bocoș, Călın & Cordoș, 2020). Therefore, whenever the educational environment is evaluated, the student's emotional process should be considered (Karakuş & Yanpar Yelken, 2020). It is impossible to deny the impact of the pandemic process on the development of the emotions exhibited by students in this study. Studies examining the feelings felt during the pandemic have shown that students exhibit anxiety related to uncertainty and self-preservation and describe the process as traumatic (Bozkurt, 2020; Cao et al., 2020; Wang et al., 2020). A study determined that distance education is a new method that causes psychological problems in students (Marın et al., 2020). Besides, another study found that the stress and anxiety experienced because of the pandemic made it challenging to follow the lessons (Kürtüncü & Kurt, 2020). In studies that did not include the pandemic process, a sense of anxiety emerged, but it was observed that there were differences in its cause. These reasons include encountering technical problems and not knowing or feeling inadequate to use the Internet or computer (Aktaş et al., 2020; Tasocak et al., 2014).

Conclusions

According to the findings of the quantitative part of the study and the evaluation done within the framework of the discussion, although distance education is instructive, students' not being prone to distance education may have negative consequences in their preparation for the lesson and their participation in the lesson. Because of the inadequate technical infrastructure in s, low internet speed, disadvantaged student groups (no internet, no computer, Etc.), and lack of motivation in students, the distance education model needs to be improved for students. In the qualitative part of the study, six themes emerged in the analysis of students' views on distance education and were named as a decrease in interaction, current situation, awareness of responsibility, gains, requirements, and emotion revealed. It has been determined that there is a decrease in interaction in asynchronous distance education and that the current situation and emotions affect the education process. It was also determined that there are gains in this education system, and individual awareness and needs regarding responsibility are formed. It was observed that the predisposition and eligibility results for distance education determined in the quantitative part were parallel to the results of qualitative data.

Limitations of the Study

The study was applied only to the Faculty of Health Sciences students. The study gives the findings of asynchronous distance education and cannot be generalized to the distance education system's different methods. Due to data collection of on a web-based page, students without Internet could not be reached.

Suggestions

It is necessary to take measures to increase students' susceptibility and suitability to distance education; it is recommended to interact with distance education students, to ensure that the student takes adequate responsibility, and to understand the students' needs and feelings. Since only the Faculty of Health Sciences students were considered in this study, it is recommended to be done in other faculties, universities, and educational institutions. In this respect, comparing this study with other studies will increase the validity of the results of each study.

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Exploring Psychometric Properties of the Turkish Version of the Academic Nurse Self-Efficacy Scale

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***Abstract*:** Nursing students' academic self-efficacy can be considered a significant factor in reducing their academic failure, which necessitates a valid measurement tool to reveal academic self-efficacy among undergraduate nursing students. In this sense, we carried out this study to adapt the Academic Nurse Self-Efficacy Scale (ANSES) into the Turkish context. The sample of this methodological study consisted of 235 undergraduate nursing students enrolled in a state university in the Marmara Region. We collected the data using a descriptive information form and the Turkish version of the ANSES. Following the translation-back-translation of the scale, we submitted the items to the views of 20 experts and calculated content validity ratios to be 0.80 and above for each item. After analyzing the data descriptively, we attempted to test the construct validity of the scale using confirmatory factor analysis (CFA) and sought test-retest reliability with Peason's correlation analysis and internal consistency by calculating Cronbach's alpha coefficient. According to the findings, the measurement model yielded an acceptable model-data fit. In addition, we found our measurement with the Turkish version of the ANSES showed high internal consistency (0.82). While item-total correlations varied between 0.32 and 0.74, test-retest reliability was found to be 0.81. Overall, we can propose that the Turkish version of the ANSES can validly and reliably be utilized to measure academic self-efficacy among undergraduate nursing students. Thus, we can recommend using the scale, brought in the Turkish literature on nursing, to reveal the self-efficacy of undergraduate nursing students and identify to what extent they have accomplished their learning goals.
***Keywords*:** Academic self-efficacy, Self-efficacy, Nursing students, Validity, Reliability

Hemşirelik Öğrencilerinde Akademik Öz Yeterlilik Ölçeği'nin Türk Kültürüne Uyarlanması

***Öz*:** Hemşirelik öğrencilerinin sahip olduğu akademik öz yeterlilik akademik başarısızlığı azaltmada önemli bir stratejidir. Bu nedenle hemşirelik lisans öğrencilerinin akademik öz yeterliliklerini belirlemek için geçerli bir ölçme aracına ihtiyaç duyulmaktadır. Bu çalışma, lisans düzeyinde eğitim gören hemşirelik öğrencileri için geliştirilen "Hemşirelik Öğrencileri Akademik Öz Yeterlilik Ölçeği"nin Türkçe geçerlilik ve güvenirliğinin incelenmesi amacıyla gerçekleştirildi. Metodolojik nitelikteki bu araştırmanın örneklem grubunu, Marmara Bölgesi'nde yer alan bir devlet üniversitesinin Sağlık Bilimleri Fakültesi Hemşirelik Bölümü'nde eğitim gören 235 hemşirelik öğrencisi oluşturmaktadır. Veri toplama aracı olarak "Öğrenci Tanıtıcı Bilgi Formu" ve "Hemşirelik Öğrencileri Akademik Öz Yeterlilik

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Ölçeği"nin özgün formu kullanıldı. Veriler tanımlayıcı istatistiksel yöntemler, test-tekrar test sonuçlarını değerlendirmek için Pearson korelasyon analizi, güvenilirliğini test etmek amacıyla Cronbach Alpha ve ölçek yapısını test etmek için Doğrulayıcı Faktör Analizi ve parametrik testler ile değerlendirildi. Ölçeğin çeviri-geri çevirisi yapıldıktan sonra ölçek 20 uzman görüşüne sunuldu ve dil ve kapsam geçerliliği için KGO skorları 0.80 ve üzerinde bulundu. Ölçeğin yapı geçerliliğini değerlendirmede doğrulayıcı faktör analizi kullanıldı. Cronbach alfa iç tutarlılık katsayısı 0.82 ile yüksek derecede güvenilir bulundu. Madde-toplam puan korelasyon değeri 0.32 ile 0.74 arasında değiştiği; test tekrar test güvenirliği ise 0.81 olduğu bulundu. Hemşirelik Öğrencileri Akademik Öz Yeterlilik Ölçeğinde elde edilen bulgular geçerli ve güvenilir olduğunu desteklemektedir. Bu ölçme aracılığıyla, lisans düzeyindeki hemşirelik öğrencilerinin akademik öz yeterlilikleri değerlendirilebilir. Bu kapsamda Türkiye'nin hemşirelik alan yazına kazandırılan bu ölçeğin, hemşirelik öğrencilerinin eğitim süreçlerinin her kademesinde öz yeterlilik düzeylerinin belirlenmesinde ve öğrencilerin öğrenme hedeflerine ulaşıp ulaşmadığının saptanmasında kullanılması önerilebilir.
***Anahtar Kelimeler*:** Akademik öz yeterlilik, Öz yeterlilik, Hemşirelik öğrencileri, Geçerlilik, Güvenirlik.

Introduction

Academic self-efficacy is already given a seat in research, analysis, and discussions on the concept of self-efficacy in the educational literature (Hatlevik et al., 2018). Albert Bandura first addressed the concept of self-efficacy as a key component of his Social Cognitive Theory (Bandura, 2001; Maddux et al., 2012). According to Bandura's universally accepted definition, self-efficacy refers to "*one's belief in their ability to succeed in specific situations or accomplish intended outcomes*" (Bandura, 1999). According to another definition, self-efficacy is "*people's perceptions about their ability to organize and execute the courses of action required to produce given attainments*" (Maddux et al., 2012; Talan & Gülseçen, 2018). In fact, self-efficacy embodies an optimistic belief, which is one's belief that they have the necessary skills while performing new and difficult tasks and whether they can cope with difficulties (Kaya & Odacı, 2021). While individuals with low self-efficacy may be more prone to surrender to depression, anxiety, and helplessness (Karakullukçu & Gürsoy, 2019), those with high self-efficacy may be more resilient and experience less adverse emotions (Manna et al., 2020). Similarly, students with high self-efficacy are likely to enjoy more academic achievement and enhanced academic interests, motivation, and intellectual capacity. Such students also have less stress and depression since perceiving feasible difficulty in performing tasks (Athira et al., 2017; Calandri et al., 2021).

Considering the current nursing education in Türkiye, we can propose that nursing students confront many stressors and difficulties during their education, adversely affecting their motivation, academic achievement, and physical and psychological health (Bilgiç et al., 2017; Göger & Çevirme, 2019). Yet, nursing students with high academic self-efficacy are predisposed to exert more effort to overcome difficulties (Okuroğlu, 2021), may be more persistent on tasks and undertake more challenging responsibilities, and may use self-control strategies more in learning (George et al., 2017; Panedero et al., 2017). Nursing students actively engaging in learning are more likely to develop faster and choose challenging activities to contribute to their medical skills (Manna et al., 2020). In this sense, students with high academic self-efficacy have greater retention in the nursing profession (Bulfone et al., 2019; Mclaughlin et al., 20007) and experience a more manageable transition from being a student to a clinician (Al Sebaee et al., 2017; George et al., 2017; Jonson et al., 2017). Thus, it is evident that students' academic self-efficacy should be promoted (Al Sebaee et al., 2017) since it seems to occupy a key place in nursing education (George et al., 2017; Mclaughlin et al., 2007; Yu et al., 2021).

Assessing and improving nursing students' academic self-efficacy may be a seminal strategy in eliminating or reducing their academic failure. In other words, assessing nursing students'

academic self-efficacy can provide insights to administrators and instructors in designating several initiatives (e.g., mentorship) to contribute to their self-efficacy and achievement before they are deployed in the field (Bulfone et al., 2019). Bulfone et al. (2019) designed a valid and reliable tool for use in such an assessment: the Academic Nurse Self-Efficacy Scale (ANSES). Considering that the Turkish literature is deprived of a valid and reliable measurement tool for measuring undergraduate nursing students' academic self-efficacy, we aimed to adapt the ANSES to the Turkish context in this study.

Research Questions

In line with the purpose of our study, we sought answers to the following questions:

- Is the Turkish version of the ANSES a valid measurement tool for measuring undergraduate nursing students' academic self-efficacy?
- Is the Turkish version of the ANSES a reliable measurement tool for measuring undergraduate nursing students' academic self-efficacy?

Method

Research Design and Participants

The target population of this methodological research consisted of 406 undergraduate nursing students enrolled in the faculty of health sciences of a state university in the Marmara Region. However, we did not include first-year students as they had to continue their studies through distance education (n = 123). While determining the sample size, we adopted the principle of "selecting participants 5-10 times the number of items in the item pool of the scale to be adapted or a sample size of 200-300 people" (Gürbüz, 2019; Özdamar, 2017; Polit & Beck, 2010). Since the ANSES consists of 14 items, we then aimed to reach the entire target population, excluding the first-year students (n = 283), without selecting a specific sample. Thus, we recruited 235 (83%) students meeting the inclusion criteria and collected the data between January and March 2021. To evaluate the measurement invariance of the scale, we readministered the ANSES to 34 participants randomly selected three weeks later for test-retest analysis.

Data Collection Tools

Descriptive Information Form: We designed this form to include questions to elicit the participants' socio-demographic characteristics (e.g., age, gender, and year of study) and their thoughts about the nursing program (e.g., "Are you satisfied with the current nursing education in your program?").

Academic Nurse Self-Efficacy Scale (ANSES): Designed by Bulfon et al. (2019) to reveal undergraduate nursing students' academic self-efficacy, the ANSES consists of 14 items within four subscales: internal emotion management (items 1, 2, and 3), auto-regulatory behavior (items 4, 5, 6, and 7), external emotion management (items 8, 9, 10, and 11), and collegiality (items 12, 13, and 14). The participants' responses to the question, "How much are you confident with (item)?", are scored on a Likert-type scale ranging from 1 (very little confident) to 5 (completely confident). The higher scores refer to greater academic self-efficacy. No item is reversely scored, and the internal consistency of the scale was calculated to be .84 in the original study.

Data Collection

Since the educational activities in the 2020-2021 spring semester were carried out by distance education methods due to the Coronavirus-19 (COVID-19) pandemic, we collected the data through 'Google Forms.' The link to the questionnaire booklet, covering an informed consent form and the tools above, was sent to the student groups via an instant messaging application through student representatives. Filling out the booklet took about 7 minutes.

Data Analysis

After presenting the descriptives (numbers, percentages, means, standard deviations), we tested whether data demonstrated a normal distribution with Kolmogrov-Smirnov and Shapiro-Wilk and skewness and kurtosis values. We calculated the content validity index (CVI) using the Davis technique and tested the construct validity with CFA. Moreover, we sought measurement invariance of the scale (test-retest reliability) with Pearson's correlation analysis and calculated Cronbach's alpha to determine its internal consistency. All statistical analyses were performed on the SPSS (Statistical Package for Social Sciences) for Windows 25.0 and AMOS 21.0 (Analysis of Moment Structures) programs.

Ethical Considerations

We first sought permission from the corresponding author via e-mail to utilize their instrument in our study. Then, the ethics committee of Bandirma Onyedi Eylul University granted ethical approval to our study (No: 10/16/2020-2020-37), and we obtained relevant permission for data collection from the nursing department of the same university (No: 11333 dated 11/13/2020). In addition, we obtained written informed consent from all participants.

Results

Descriptive Statistics

Regarding the participants' descriptives, 36.2% were second-year students, 31.1% were third-year students, and 32.8% were fourth-year students. While 81.7% were females, 60.9% were aged 21-24 years, and 40.9% lived in the Marmara Region. Of them, 52.8% had a grade point average (GPA) between 2.99-4.00. Finally, the majority of the participants were satisfied with the nursing program and education (75.3% and 68.9%, respectively) (Table 1).

Table 1
Descriptive Characteristics of the Participants

Variables		n	%
Year of study	I year	85	36.2
	II year	73	31.1
	III year	77	32.8
Age (years)	17-20	88	37.4
	21-24	143	60.9
	25-28	4	1.7
Gender	Male	43	18.3
	Female	192	81.7
Region	Marmara	96	40.9
	Aegean	22	9.4
	Other	117	49.8
GPA	1.00-1.85	4	1.7
	1,86-2.28	31	13.2
	2.29-2.98	76	32.3
	2.99-4.00	124	52.8

Are you satisfied with the nursing program?	Yes	177	75.3
	No	19	8.2
	Neutral	39	16.5
Are you satisfied with your current nursing education?	Yes	162	68.9
	No	73	31.1

Language and Content Validity of the Scale

Within the translation-back-translation method, two independent linguists with excellent command of Turkish and English translated the items into Turkish. We evaluated the consistency between the translations and generated the Turkish form of the scale with the translated items corresponding to the original items the best. This form was then translated back into English by two different linguists. Overall, we ensured the language validity of the scale after performing relevant linguistic corrections to the statements.

We then resorted to expert opinions to seek the content validity of the draft form. An expert evaluation form, covering the ANSES and its Turkish version, was sent to 20 academics with Ph.D. in nursing management. The experts were asked to rate the relevancy and clarity of the scale items between 1 and 4 [1 = not relevant/clear, 2 = needing some revision, 3 = relevant/clear but needing minor revision, and 4 = very relevant/clear] and to make suggestions to the items that they rated as 1, 2, or 3. To be able to calculate a content validity ratio (CVR), 1 is deduced from the ratio of the number of experts thinking that the item is relevant/clear to half of all experts. In this calculation, .80 is accepted as a cut-off point for CVR (Yeşilyurt & Cross, 2018). Accordingly, we discovered the CVR of the items in the draft form varied between .90-1.0, suggesting that no item needed to be removed since the content validity of the form was ensured.

Pilot Study

Then, we administered the draft form to 52 first-year nursing students to test its readability and intelligibility. Upon the feedback from the students, we added the expression, "Any problem encountered during nursing education," to the first item ("Controlling anxiety in front of a problem"). Moreover, we defined the terms "shame" and "gaffe" under the statements of items 9 and 10, respectively, to improve the clarity of the items. Then, we took measurements from the main sample with the finalized form of the scale. It should be noted that the data collected in the pilot study were not included in the statistical analyses.

Construct Validity

Since Bulfone et al. (2019) previously revealed the factorial structure of the ANSES, we only considered the model-data fit of the Turkish version of the scale using first-order CFA. Accordingly, we found that structural equation modeling of the measurement was significant ($p < .001$) and that 14 items were all related to their original factors. Yet, we had to make some modifications between the error terms of some items. Overall, fit the findings of CFA showed the following fit indices of the measurement: $\chi 2/df = 2.37$, RMSEA = .07, GFI = .91, and CFI = .89. Accordingly, we can propose that the measurement with the Turkish version of the ANSES yielded an acceptable model-data fit (Simon et al., 2010; Wong et al., 2018). Figure 1 presents the confirmed model, and Table 2 shows criterion references for fit indices and fit indices of our measurement.

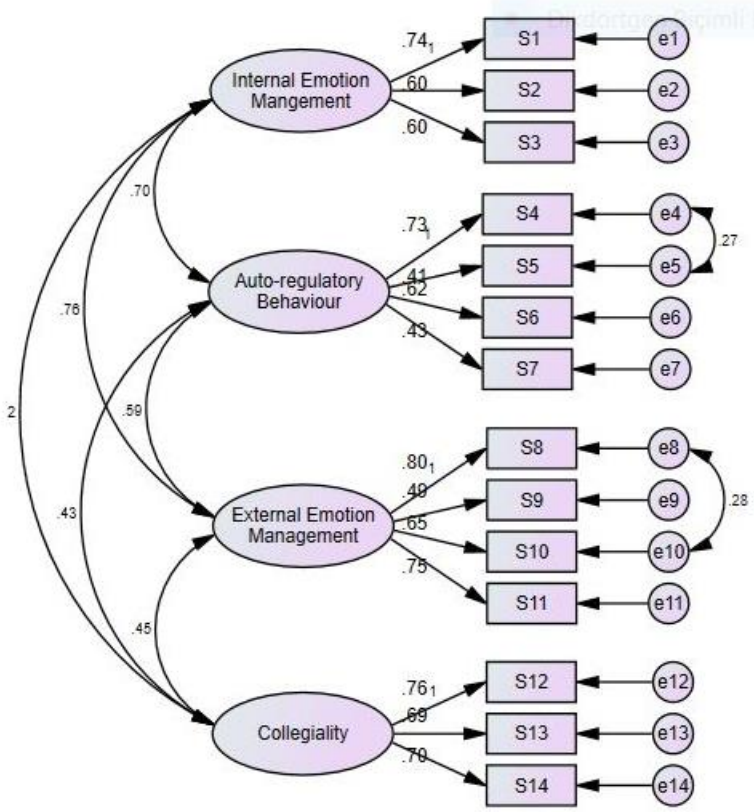

Figure 1. The structural model of the Turkish version of the ANSES

Table 2.
Criterion References for Fit Indices and Fit Indices of the Measurement with the Turkish Version of the ANSES

Fit Indices	Excellent Fit	Acceptable Fit	Pre-modification	Post-modification
CMIN/Df	$.00 \leq \chi^2/df \leq 3.00$	$3.00 \leq \chi^2/df \leq 5.00$	.50	2.37
GFI	$.90 \leq$ GFI	$.80 \leq$ GFI	.90	.91
AGFI	$.90 \leq$ AGFI	$.80 \leq$ AGFI	.85	.86
CFI	$.95 \leq$ CFI	$.85 \leq$ CFI	.88	.89
RMSEA	$.00 \leq$ RMSEA $\leq .05$	$.06 \leq$ RMSEA ≤ 1.00	.08	.07
NFI	$.95 \leq$ NFI	$.80 \leq$ NFI	.82	.83
TLI	$.90 \leq$ TLI	$.80 \leq$ TLI	.88	.86
IFI	$.95 \leq$ IFI	$.85 \leq$ IFI	.84	.89

The measurement model in Figure 1 shows that the regression weights of the items did not fall below .30, implying the items had at least an acceptable factor loading (Secer, 2015). Besides, Table 3 presents the item statistics of the scale. Accordingly, we found the t-values of the items to be all significant, suggesting greater item discrimination.

Table 3.
Item Statistics

No.	Subscales	Items	Standard error	t	p	Regression Weight
S1	**Internal Emotion Management**	Controlling anxiety in front of a problem			.00	.73
S2		Keeping calm during an exam	.11	7.77	.00	.60
S3		Avoiding discouraging myself in adversity	.10	7.76	.00	.60
S4	**Auto-regulatory behavior Score**	Resisting the pressure of friends for doing something that risk getting you into a trouble			.00	.72
S5		Resisting the temptation not to go to the lesson if you feel bored	.14	4.51	.00	.40
S6		Avoiding the insistence of friends who ask you to do something that you think would be better to avoid	.11	6.97	.00	.62
S7		Avoiding committing transgressions even when the risk of sanction is minimal	.11	5.29	.00	.42
S8	**External Emotion Management**	Do not spiritless when you are criticized			.00	.80
S9		Containing shame after making a bad impression in front of the class	.09	6.92	.00	.49
S10		Overcoming the embarrassment of having made a 'gaffe' with a person to the judgment of which you care a lot	.08	8.33	.00	.64
S11		Dominating shame when your frailties have been highlighted in front of the class.	.09	10.20	.00	.75
S12	**Collegiality**	Ensuring me the help of other students when necessary			.00	.75
S13		Helping a colleague in difficulty in the study	.08	8.44	.00	.69
S14		Helping in creating a good atmosphere among students	.10	8.45	.00	.69

Reliability

Internal consistency reliability was found to be .82 for the total scale score, .68 for internal emotion management, .60 for auto-regulatory behavior, .75 for external emotion management, and .75 for collegiality. Table 4 shows item-total correlations and Cronbach's alpha coefficients.

Table 4.
Item-Total Correlations and Internal Consistency of the Scale

Subscale	Item No.	Item-Total Correlation	*t*	*p*	*α*
Internal Emotion Management	S1	.55	13.96	< .001	.68
	S2	.50	114.61		
	S3	.42	14.25		

Auto-regulatory Behavior	S4	.33	12.03	< .001	.60
	S5	.32	8.91		
	S6	.50	11.68		
	S7	.35	10.20		
External Emotion Management	S8	.57	15.62	< .001	.75
	S9	.74	12.93		
	S10	.51	10.48		
	S11	.67	18.39		
Collegiality	S12	.61	17.61	< .001	.75
	S13	.59	14.66		
	S14	.56	16.55		
Total Score					.82

Test-Retest Reliability

We readministered the scale to 34 students randomly selected from the sample with a 3-week interval to determine the test-retest reliability of the scale. Then, we calculated the test-retest correlation to be .62 for the first factor, .45 for the second factor, .65 for the third factor, .59 for the fourth factor, and .81 for the total score. Therefore, we can propose that the scale has the property of measurement invariance. In addition, the *t*-test results showed no significant changes between the measurements over time (p = .85 for intrinsic emotion management, .12 for auto-regulatory behavior, .24 for external emotion management, 1.00 for collegiality, and .10 for the total score).

Table 5.
Test-Retest Reliability of the Scale and Comparison of the Participants' Test-Retest Scores (n = 34)

Subscales		***M* ± *SD***	***t****	***p***	***r****	***p***
Internal Emotion Management	Test	10.48 ± 2.02	- .186	.85	.62	.00
	Retest	10.42 ± 2.25				
Auto-regulatory Behavior	Test	15.73 ± 2.05	1.567	.12	.45	.00
	Retest	16.33 ± 2.19				
External Emotion Management	Test	14.09 ± 2.81	- 1.183	.24	.65	.00
	Retest	13.58 ± 3.17				
Collegiality	Test	12.94 ± 2.14	.000	1.00	.59	.00
	Retest	12.94 ± 2.30				
Total score	Test	51.61 ± 7.14	1.691	.10	.81	.00
	Retest	52.84 ± 6.76				

*t** = paired samples *t*-test; *r* ** = correlation coefficient

Discussion and Conclusion

Language and Content Validity

We first obtained permission from the corresponding author via e-mail to utilize the ANSES in our study. Next, we adopted the translation-back-translation method, a widely used method to investigate the semantic and conceptual coherence of the adapted scale (Seçer, 2018). Exploring content validity is a process that helps to test the validity of a scale and to what extent each item measures the concept intended to be measured (Yeşilyurt & Çapraz, 2018). In this respect, we resorted to 20 experts in nursing management to examine the content validity of the Turkish version of the ANSES. Accordingly, we performed the relevant analyses based on the

Davis technique and calculated content validity ratios to be 0.80 and above for each item on the ANSES (Yeşilyurt & Çapraz, 2018). Considering the experts' feedback, we performed minor linguistic adjustments to the items, concluded no need to remove any item from the scale, and kept the original factorial structure.

Pilot Study

It is a rule of thumb that the scale whose psychometric properties are explored is administered to a small group of participants after its language and content validity is ensured and then applied to the main sample of the research (Çapık et al., 2018). Accordingly, we administered the scale to 52 students sharing similar characteristics with the sample and asked them to evaluate the intelligibility of the items. The draft form was then finalized with minor arrangements on the items in line with the feedback from the participants.

Construct Validity

Validity and reliability studies often utilize factor analysis to evaluate construct validity. The high construct validity of the measurement tool indicates that the items on the scale are homogeneous (Köroğlu et al., 2023). In general, CFA should be used to validate the model if the model structure is explicitly predicted (Çapık et al., 2018; Seçer, 2018; Elderyoğlu, 2017). In this study, we concluded that the fit indices (RMSEA, GFI, and CFI) yielded by CFA for the Turkish version of the ANSES indicated an acceptable model-data fit. Overall, it can be asserted that the model with 14 items within four subscales was acceptable to ensure the construct validity of the ANSES.

Reliability

Internal Consistency: Reliability analysis tests whether all given statements are consistent across the scale and measure the same construct (Tavşancıl, 2005). Therefore, adapting a scale into a context requires testing the internal consistency of the items, which is often sought through calculating Cronbach's α value in Likert-type scales. Taber (2018) finds a Cronbach α value above .60 is sufficient for a scale to be reliable. Similarly, Seçer (2018) reported a Cronbach's α value below .40 to be "poor reliability," between .40-.59 to be "low reliability," between .60-.79 to be "high reliability," and between .80-1.00 to be "perfect reliability." (Behling & Law, 2019). Accordingly, we calculated Cronbach's α coefficient to be .82 for the total score and between .60 - .75 for the subscales of the Turkish version of the ANSES. Then, we discovered the items to be consistent with each other and represent the construct intended to be measured (Table 4). Moreover, we considered item-total correlations to explore the internal consistency of the ANSES. The higher item-total correlation of an item is then expected to indicate that the item has a high consistency with the theoretical construct to be measured. In the literature, some authors proposed the cut-off value for an acceptable item-total correlation to be .30 (Çapık et al., 2018; Elderyoğlu, 2017). In this study, we determined the item-total correlation coefficients to vary between .32 and .74, indicating that there was no need to remove any item from the Turkish version of the ANSES.

Measurement Invariance: Test-retest reliability is a measure of reliability to demonstrate measurement invariance of a scale and is obtained by administering the same test twice over a period of time (2-4 weeks) to a group of individuals. The relationship between the participants' scores is assessed with the *t*-test and/or Pearson's correlation coefficient (Çapık et al., 2018; Seçer, 2018). Test-retest reliability can be mentioned when the measurements do not differ significantly and when the correlation between the measurements should be at least above .70 (Wong & Carlback, 2018). Accordingly, we did not find a significant difference between the measurements and calculated the test-retest reliability coefficient to be .81, indicating that the two different measurements with the ANSES were related and consistent.

Limitations

Online data collection and gathering the data from students enrolled in a single institution can be considered the limitation and strength of this study, respectively.

Practical Implications of the Study

In a nutshell, academic self-efficacy is considered significant in reducing the academic failure of undergraduate nursing students and assessing their ability to attain educational outcomes. Our findings demonstrated that the Turkish version of the ANSES can be used as a valid and reliable measurement tool for measuring undergraduate nursing students' academic self-efficacy (see **Ek-1**). Thus, the scale, brought to the Turkish literature on nursing, should be utilized to identify the self-efficacy levels of undergraduate nursing students and whether they are able to attain their learning goals. In addition, academics in nursing may utilize this measurement tool to plan and develop strategies to facilitate students' learning and contribute to their academic achievement or evaluate the effects of mentoring practices on students over time. In this respect, the Turkish version of the ANSES can be considered a unique data collection tool to indirectly increase the quality of education in undergraduate nursing programs.

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Appendix-1

Turkish Version of the Academic Nurse Self-Efficacy Scale

Kendinize Ne Kadar Güveniyorsunuz? (**Yönerge:** Lütfen her maddeyi dikkatle okuyarak o maddede yer alan ifadenin size ne derece uygun olduğuna karar veriniz. Verdiğiniz karara göre aşağıdaki ölçeğin maddelerini dikkate alarak yandaki rakamlardan uygun olanı işaretleyiniz.)		**Kendime Hiç Güvenmiyorum**	**Kendime Güvenmiyorum**	**Kendime Ne Güveniyorum Ne Güvenmiyorum**	**Kendime Güveniyorum**	**Kendime Çok Güveniyorum**
İçsel Duygu Yönetimi	**1.**Bir sorun karşısında kaygımı kontrol edebilme	1	2	3	4	5
	2.Sınav sürecinde sakin kalma	1	2	3	4	5
	3.Zorluk anında cesaretimi kırmaktan kaçınma	1	2	3	4	5
Otokontrol Davranış	**4.**Sorun oluşturan riskli şeyleri yapma konusunda arkadaş baskısına direnme	1	2	3	4	5
	5.Sıkıldığımda derse gitmeme isteğime direnme	1	2	3	4	5
	6.Kaçınmanın daha iyi olacağını düşündüğüm bir şeyi yapmamı isteyen arkadaşlarımın ısrarından kaçınma	1	2	3	4	5
	7.Yaptırım riski az da olsa suç işlemekten (kural ihlalinden) kaçınma	1	2	3	4	5
Dışsal Duygu Yönetimi	**8**.Eleştirildiğimde cesaretimi kaybetme	1	2	3	4	5
	9.Sınıfın önünde kötü bir izlenim bıraktıktan sonra utanma	1	2	3	4	5
	10.Düşüncesini önemsediğim birine karşı "gaf" yapmaktan dolayı duyduğum utancın üstesinden gelebilme	1	2	3	4	5
	11.Sınıfın önünde zayıf yönlerim vurgulandığında utanç duymanın üstesinden gelebilme	1	2	3	4	5
Sosyallik	**12.**Gerektiğinde arkadaşlarımdan yardım isteme	1	2	3	4	5
	13.Çalışmasında zorlanan bir arkadaşıma yardım etme	1	2	3	4	5
	14. Arkadaşlarım arasında iyi bir atmosfer yaratmaya yardımcı olma	1	2	3	4	5

Hemşirelik Öğrencileri Akademik Öz Yeterlilik Ölçeği (HÖAÖYÖ): (Academic Nurse Self-Efficacy scale [ANSEs]): Bulfone ve ark. (2019) tarafından lisans düzeyinde eğitim gören hemşirelik öğrencilerinin akademik öz yeterliliklerini belirlemek için geliştirilen ölçek, 14 madde ve dört alt boyuttan oluşmaktadır. Ölçek içsel duygu yönetimi (1., 2., 3. maddeler), otokontrol davranış (4., 5., 6., 7. maddeler), dışsal duygu yönetimi (8., 9., 10., 11. maddeler) ve sosyallik (12., 13., 14. maddeler) alt boyutlarından oluşmaktadır. Bu ölçeğin maddelerin puanı 1-5 arasında değişmektedir ve "Kendinize ne kadar güveniyorsunuz" sorusu 5'li Likert tipi (1 = Kendime hiç güvenmiyorum, 5 = Kendime çok güveniyorum) ile puanlanmaktadır. Ölçekten alınan puanlar arttıkça hemşirelik öğrencilerin akademik öz yeterlilikleri artmaktadır. Ölçeğin ters puanlanan maddesi bulunmamaktadır. Orijinal ölçeğin Cronbach alpha değeri 0.84, bu araştırmada 0.82'dir.

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A Qualitative Analysis Evaluating How Medical Students Perceive COVID-19 Pandemic and Its Impact on Their Lives: Life in the Pandemic

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***Abstract*:** One of the groups experiencing the pandemic's effects were students. This study was aimed to evaluate the effects of the COVID-19 pandemic on the lives of medical students and also to see their perspectives about the pandemic. This study is designed as a qualitative study. In-depth interviews were conducted with 30 medical students on an online platform in February 2022, at the end of the third peak period. A semi-structured question guide used as a data collection tool. First, questions about individual characteristics then open-ended questions about their COVID-19 pandemic perception and its impact on their lives were asked. The thematic analysis method was used and "Life in the pandemic" were grouped into two main themes: 1.Perception of the Pandemic and Consequent Impact on Life and 2. Pandemic Period and Its Impact on Life. The median age was 22. Half of the participants have been diagnosed with COVID-19. All of the participants were vaccinated. In this study it has been observed that the majority of the medical students have perceived the COVID-19 pandemic as a difficult period and also as a new, uncertain and adverse situation. Another adverse effect perceived by the majority was restriction of social life. Fear and anxiety were most commonly used to express their mood during the pandemic. During the pandemic students individual, mental and social lives are highly affected. While negative effects are generally seen during the social isolation process, this situation has eased with the normalisation of the process.

Keywords: COVID-19, Medical students, Pandemic, Qualitative study.

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Introduction

The first coronavirus case in Türkiye was seen on March 11, 2020 (Turkish Academy of Sciences, 2020; World Health Organization, 2020). After that day the number of cases has increased rapidly in the country. Therefore, some precautions were taken by the government like closing borders, travel restrictions, and curfews. On March 16, 2020, another measure was taken to control the spreading virus: suspending education. Due to the rapid progress of the pandemic, it has been decided that the 2020 spring semester will be carried out with distance education (Council of Higher Education, 2020). All of these measures had effects on peoples' lives not just facing a new disease (Wang et al., 2020; Koçak & Harmancı, 2020). One of the groups experiencing social and mental effects of the pandemic was students. They had to face a major challenge: the stress of adapting to following online lessons and preparing for the exams (Jena, 2020). There are several studies about this novel COVID-19 disease's impact on students' life in the literature. Some of these studies showed that the students were under stress and discussed the actual reasons of this stress and how they coped with it (Ceviz, 2020; Parra, 2020).

On January 13, 2021, inactivated vaccines started to be administered in Türkiye by prioritising risk groups; older adults and healthcare workers (Republic of Türkiye Ministry of Health News, 2021; Republic of Türkiye Ministry of Health COVID-19 Vaccination Platform, n.d.). After the advent of the mRNA vaccine, vaccination continued with two types of vaccines. As the vaccination rate increased, the number of cases decreased; thus normalisation steps started to be taken in Türkiye (Republic of Türkiye Ministry of Internal Affairs, 2021).

The virus experienced a variant change within two years. The latest "omicron" variant caused a new wave all over the world and the number of cases started to increase again. The omicron variant started to be seen in Türkiye in the last months of 2021, the number of cases peaked at the beginning of February 2022. After the decrease in omicron cases approximately in the middle of spring 2022, the effect of the pandemic started to ease in Türkiye (Republic of Türkiye Ministry of Health News, 2021; Turcovid 19, n.d.). Medical students also took advantage of the diminishing pandemic. A study carried out at Thomas Jefferson University, it was found that the medical students had tried to find a way to deal with the period of pandemic time in their own way (Dworkin et al., 2021).

In this study, it is aimed to qualitatively evaluate the perception of medical students about the COVID-19 pandemic and its impact on their lives at a public university in Istanbul, Turkiye.

Methodology

This qualitative study was planned in accordance with the principles of the Declaration of Helsinki and with the approval of the local ethics committee (09.2022.292). All data were analysed and presented anonymously.

Sample/Study Group

In-depth interviews were conducted with 30 students studying at a medical school in Istanbul, in February 2022, at the end of the 3rd peak of the omicron dominant period in Türkiye. The participants were reached among the invited medical students agreeing to be

included in an in-depth interview, after a prior quantitative research study carried out by the same researchers on a similar subject at the same medical school.

Table 1
Participants' charasterictics

	Gender	Grade	Age	COVID-19 Diagnosis	COVID-19 Vaccination	Chronic Disease	Living Conditions
P1	Male	Grade 6	24	COVID-19 (-)	2 inactive 2 mRNA	None	With his friend
P 2	Male	Grade 6	24	COVID-19 (-)	2 inactive 1 mRNA	None	With his friend
P 3	Male	Grade 1	18	COVID-19 (-)	2 mRNA	None	With his family
P 4	Male	Grade 1	19	COVID-19 (+)	2 mRNA	None	With his family
P 5	Male	Grade 1	20	COVID-19 (-)	2 mRNA	None	In dormitory
P 6	Male	Grade 1	20	COVID-19 (-)	2 mRNA	None	Alone
P 7	Male	Grade 6	26	COVID-19 (+)	2 inactive 1 mRNA	None	Alone
P 8	Male	Grade 3	23	COVID-19 (+)	2 mRNA	None	With his family
P 9	Female	Grade 3	22	COVID-19 (-)	3 mRNA	None	With her friend
P 10	Male	Grade 3	22	COVID-19 (-)	3 mRNA	None	Alone
P 11	Female	Grade 3	22	COVID-19 (+)	2 mRNA	Aortic Valve Disease	With her family
P 12	Male	Grade 4	28	COVID-19 (-)	3 mRNA	None	With his sibling
P 13	Female	Grade 5	23	COVID-19 (-)	2 inactive 2 mRNA	None	—
P 14	Male	Grade 5	24	COVID-19 (-)	3 inactive	None	—
P 15	Female	Grade 5	24	COVID-19 (-)	2 inactive 3 mRNA	PCOS	—
P 16	Male	Grade 5	24	COVID-19 (+)	2 inactive 3 mRNA	None	—
P 17	Female	Grade 5	22	COVID-19 (+)	2 inactive 2 mRNA	None	With her friend
P 18	Male	Grade 4	23	COVID-19 (-)	2 inactive 2 mRNA	None	With his friend
P 19	Female	Grade 3	21	COVID-19 (-)	3 mRNA	None	—
P 20	Female	Grade 1	19	COVID-19 (+)	2 mRNA	None	In dormitory
P 21	Male	Grade 2	19	COVID-19 (-)	3 mRNA	None	With his family
P 22	Female	Grade 2	20	COVID-19 (-)	3 mRNA	None	With his family
P 23	Female	Grade 2	22	COVID-19 (+)	2 mRNA	None	Alone
P 24	Male	Grade 6	24	COVID-19 (+)	2 inactive 1 mRNA	None	Alone
P 25	Female	Grade 6	24	COVID-19 (+)	2 inactive 2 mRNA	Asthma, Obesity	Alone

P 26	Male	Grade 2	20	COVID-19 (+)	2 mRNA	None	In dormitory by himself
P 27	Female	Grade 2	20	COVID-19 (+)	3 mRNA	None	With her family
P 28	Female	Grade 4	22	COVID-19 (+)	3 mRNA	None	With her friend
P 29	Male	Grade 4	22	COVID-19 (+)	2 mRNA	None	Alone
P 30	Male	Grade 4	23	COVID-19 (+)	3 mRNA	None	Alone

P: Participants

Data Collection

A semi-structured question guide used as a data collection tool. First, questions about individual characteristics then open-ended questions about their COVID-19 pandemic perception and its impact on their lives were asked. This semi-structured questionnaire was prepared in the light of a quantitative research study priorly carried out by the researchers at the same medical school on a similar subject.

Process

This qualitative study was conducted on an online platform via in-depth interviews, after obtaining the oral consent of the participants. Each interview lasted around 30-40 minutes. The interviews were recorded after participants gave verbal permission and then transcribed verbatim by the interviewers. Personal information, images, or sound recordings of the participants are not shared with third parties or institutions. Data collection was ended after the participants' responses reached saturation, that is after 30 interviews.

Analysis of Data

Thematic content analysis was used for the subjective interpretation of the content of the textual data in the process of coding and determining the themes. After the interviews were transcribed, each transcript was evaluated separately by the researchers who conducted the interviews and coded with the Atlas.ti program. After consecutive discussions, the researchers validated the contents. Data analysis was performed by reading all data line by line repeatedly. The Excel program was used for thematic analysis. After all coding was completed, themes and sub-themes were created according to the codes obtained from the research. Relationships were determined by comparing the similarities and differences between the themes and subthemes by the research team among whom there were Public Health professors experienced in qualitative studies. "Life in the pandemic" were grouped into two main themes: 1. Perception of the Pandemic and Consequent Impact on Life and 2. Pandemic Period and Its Impact on Life.

Findings

This study was completed by interviewing 30 medical school students. Among all participants, 18 of them were males and 12 of them were females. The median age was 22 (min-max: 18-28). Half of the participants were preclinical students (Grade 1, 2, 3) and other half of them were clinical students (Grade 4, 5, 6). Half of the participants were diagnosed with COVID-19 (Table 1).

Table 2
Themes and sub-themes

Theme	Perception of the Pandemic and Consequent Impact on Life	Pandemic Period and Its Impact on Life
Sub-themes	Perception of an adverse situation	Normalisation of the pandemic period
	Individual effects of the pandemic	The course of the pandemic and its impact on life
	Mental health effects of the pandemic	
	Social effects of the pandemic	

Main theme 1: Perception of the Pandemic and Consequent Impact on Life

Sub-theme 1.1: Perception of an adverse situation

The predominant view among the participants was that the pandemic was an adverse situation. The uncertainty of this new situation and the potential inadequacy of the science regarding the virus treatment were the most prominent causes underlying this adverse perception. Furthermore the presence of the virus could not be fully perceived since it was invisible, resulting in not taking the necessary precautions.

> "At the beginning of the pandemic, as a medical student, facing a pandemic which is not necessarily a good thing, but it is something that excites a person because it's something that will happen once in a lifetime… It was something I could tell in the future. That was my thought in the beginning; however later on it turned into regret, I wish it hadn't happened." (P8, M, G3, COVID-19 +)

> "For two years, our life has been very restricted. It's somewhat an adverse situation. Science is rather inadequate, the virus is constantly mutating, and there is no proper solution anywhere." (P22, F, G2, COVID-19 -)

> "I was really in conflict when I just listened to the news and sat at home. But then when you go out, I don't know, you relax and since the virus is invisible to the naked eye, even if you try to convince yourself how dangerous it is, since you cannot see any armed enemy around you don't take your guard against him, I don't know, I think I can't follow the rules." (P25, F, G6, COVID-19 +)

Some of the participants stated that pandemics were seen at certain intervals in the world throughout history, therefore the current pandemic could be perceived as an expected but an adverse situation.

> "Just as there were plague pandemics in the past, the Spanish virus, that is, just as these happened, this virus coincided in our time. We are living it right now." (P27, F, G2, COVID-19 +)

> "The COVID-19 pandemic is a pandemic that affects the world in terms of health, economic, social and various aspects, and it is a process that needed to follow the measures since it can adversely affect even a healthy individual. " (P15, F, G5, COVID-19 -)

Besides the negativity, some students mentioned that they saw advantages in this process, for example technological developments were kept up in the process and this resulted in both time and economic savings.

> "In the technological environment, people have actually saved time and money from things such as time and transportation. Judging from the full side of the glass, this is an undeniable thing, I think it has provided a lot of conveniences." (P4, M, G1, COVID-19 +)

Sub-theme 1.2: Individual effects of the pandemic

Most of the participants were thinking that the pandemic affected them negatively. Staying indoors at a young age was perceived as a loss. Some of the participants stated that they got used to the pandemic some time later, and they were no longer affected that much. Some of them mentioned the negative effects like gaining weight due to being at home all the time during the shutdown period. Some stated that they benefited from the shutdown period by sparing valuable time for themselves.

> "I think that part of our lives is wasted during quarantine periods, I mean, I spent my youngest 20-21 years old at home, those parts are a bit sad, to be honest, but now I feel like I'm used to it, I feel like it is slowly becoming a part of life." (P29, M, G4, COVID-19 +)

> "A time passed like this, it was very stressful, at home, there was also weight gain, eating and listening to the news all the time" (P12, M, G4, COVID-19 -)

> "It increased my free time, my studies for my own goals. For example, I was thinking of studying abroad, but I did not know what I was thinking. I was better able to make my own decisions in the void. I studied for foreign study courses and passed step 1 during this time. (P24, M, G6, COVID-19 +)

> "...I had the opportunity to do some sports or something during my stay at home, I may have felt a little better physically." (P9, F, G3, COVID-19 -)

> "I couldn't go to school for about a year and a half, so I'm unhappy because I wish I could spend the most productive times of school in a good way. I had an opportunity to improve myself like I learned how to play the piano. If there was a school, I couldn't have learned it. I started reading psychology books at that time. I did these in a year and a half. " (P30, M, G4, COVID-19 +)

Sub-theme 1.3: Mental health effects of the pandemic

When expressing their mood during the pandemic, the most commonly used words were fear and anxiety. Those who were acquainted with a healthcare worker, thought that struggling with the disease was going to the front of the war. Some stated that they felt empty or overwhelmed during this pandemic. In general, the participants emphasised staying at home as the leading factor affecting their mental health. The majority of the participants mentioned that these negative feelings decreased over time. While some participants stated that the pandemic did not affect their mood; besides some stated that they even felt good during this process. The participants tried to reduce the negative effects of the pandemic by using protective measures, especially the mask.

> "My family was also health workers, so I was very emotional at first. For the first time in my life, I told my mother something she was very much touched by, you know, it was like saying farewell to a soldier (my parents) going off to fight in front of a war, I had such a feeling every day that am I going to lose them, I wonder if they will catch the disease, that was something I was concerned about." (P18, M, G4, COVID-19 -)

> "I thought that if there was an earthquake in Istanbul, I would have to take my brother and run away. In that case you should have to take the masks with you, so I couldn't be able to sleep." (P23, F, G2, COVID-19 +)

> "I was in a panic attack state at the beginning of the pandemic, I didn't even want to take my feet out, I was always at home, I never went out. I feel more normal now like I'm back to my old life." (P13, F, G5, COVID-19 -)

> "I was happy. It was very educational for me, I did not waste it, I learned. I took time for myself." (P18, M, G+, COVID-19 -)

> "For example, wearing a mask was a very good precaution for me. I felt safer when going out or something, I feel like I'm naked without a mask now." (P13, F, G5, COVID-19 -)

Sub-theme 1.4: Social effects of the pandemic

The dominant thought among the participants was that their social life was adversely affected. Their social activities were restricted during the pandemic and not being able to see their friends, negatively affected them. The majority stated that as the effect of the pandemic diminished, its restrictive effect on social life also decreased. They expressed that vaccination played a major role to return to their social lives. Some participants stated that they were not very social before the pandemic, so the pandemic period did not affect their social life meaningly.

> "Because there is already a quarantine process I couldn't see most of my friends. But of course, online meetings have increased, such as, we had even met online with my relatives during the holidays." (K9, F, G3, COVID-19 +)

> "I feel myself more settled, my character, my communication with people is better. After returning to this social life, I think that I can communicate more effectively with people. I started to show empathy, like when I saw a lonely friend, I started to take care of him more." (P30, M, G4, COVID-19 +)

> "I used to love watching the match in the stadium, I don't go, there is nothing to do, there is no need for willing ignorance, so the measures I take for myself are protective equipment, but I will say it again, the vaccine is the most important one for me." (P18, M, G4, COVID-19 -)

> "I'm not a person who goes out and does something every day, I'm more of a house-bird. So it didn't do much for me, but at least it's good to know that I can go out whenever I want." (P11, F, G3, COVID-19 -)

Main theme 2: Pandemic Period and Its Impact on Life

Sub-theme 2.1: Normalisation of the pandemic period

The majority of the participants are now used to the pandemic and more relaxed than at the beginning. Many of them mentioned that they took extreme measures at the beginning of the pandemic and that they overreacted, but they could no longer remain as sensitive as before. This could be due to all of our participants having been vaccinated against COVID-19.

> "I feel so used to it, at the beginning of the epidemic, everything seemed so strange, so extreme. I don't know, masks, prohibitions, deaths, number of diseases, number of deaths, you know, even when one or two people died, we were giving a lot of reactions. But now, unfortunately, we accept cases and deaths as normal." (P9, F, G3, COVID-19 -)

> "... even in the queues, I used to put 1 metre between people. I can't be that much cautious anymore. Especially since we have to use public transportation regularly, I get on the bus even if it's full because I have to go to school somehow." (P29, M, G4, COVID-19 +)

> "I used to be very careful about social distance, for example, I didn't hug people, but after I got covid, I started to hug people from time to time. I am vaccinated and as long as I know that I don't have the disease, I am not keeping my social distance as much as I used to do." (P30, M, G4, COVID-19 +)

Sub-theme 2.2: The Course of the pandemic and its impact on life

The majority of the participants thought that the pandemic would continue but decrease in intensity. Nearly half of the participants stated that the severity of the disease will decrease via vaccination and it will turn into a seasonal viral infection. Also, they predicted that the pandemic would end on its own, due to the mild course of the omicron variant with herd immunity eventually being established. Some participants abstained from making predictions about the next course of the pandemic.

> "The flu virus was also deadly before the vaccine. That's why I believe after a while we will get over it like a normal virus… In my own opinion, various variants are emerging all the time. I think they will stop at one point and become permanent." (P20, F, G1, COVID-19 +)

> "Maybe it's a bad thought, yes, but the virus killed what it was going to kill. Now it has started to slow down even more because of the natural balance…thanks to the omicron, the pandemic will end faster because it spreads faster and infects faster." (P8, M, G3, COVID-19 +)

> "My thought is that first vaccination will increase, and then the virus itself mutates, I think we will overcome it by gaining immunity in society." (P12, M, G4, COVID-19 -)
> "I think it will end like this, I think it will gradually move away from the world agenda. But I'm not sure if it's over or not, but it's over for me." (P24, M, G6, COVID-19 +)

> While there were participants who thought booster doses would be needed and protective measures would continue to be applied, there were also participants who thought that the effect of the pandemic would continue for a while, but that isolation/quarantine practices and the obligation to wear masks would be ended.
> "I hope it ends but I think it will continue like this for a few more years, at least like this year, with booster doses and occasionally getting sick." (P21, M, G2, COVID-19-)

> "So it seems to me that it will never end. Because viruses can change themselves. I have a thought that vaccines will work and everyone will be immune somehow after they are vaccinated. I think maybe it will last for years or it will become normal like the flu, maybe we'll let go of the masks after a while, the one who gets caught gets caught, I think it goes that way." (P17, F, G5, COVID-19 +)

Discussion / Conclusions and Suggestions

The COVID-19 pandemic has affected the whole world at various levels. This study qualitatively evaluates the perception of medical students about the COVID-19 pandemic and its impact on their lives at a public university in Istanbul, Türkiye. This study was carried out at a public medical school in Istanbul province of Turkiye, in February 2022, at the end of the third peak period in which the omicron variant was dominant.

In this study, it has been observed that the majority of the medical students have perceived the COVID-19 pandemic as a difficult period and also as a new, uncertain and adverse situation; although some participants perceived some positive aspects of the pandemic such as time and economic savings, and sparing time for several course, sports and hobbies. Uncertainty of a newly emerging and rapidly spreading infection in the world is a stressor for

people (Topuzoğlu, 2020). In a study conducted with medical students in Korea, it was found that they experience confusion and stress due to sudden and rapid changes, and they feel stressed and under pressure (Park et al., 2022). Medical school students, whose health literacy is higher than the general population having difficulty in perceiving the pandemic process and the concept of virus, can adapt better to an invisible concept like a virus and an inapparent pandemic condition and also can develop better coping strategies (Abdel-Latif, 2020).

The COVID-19 pandemic, which has had negative effects on humanity worldwide, has also negatively affected the lifestyles of medical students; staying indoors at a young age was perceived as a loss by some of them. In this study, some of them mentioned that their eating habits have changed and they have gained weight during the shutdown period; none of them have mentioned losing weight; whereas in several studies losing weight is also reported. In general, people stopping to order meals because of the fear of contamination, some of them having sleep disorders due to the stress experienced, changing eating habits, losing weight, and some eating more during pandemic are reported (Bozkır, 2021; Siddique et al., 2021; Yanık, 2021).

As other lifestyle changes of medical faculty students, increased screen time, electronic device use, and screen viewing times emerged to increase significantly, and loss of motivation and proficiency anxiety also emerged in some studies (Alsoufi et al., 2020; Bozkır, 2021). In this study, increased screen time and electronic device use were not mentioned. Studies have shown that there are different findings in overall life style changes. It is expected that different effects will be seen according to the social environment, culture and personality traits of the people.

In this study, fear and anxiety were commonly mentioned when expressing their mood during the pandemic; particularly those who had health personnel acquaintances felt fear of losing them. It is inevitable to see psychological effects, especially when curfews are long-term (Topuzoğlu, 2020). In a study conducted with medical students in Türkiye, 88.1% of the students stated that they felt more anxious during the COVID-19 process, particularly as their stay at home was prolonged and their social activities were limited (Bozkır, 2021). In this research, some of the participants defined their mood during pandemic to be conflicting, as such although they tried to convince themselves about how dangerous the virus was, due to the invisibility of the virus, they felt relaxed outdoors and could not abide by the rules.

Another adverse effect of the pandemic perceived by the majority of the participants in this study was restricted social life. In a similar study conducted on medical students during the pandemic in Türkiye; 93.3% stated that they spent 1-3 hours outside the home, 45.7% reported that they had little social life, and 45.7% stated that they had no social life (Bozkır, 2021). In this research, over time the participants got more or less adapted to the adverse aspects of the pandemic, especially by using masks and also being vaccinated. All of the participants declared that they were vaccinated. The majority of them stated that they felt more normalised and relaxed nowadays and that they were no longer that much sensitive about protective measures anymore. Most of them thought that the pandemic would continue but decrease in intensity due to the mild course of the omicron variant and development of herd immunity.

This study has some limitations. First, study sample was relatively small. Furthermore, since this study is a qualitative study, the findings cannot be generalised to all the medical students of the concerned university, the lack of face-to-face meetings due to the COVID-19 pandemic may have prevented the participants from fully expressing their feelings and attitudes. Third, the researchers may not have been able to fully interpret the body language of the participants who might not have felt comfortable because of the online interviews. Limitations

can be balanced by the strength of this study which is inclusion of a wide range of participants belonging to different phases of medical education and having had COVID-19 or not.

As a result, it is seen that the lives of students during the pandemic process are highly affected in individual, mental and social dimensions. While negative effects are generally seen during the social isolation process, this situation has eased with the normalisation of the process. In this context, medical students during a pandemic, can experience fear and ignorance leading to panic and uncontrollable behaviours such as extreme protection or isolation. Negativities resulting from social distance can be reduced by social media and smartphone opportunities; furthermore, it is expected that different effects will be seen according to the social environment and personality traits of the people.

To manage the adverse effects, health authorities should stay in contact with students and constantly inform them about the situation and the course. Managing fears and anxiety at the local community and broader public level become as important as treating individuals (Huremović, 2019). This process reveals the importance of social support for students as well as for all humanity.

Contributors

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Assessing Pre-service Science Teachers' Perceptions about Online Teaching and Learning

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***Abstract*:** The unique nature of online teaching and learning has its own affordances and challenges. The purpose of this study was to assess science pre-service teachers' perceptions about efficiency of online teaching and learning in science after experiencing it first-hand during the hard lockdowns due to Covid-19 pandemic. Mixed methods approach, with closed and open-ended questionnaires, was adopted to establish: What perceptions the pre-service teachers have about online teaching and learning in respect of effective teaching and effective assessment? What correlations can be drawn from pre-service science teachers experience of online teaching and learning with their perceptions? And to what extent this mode of teaching prepared these pre-service teachers to use it in their teaching practice? Descriptive statistics and content analysis of data revealed that participants rated online teaching and learning low and had a challenging experience in terms of collaboration, access to material and making meanings out of some science concepts. Participants reported low confidence relating to perceived ease of use and perceived usefulness of online teaching and learning. The study concludes that the harsh experiences were the main contributing factors to the observed perceptions of participants as neither the lecturers nor these student-teachers were prepared for this mode of teaching and learning. Therefore, this study recommends that support mechanisms for students should be made available for online teaching and learning even under emergency situations. Pre-service teachers should also be given a chance to experience online teaching and learning under normal circumstances if they are to incorporate it in their teaching.

***Keywords**:* Pre-service Teachers, Perceptions, Online teaching, Online Learning, Science, Technology Acceptance Model.

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Introduction

Online teaching and learning (OTL) is a form of remote teaching and learning mode which is usually conducted through digital media including internet enabled platforms. It has attracted considerable research interests recently as it becomes more of an integral part of education systems (Al-Salman & Haider, 2021), more so since the advent of Covid-19 which disrupted the normal face-to-face teaching and learning (Önal & Özdemir, 2021; Pal & Patra, 2021). In its pure form, OTL has all interactions occurring virtually asynchronously or synchronously. Depending on the mode used, online learning offers opportunities such as flexible study schedules, accessibility by wider population not restricted by space (Zylfiu & Rasimi, 2020; Mukhtar et al., 2020; Khan et al., 2021). It is also said to be cost effective when compared to face-to-face teaching and learning as learners and teachers do not have to converge on the same venue. Furthermore, it enables teachers and students to acquire technological skills necessary to cope with digital space and experience many of its benefits (Farrah & Al-Bakry, 2020; Zylfiu & Rasimi, 2020) like sharing of resources across different platforms (Khan et al., 2021). It also allows collaboration for discussions (Farrah & Al-Bakry, 2020). It is a potential alternative avenue for continuous professional development in new environment (Alvarez & Corcuera, 2021), as well as development of 21st century skills (Corcuera & Alvarez, 2021).

However, OTL is not without limitations. There are concerns about its feasibility to address challenges of subjects involving practical and technical aspects such as engineering and medicine (Hassan, 2021) which have some elements similar natural sciences. Teachers and students can feel isolated from each other and not able to engage with critical emotions due to absence of cues enjoyed in physical classrooms (Mpungose & Khoza, 2021; Umit & Sezginsoy, 2021). Research studies have argued that OTL promotes technology divide because infrastructure and trainings are not accessible to everyone (Zylfiu & Rasimi, 2020; Mpungose & Khoza, 2021; Twesige et al., 2021; Corcuera & Alvarez, 2021; Samortin, et al., 2022). Authentic assessment is also one of the challenging aspects of online learning making it difficult for teachers to respond to learners' individual needs so that they can adjust instructional activities accordingly (Teo, 2010).

In an attempt to minimise limitations of pure OTL, hybrid forms such as blended learning (Yuhanna et al., 2020), which involves physical contact classes and remote online classes are used (Al-Salman & Haider, 2021). Blended models addresses the need for practical work and physiscal interaction between instructors and students which is necessary in science. In some instances, virtual laboratories can be used or learners be given assignments to carry out experiments at home (Dolenc et al., 2020). However, despite these efforts other studies still maintatin that online learning is more compatible with arts and humanities courses than sciences (Al-Salman & Haider, 2021).

Research studies have established that the kind of experiences during preparation of pre-service teachers has a bearing on their perceptions about teaching, confidence, efficacy, commitment and quality of practice when they get to the field (Darling-Hammond et al., 2002). In instances where technology is used as a tool for teaching and learning, theories such as Technology Acceptance Models (TAM) have been used to provide theoretical background on how people develop perceptions and how such perceptions have a bearing on their attitudes and adoption of technology (Davis, 1989; Al-Salman & Haider, 2021). TAM makes important propositions, of which this study aknowledges that people have varying beliefs when faced with some technology, namely; perceived ease of use (PEU) and perceived usefulness (PU) which dictates their attitude towards technology and intention to use it (Davis, 1989).

Problem

Pre-service science teachers and many other students in one local University, who had little to no experience in online learning had no choice but to take courses remotely during the pandemic of the Covid-19. There was an abrupt shift from normal face to face teaching and learning to online modes due to the Covid-19 pandemic and associated lockdowns. The disruptions of normal teaching and learning caused a lot of unanticipated changes to modes of teaching and learning to be adopted through online platforms in many institutions across the globe (Herkulaas & Oosthuizen, 2020; Feldman, 2020; Pal & Patra, 2021; Alvarez & Corcuera, 2021; Samortin et al., 2022; Umit & Sezginsoy, 2021). One local University, the only public university in teaching of science-related subjects, was no exception to this disruption. Lecturers and students had to quickly navigate their way through tensions of covid-19 pandemic through online modes and some limited face to face interactions later on after a long period of no interactions. Since the University's mode of teaching and learning used to be face to face, it was not known how the abrupt shift had influenced pre-service science teachers' perceptions towards online teaching, learning and assessment regarding its efficiency particularly in learning of science. Researchers were aware that almost all students in science and other faculties had similar experience, but the focus was on Pre-service science teachers. Pre-service science teachers' perceptions are important during this time when OTL proliferation is at high level as most institutions adopt it in their main stream activities (Cobanoglu & Cobanoglu, 2021). This is particularly so for pre-service teachers who are expected to employ the same technic post qualification. Research studies have reported that even academics who have some experience in OTL still show concerns and scepticism towards it (Kalaycıoğlu et al., 2022), which warrants a need for studies exploring how those with no prior experience perceive OTL.

Purpose of the Study

The purpose of the study was formulated around three objectives. First, the study aimed to capture the perceptions of pre-service science teachers (PSTs) about their experience of OTL. Secondly, it sought to assesses PSTs overall perceptions towards OTL and their readiness to employ it in science. Lastly the study sought to compare PSTs' perceptions about their experience and the overall perceptions regarding effectiveness of OTL in science. Among the students, the pre-service science teachers were chosen as their training in addition to content, has equipped them with skills to be able to assess the effectiveness of teaching and learning as opposed to the students in other programs of study (pure sciences) who may not be adequately conversant with education principles and aspects. The study has a potential to shed insights into the kind of perceptions evoked in pre-service teachers as a result of their experience of the OTL. Evaluations drawn from students' perspectives are crucial in informing feasibility and productivity of academic institutions practices (Nsibande, 2019; Cobanoglu & Cobanoglu, 2021). To achieve its purpose, this study responds to the following research questions:

a) What are the perceptions of the pre-service science teachers of the online teaching and learning in respect of effective teaching, learning and assessment of science?
b) What relationships can be drawn between pre-service science teachers experience of OTL and their perceptions?
c) To what extent has this mode of teaching prepared the pre-service teachers to use it in their teaching practice?

The PSTs were exposed to online learning only during the hard lockdown (July 2020 to May 2021), then later (July 2021 to May 2022) on to blended learning in which some theoretical aspects of the courses were offered online and experiments offered physically on campus. As a result, they had experienced a full spectrum of teaching and learning modes, from pure face-to-face to hard online as well as the blended learning approaches. However, the focus of this study was mainly on the time when no physical interactions were allowed i.e. during the hard

lockdowns, when only OTL was allowed. It follows on studies which outlined some challenges of online learning such as lack of technical know-how for students, socio-economic constraints, institutional-contextual systems limitations as key factors influencing OTL (e.g. Makafane & Chere-Masupha, 2021; Mpungose & Khoza, 2021; Twesige et al., 2021).

Theoretical Background and Literature Review

This study draws its theoretical background from TAM model which provides understanding of how people's perceptions regarding available technology tool or its applications influence adoption or actual use of such as technology (Chuttur, 2009). TAM model unveils some factors that play a major role in technology acceptance as well as inherent beliefs; perceived ease of use (PEU) and perceived usefulness (PU) regarding online mode. This study makes the assumptions with reference to TAM, that pre-service teachers are likely to have positive perceptions provided they find online learning and teaching as less strenuous while at the same time able to achieve desired results than face to face encounter. For instance, participants in one study held positive perceptions in terms of ease of use as well as ease of usefulness reportedly because of necessary support and experience they had with online learning (Teo, 2010). Furthermore, in another study the exposure to online learning was responsible for considerable levels of confidence and self-efficacy in learning online and also in teaching online (Ardiyansah, 2021).

However, if participants had an unpleasant experience, it is likely that they will develop negative perceptions about online teaching and learning (DeCoito & Estaiteyeh, 2022). For instance, if instructors are not well equipped with (lack) technological content and technical and pedagogical skills (technological pedagogical knowledge) necessary to facilitate and promote meaningful OTL, they are likely to impart negative perceptions to learners leading to the perception that online learning is not useful (Teo, 2010). DeCoito & Estaiteyeh (2022) noted that the root cause of negative attitude and scepticism towards online learning was due to bad experiences the learners had due to factors such as lack of clear guidelines from school authorities, lack of technological expertise, and lack of infrastructure to support teaching and learning all of which are common in the current study given how OTL was introduced in this instance.

Perceptions on effective online teaching, learning and assessment

Online teaching and learning is becoming indispensable (Cobanoglu & Cobanoglu, 2021) due to, among others, many challenges confronting the education fraternity contemporarily. The advantages of OTL include; learning flexibility in terms of space and time, learners having some reasonable control on the pace of their learning and promotion of self-directed learning and individual research (Teo, 2010; Zylfiu & Rasimi, 2020; Farrah & Al-Bakry, 2020). Comparatively, online learning is more economical than face to face learning (Yuhanna et al., 2020). It minimizes issues of disruptive behaviour from some students which is common in face-to-face classrooms (Alexander et al., 2012). Materials which are shared online can be accessed any time at the convenience of the learners (Khan et al., 2021). Online learning promotes use of digital tools for learning and offers potential for feedback to be directly tailored to the needs of individual students (Zylfiu & Rasimi, 2020). There could be virtual interactions between students and also with the instructor at convenient times (Arbaugh, 2005; Farrah & Al-Bakry, 2020). Teachers get a chance to acquire crucial skills to use technology when engaged with online lessons (DeCoito & Estaiteyeh, 2022), consequently it is not only beneficial to learners but to teachers as well.

However, online teaching and learning does not only come with positive credentials, there are some setbacks recorded in literature. Online learning has been classified as a mode

favouring intrinsically motivated students. It leads to possibilities of easy miscommunications, it is prone to technology glitches, it is prone to limitations regarding teacher presence and disruptions by other online communications such as social media sites (Alexander et al., 2012; Zylfiu & Rasimi, 2020; DeCoito & Estaiteyeh, 2022). Regardless of how students engage with technology, they may still experience isolation from physical classroom cues and assurance that the instructor is readily available to attend to their problems (Hassan, 2021). Online learning is also prone to overloaded courses, ill-structured activities and lack of meaningful assessment (Zylfiu & Rasimi, 2020) as well as challenges of plagiarism (DeCoito & Estaiteyeh, 2022). Economic constraints make it hard for some students to acquire necessary gadgets and to access relevant information and material on the internet making it difficult to cater for all students (Feldman, 2020; DeCoito & Estaiteyeh, 2022; Mpungose & Khoza, 2021; Yildirim, 2022). These promote digital divide as OTL requires Information and Communication Technology(ICT) infrastructure which is normally a challenge for rural areas (Zylfiu & Rasimi, 2020). Moreover, some students with special needs may require additional support, which may not be readily available at home to attend online classes. (Hassan, 2021). Institutions may have adequate infrastructure while the majority of learners may not have access to compatible devices at their disposal which makes it challenging to achieve meaningful teaching and learning (Hassan, 2021; Mpungose & Khoza, 2021). Other practical huddles (Feldman, 2020; Önal & Özdemir, 2021) that still need to be addressed for OTL to achieve meaningful learning in sciences include the fact that consumables and science kits may not be readily available to all learners in their homes (Dolenc et al., 2020). Teachers also find it challenging to find content that is relevant to achieve objectives. This compels teachers to work long hours trying to adapt content they get from the internet (DeCoito & Estaiteyeh, 2022).

A big question is whether the integrity of the nature of science could still be preserved through online teaching and learning (Mukhtar et al., 2020; Dolenc et al., 2020) since science involves practical component as an integral part. Research studies have shown that it is very challenging to offer practical activities online especially where groundwork has not yet been done (Mukhtar et al., 2020; Hassan, 2021). Furthermore, it has been recorded that students have some doubts about the efficacy of online learning when it comes to practical subjects such as engineering and medicine (Hassan, 2021) which share a lot of similarities with science. It may therefore, be argued that students' participation in OTL may be affected by this kind of scepticism. Generally, it transpires that more is yet to be done and known about the feasibility of online teaching and learning with regard to science. One recommendation is adoption of blended learning for subjects which require a lot of hands-on activities, collaborations and interactions such as science as blended modes combine face to face and online teaching and learning encounters (Al-Salman & Haider, 2021).

Methodology

This study sought to understand how the pre-service science teachers experienced OTL and to assess their overall perceptions about effectiveness of OTL of science. The study adopted a mixed methods (MM) approach to gather and analyse data (Creswell, 2014). MM approaches subscribe to pragmatic paradigm and take advantage of both qualitative approaches and quantitative approaches in answering research questions (Teddie & Tashakkori, 2009) in a much broader way (Cohen et al., 2005). MM approach was adopted in this study in order to have a better understanding of how PSTs experienced OTL and how their experiences may have influenced their overall perceptions about OTL in science. MM takes various typologies and for this study, a concurrent design was used whereby both quantitative data and qualitative data were collected concurrently, analysed separately and then related for interpretations (Creswell, 2014). This study did not involve any manipulation of variables (Bordens & Abbott, 2011) and

therefore, closed and open ended questionnaires were found to be appropriate data collection tools.

Population of the Study

The population of this study was made up of Fourth year (Final) year student-teachers (pre-service science teachers) enrolled in pure sciences and education at One Local University, in Southern Africa. For convenience, the researchers focused on those students who were taking chemistry as a teaching subject together with any other science subject including mathematics. These students experienced OTL for a period of whole academic year and some-what blended for another one year towards the completion of their academic training in June 2022. The pre-service science teachers register for additional education related courses to the pure sciences which prepare them for teaching of these pure science subjects upon completion of their training. The arrangement of offering courses is such that all students who major in any natural science subject register for it in the Faculty of Science and Technology while those who register for any teaching courses like curriculum studies and teaching methodologies take those courses in the relevant department of the Faculty of Education.

Sample of the study

Purposive and convenient sampling of fifteen (n = 15) Fourth (final) Year pre-service science teachers (PSTs) registered under the Bachelor of Science with Education who took chemistry as one of their science subjects, was done on the basis of their experience of face-to-face teaching and learning, blended mode as well as full OTL. For anonymity, names of the pre-service teachers have been withheld and only references have been used in place of their names: (e.g. PST-1 which refers to Pre-service science teacher 1). The objectives of the study were communicated to PSTs as well as the assurance of treating their views with due confidentiality and ethical considerations. Only those who offered their consent to participate formed the sample of this study. As already alluded to earlier, the PSTs had gone through courses that prepared them for teaching and learning profession on how to achieve meaningful teaching and learning. They are also aware of practices that can constrain teaching and learning processes. Therefore, the sample was selected on the basis of its potential to provide rich and useful data on online teaching and learning in science better than students in the other programs (pure sciences) who may not be aware of some critical conceptual issues in teaching and learning. The researchers were aware that the sampling technique will provide useful insights for the purpose of the study and similar contexts even though findings may not be directly generalized to wider populations (Cohen et al., 2005).

Data Collection Instruments and Methods

Quantitative data were collected with a close-ended questionnaires while qualitative data were collected with open-ended questionnaires from participating PSTs. The questionnaires were concurrently administered as printed documents to participants after securing their consent to participate in the study. The purpose of close-ended questionnaires was to get insights on how the OTL happened and the nature of experiences the PSTs had during their training in relation to chosen categories such as, (i) availability and access to resources (ii) status of interactions and, (iii) modes of assessment. The purpose of open-ended questionnaires was to capture PSTs perceptions about OTL in science after their first-hand experience. Open-ended questionnaires have the advantage of providing rich and diverse data without restricting participants on their responses. However, the researchers were aware that open ended questions may be ambiguous to respondents (Bordens & Abbott, 2011). To take care of the possibility of ambiguities in the questions, the researchers categorized the questions into the following broad areas on which respondents would state their perceptions:

a) Perceptions about effective teaching and learning.
b) Perceptions about effective assessment.
c) Perceptions about preparation for pre-service science teachers to use OTL in their teaching post completion of their program.

The questionnaires were developed with reference to the above mentioned broad areas by authors who scrutinized their suitability for collecting relevant data to the research questions. This was done as a way to enhance content validity (Cohen et al., 2005). Questionnaires were also shared with colleagues who were not part of the study to assess if they captured all elements related to research questions as a way to ensure internal validity (Cohen et al., 2005). Feedback from colleagues was incorporated into final version of questionnaires that were distributed to participants in printed form. Participants handed in the questionnaires in the following week which gave them ample time to complete the questionnaires without any pressure.

Analysis of Data

Both quantitative and qualitative methods of data analysis were employed. The first part of the analysis was on measurement of perceptions on five-point Likert scale assessing the status of OTL that was experienced by PSTs. The second part involved evaluation of PSTs perceptions via the open ended questionnaires through qualitative content analysis (Mayring, 2014). For closed ended questionnaire from five-point Likert scale, Microsoft Excel was used to generate descriptive statistics while content analysis enabled the researchers to have in-depth understanding of data, to code, to categorise and make meanings about PSTs perceptions (Mojtaba & Sherrill, 2019). Key words that served as coding framework were derived from research questions under the areas relating to: perceptions about PSTs' experience of OTL, PSTs perceptions about teaching and learning of science through OTL mode, PSTs perceptions about assessment and PSTs readiness to facilitate OTL in their future teaching vocation. The iterative nature of content analysis allows for more than one step to be applied to data to make sure that data meaning is preserved in the final descriptions (Schreier, 2014). Data presentations of qualitative data included thematic meanings, anchoring categories as well as reference data excerpts.

Findings

The first part of the findings is quantitative showing PSTs ratings on how they experienced OTL in terms of how accessibility, teaching and learning and assessment were implemented. The second part reports on how PSTs perceived the effectiveness of OTL in relation to science. Both first and second part were based on the responses on 5-point Likert Scales for each analysis are noted below corresponding Tables.

How PSTs Experienced OTL

Results on how PSTs experienced OTL are shown in Table 1 with regard to how materials were made available, how these materials waer accessed as well as how teaching and learning processes generally took place.

Table 1
PSTs perceptions' ratings on how they experienced OTL

Statements	Modal rating	Average perception	*SD*	%*RSD*
Lecture notes were deposited online for us to access at own time	Always (*n*=67%)	4.69	0.61	13.01
Live discussions with the lecturer we held	Sometimes (*n*=40%)	2.61	1.33	50.96
Lecturers used online platforms e.g. telegram, zoom (please state which ones)[1]	Often enough (*n*= 40%)	3.38	1.49	44.08
Animation and recorded lectures (video) were made available/accessed	Minimal (*n*=53%)	2.07	0.57	27.54
Audio recordings were provided	Often enough (*n*=40%)	3.00	1.18	39.33
Information was disseminated in time	Often enough (*n*=40%)	3.20	0.89	27.81

*(5: Always, 4: Often enough, 3: Sometimes, 2: Minimal, 1: Not at all).

From Table 1 majority of PSTs agreed that lecture materials were deposited online (*M*= 4.69, *SD*= 0.61), with the modal rating of perceptions by majority of 67% for their access at their convenience with very infrequent live discussions with the lecturers (*M*=2.61, *SD*= 1.33). However, supplementary multi-media resources were shared to a minimal extent (*M*= 2.07, *SD*= 0.57) except for some audio recordings (*M*= 3.00, *SD*= 1.18).

How PSTs Experienced Online Assessment

On the issue of assessment, PSTs were reportedly given individual online assessments in various forms with varying frequencies as shown in Table 2.

Table 2
The experience of the PSTs regarding the assessment aspect of teaching and learning

Statements	Modal rating	Average perception	*SD*	%*RSD*
Tests were conducted fully online	Sometimes (*n*=46%)	3.69	0.82	22.22
Tests were done frequent enough	Often enough (*n*=53%)	3.31	0.99	29.91
Assessment was done through take-home assignments	Sometimes (*n*=40%)	3.08	1.21	39.29
Modes of assessment were clearly stated	Often enough (*n*=40%)	3.62	0.92	25.41
Assessment covered all topics adequately	Sometimes (*n*=33%)	3.31	1.49	45.02
Students were assessed individually	Always (*n*=47%)	4.08	1.38	33.82
There was no cheating in the assessments	Sometimes (*n*=33%)	2.85	1.19	41.75
Feedback was given on time	Sometimes (*n*=40%)	2.77	1.19	42.96

*(5: Always, 4: Often enough, 3: Sometimes, 2: Minimal, 1: Not at all)

Table 2 shows that tests were sometimes given online (*M*= 3.69, *SD*= 0.82). The frequency of the tests is rated at sometimes (*M*= 3.31, *SD*= 0.99) which could be a sign that in

other topics, no tests were given. Assessment through take-home assignments was sometimes done with less frequency also (*M*=3.08, *SD*= 1.21). PSTs felt instructions were not always made explicit enough (*M*= 3.62, *SD*= 0.92) and the coverage was also not always extensive (*M*= 3.31, *SD*= 1.49). Individual assessment was rated high, close to always (*M*=4.08, *SD*= 1.38) by the majority of PSTs. PSTs also held perceptions that assessments were sometimes affected by malpractices (*M*= 2.85, *SD*= 1.19). However, PSTs noted that provision of feedback was at a low frequency (*M*= 2.77, *SD*= 1.19).

Overall Perceptions of PSTs about effectiveness of OTL in science

Having captured PSTs perceptions about their experience of OTL as well as how online assessment was done, the following section presents PSTs overall perceptions about the effectiveness of OTL and online assessment in science. Online teaching (OT) and online learning (OL) have been placed under one sub-heading (OTL) because of cross-cutting elements in them. Table 3 presents results from closed-ended questionnaires rated on a 5-point Likert scale.

Table 3
PSTs perceptions about the effectiveness of OTL in science on the basis of their experience

Statements	Modal rating	Average perception	*SD*	%*RSD*
Increases motivation to study	Disagree (*n*=33%)	2.08	0.92	44.2
All learners can participate well	Disagree (*n*=73%)	2.00	0.39	19.5
Allow interaction between teachers & learners	S. Disagree (*n*=40%)	2.08	1.14	54.8
Subjects content can be meaningfully taught	Disagree (*n*=33%)	2.31	1.00	43.3
Access to study material is easy	Agree (*n*=60%)	3.31	1.07	32.3
Effective learner-cantered approaches possible	Disagree (*n*=33%)	2.38	1.17	49.2
Learner stay in contact with instructors always	Disagree (*n*=40%)	1.92	1.00	52.1
Learners can collaborate easily through online	Disagree (*n*=33%)	2.54	1.22	48.0

*5: Strongly agree, 4: Agree, 3: Not sure, 2: Disagree, 1: Strongly disagree)

Results Table 3 show that the majority of PSTs disagree that OTL can; motivate learners (*M*= 2.08, *SD*= 0.92), allow all participation of all learners (*M*= 2.00, *SD*= 0.39), offer a platform for meaningful interactions for meaningful teaching and learning experience (*M*= 2.08, *SD*= 1.14), allow meaningful content delivery (*M* = 2.31, *SD*= 1.00), allow adoption of learner-centered approaches (*M*= 2.38, *SD*= 1.17), allow instructors to stay in contact with students for most of the time (*M*= 1.92, *SD*= 1.00) and enable students' collaborations (*M*= 2.54, *SD*= 1.22). However, PSTs agree that access of material online is easy (*M*= 3.31, *SD*= 1.07).

PSTs Perceptions about OTL and Supporting Details Captured from Open-Ended Questionnaire

This section presents results from open-ended questionnaires that were used to further probe PSTs' perceptions without limiting them to pre-determined questions. PSTs were expected to elaborate as much as possible to support their perceptions about the effectiveness of OTL in science.

Theme 1: OTL has some limited scope for science teaching and learning

Majority of the PSTs, in agreement with results in Table 3, make assertions that criticise OTL as not an effective option for science subjects. This corroborates their ratings on closed ended questions shown in Table 3. The PSTs highlight issues related to perceived usefulness (PU) as well as perceived ease of use (PEU). The following categories of their responses emerged: (i) some science concepts are so abstract that teaching them online may not be fruitful; (ii) OTL may fall short of impact for complexity demands of some concepts; (iii) OTL may not adequately address all areas of science especially practical aspects (especially where substitute resources are not available; (iv) OTL may not offer opportunities for interactions between students and teachers as well as among the students themselves. For instance, one participant mentioned:

> "Online teaching of science is not effective at all since science, especially biology and chemistry deals with a lot of mechanisms that needs a physical interaction for demonstration. Like in organic chemistry, there are lots of chemical equations with complex mechanisms and can only be understood if demonstration is done on the board by lecturer. Also experiments or practicals for biology and chemistry provide deeper understanding of the material learned in class".

Theme 2: OTL may overlook/downplay learner diversity and nature of science

To further substantiate their perceptions about limitations of OTL towards science, different PSTs made submissions related to perceived ease of usefulness (PEU) as well as PU of OTL. Their perceptions yielded several categories: (i) OTL is characterized by a lot of work done in short space of time (PST-10); (ii) OTL promotes digital divide; (iii) it may dampen learning motivation and encourage reproduction of work not understood; (iv) it may be challenging to tailor it to individual students' needs; (v) selective teaching of theory over practical (PST-9); (vi) it works for intrinsically motivated students, (vii) it is said to be dissociated from nature of science; (viii) it is difficult to retain a lot of information in a short space of time. One went as far as asserting that *'[O]nline is the death of science.… there are tutorials [online] to guide students, but watching videos is not the same as doing the practical/experiment by ourselves'*. Another one shares the same sentiments and asserts that '*we can't produce doctors, engineers who studied online. They have to be in practicals, labs field learning, observe nature, and everything related to science*.'

The following extracts (for PST-9 and PST-5) provides more details on how PSTs argued against feasibility of OTL in science where majority described it as partially responsive to needs of science.

> "In my opinion science is 70% practice and 30% theory, Online learning is very good when it comes to teaching theory. Yes, if we were doing theology online wouldn't be that much of a problem. How can a chemist in their 3rd or 2nd year of study towards their degree not know what a spatula is! Online is the death of science. Yes, there are tutorials to guide students but watching a video is not the same as doing the practical/experiment by ourselves. MIT study shows that for effectively understanding concepts form a video it has to be less than 6-minutes so how many 6-min videos will be produced to cover the whole content of a single subject?" PST-9.

PST-5 also points to the issue of work overloads *"...lecturers tend to produce a lot of notes which are not always comprehensible".*

The PSTs further cited some science related careers to argue their dissatisfaction with OTL in science as shown in the extract that follow.

> "For other subjects, yes online might work, but not for science as a whole. These kids need to go physical in science. We can't produce Doctors, Engineers who studied

> online. They have to be in practicals, labs, field learning, observe nature and everything related to science" PST-5.

Theme 3: OTL need to be conceptualised in constructivists view

Few PSTs had some counter arguments that OTL can still be an effective mode of teaching science provided some practices are made to take care of the nature of science. PSTs suggested perceptions gave rise to the following categories: (i) OTL should be offered by teachers with relevant training (established technological knowledge content); (ii) videos should be used in cases where real experiments cannot be done; (iii) OTL promotes independent research which is a vital ingredient in science learning; (iv) OTL offers flexibility to learn at own pace and it is not restricted by space; (v) OTL helps students to embrace technology and develop communication skills; (vi) it is easy to share information (See the inserts for PST-1 and PST-9).

> "Online teaching can be very effective if done properly. I say so because, I personally believe that even the shy teacher can feel free to teach online since the audience is not with him/her. I say if done properly because some lecturers often mistaken online learning with 'sending the notes to learners…online learning can be very effective if used properly. This is because the lessons can be recorded both verbally and visually and thus give the learner an opportunity to go through the lesson as many times as possible or needed" PST-1.

> "Students are able to study on their own pace. If reading materials are attached, then students find extra source to make or have a better understanding of the content. Help students to learn how to use technology in learning. Some students are parallel to technology therefore this gives them force to learn it. Students develop communication skill. In a Telegram class one is urged to state his/her response thus improving his ability to talk reason and share ideas". PST-9

PSTs Perceptions about Effectiveness of Assessment in OTL

When asked about how they perceive effectiveness of assessment in OTL, PSTs cumulative rating scores on perceptions were found as shown in Table 4.

Table 4
PSTs perceptions about effective assessment in OTL

Statements	Modal rating	Average perception	*SD*	%*RSD*
Meaningful assessments can be achieved in online mode	Disagree (*n*=40%)	2.38	0.92	38.7
All science topics/ content can be assessed online	S. Disagree (*n*=40%)	2.31	1.38	59.7
Online mode allows for timely feedback	Agree (*n*=33%)	2.69	1.26	46.8
Reflections on feedback are done meaningfully online	Disagree (*n*=47%)	2.46	1.08	43.9
Formative assessment is easy using online mode	Agree (*n*=33%)	2.85	1.10	38.6
Summative assessment is easy on online teaching	Disagree (*n*=33%)	2.38	1.27	53.4

*(5: Strongly agree, 4: Agree, 3: Not sure, 2: Disagree, 1: Strongly disagree)

Results in Table 4 show that PSTs disagree that assessments in OTL are; meaningful (*M*= 2.38, *SD*= 0.92), can cover all topics (*M*=2. 31, *SD*= 1.38), allow timely feedback (M= 2.69, SD=1.26), enable meaningful reflections to be done (*M*= 2.46, *SD*= 1.08). Moreover, PSTs disagree that both formative (*M*= 2.85, *SD*= 1.10) and summative (*M*= 2.38, *SD*= 1.27) assessments can be done easily in OTL.

The responses of PSTs to open-ended questionnaire on their perceptions about effectiveness of assessments of science in OTL are presented in the following section.

Theme 4: OTL assessment for science is susceptible to quality and authenticity concerns

PSTs were asked to state their perceptions about online assessment and support them with details. The following categories of their perceptions were recorded with a high proportion of PSTs disregarding online assessment of science: (i) It lacks authenticity as it does not cater for all aspects of assessment and its prone to examinations' malpractice issues like copying; (ii) susceptible to strict regulations and difficult questions as means of trying to preserve assessment integrity which unfortunately leads to many students failing; (iii) online systems troubleshooting issues may affect students; (iv) may be suitable for theoretical aspects but not practical aspects of science.

The extracts from PST-10 and PST-2 are shown below.

> "Effective to some courses but others not so effective because we will be assessed based on theory only. How can we say a student has learnt the subject when all they have done was copy and paste someone else's work? Online learning to science students is the death of humanity because doctors, engineers, chemists and biologists who know nothing but just theory will be leading in those different specialities" PST-10

> "It is not effective. In real life example, one of the biology courses is failed by many students and may be only 2 managed to obtain D which is the highest symbol in the class. Lecturers are so strict and ask questions that they too, cannot interpret well. Furthermore, we are not given enough time for tests and that lead us to submit unfinished work since we will be typing which we are not used to". PST-2.

Theme 5: Online assessments have potential to promote research and wider content coverage

A few PSTs advocated for OA in science with careful consideration of how it is done in order to ensure its effectiveness towards achievement of assessment objectives. Two categories of perceptions were recorded about OTL in science: (i) allows for coverage of more content and (ii) a good mode to ask research-based questions. For instance, PST-5 mentioned

> "Online assessment, this is not effective because the teacher will be able to ask every question in relation to the course he/she teaches, so the students will be able to answer questions through researching process. For instance, the teacher asks learners about the stages and or steps to be followed in water purification, so the learners will watch videos online and be able to answer the questions" PST-2.

Relationships between PSTs perceptions about their experience of OTL and their overall perceptions about effectiveness of OTL in science

The following part of results was to compare PSTs experience of OTL to how they perceive its effectiveness in science teaching and learning. Four statements from experience perceptions ratings and four parallel statements from overall perceptions were used. Figure 1 shows the results. The comparison was based on 5-point Likert scales: Experience ratings (E) were (5: Always, 4: Often enough, 3: Sometimes, 2: Minimal, 1: Not at all) while Perceptions (P) ratings were (5: Strongly agree, 4: Agree, 3: Not sure, 2: Disagree, 1: Strongly disagree).

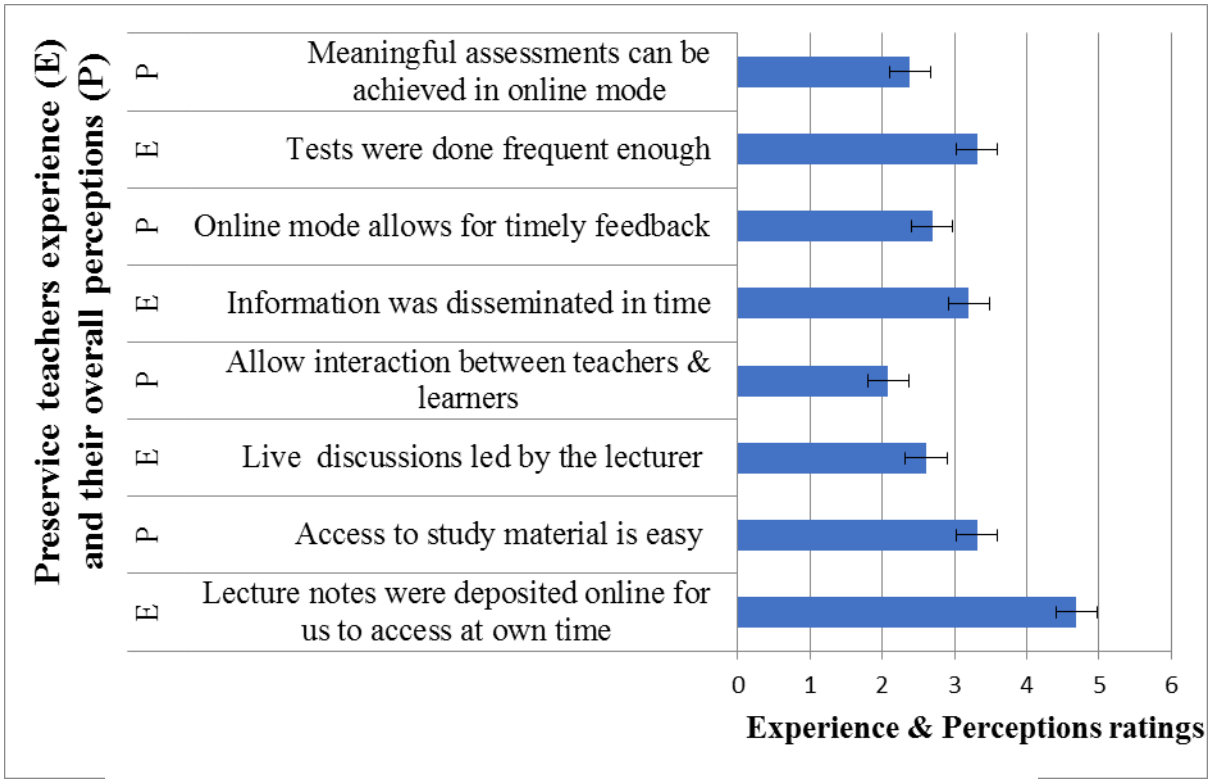

Figure 1. How experiences of PSTs compare with their perceptions about OTL

The results in Figure1 show that in cases where pre-service teachers rated their experience perceptions low, their overall perceptions ratings were also low in relation to effectiveness of OTL in science. However, availability of material shared online was rated high (above Often enough by majority) whereas accessibility was rated low. This could be attributed to other factors which hindered pre-service teachers from accessing available learning material such as internet connectivity, data cost, etc. that have nothing to do with the availability but accessibility of such teaching and learning material.

PSTs' Readiness to teach online (RTO)

The last part of this study was to assess PSTs perceptions about their readiness to employ OTL in their teaching vocation having experienced it first-hand as students. The results are in the following section.

Theme 6: OTL demands special training for teachers as much as it equips students with digital skills

PSTs were ultimately asked if they were ready to teach science online and to describe any acquired skills for OTL. They do not feel that the exposure to OTL has in a way provided them with adequate skills for OTL. Three categories of their perceptions were recorded. (i) Vicarious experience is not adequate to equip PSTs with necessary skills for OTL, training tailored for OTL is necessary; (ii) It involves a lot of time planning and organizing materials so it's tedious; (iii) Scepticism and inherent beliefs influence decision of PSTs towards OTL. The extract from PST-10 below demonstrates some concerns related to PEU and PU of OTL.

> "[T]his process of online teaching and learning needs the teacher who is well advanced towards teaching and learning process" PST-5 and "...it is tedious...to assess even a small group of students using gadgets. Online learning does not offer students

> to understand and perform the practical part of the course and in some courses some concepts are only better understood through practice" PST-10.

There were however, counter perceptions by some few PSTs that some basics have been developed which they can use to practice in OTL. Three categories of perceptions were identified (i) preparation of online presentations (e.g.) recorded slides, (ii) identification of available educational web-resources, (iii) knowledge of advantages and disadvantages of OTL (See excerpt from PST-1 below).

> "Having participated in online learning, I can say that I am equipped with all the information needed to participate in online teaching and learning since I have learned effective and cheap software and applications that are used. From there, I have learned all the cons and pros of online teaching and learning" PST-1.

Discussions

This paper reports on a study that intended to elucidate perceptions of the science students, particularly PSTs, about online teaching and learning after having had a first-hand experience of OTL. Again this study aimed at assessing PSTs perceptions about their readiness to use OTL mode in their future careers as teachers. The study problem emanated from the reality that PSTs who had no to little experience of OTL had to abruptly access their courses through online modes during tensions of covid-19 pandemic. There were no prior institutional arrangements for students' teaching and learning activities to be done remotely because the University operated on face-to-face modes before the pandemic-caused disruptions. It was a concern in relation to how the emergency-induced change may have affected learning of sciences in light of literature reports that the success of OTL depends largely on the status of infrastructure, technical know-how, implementation practices and recipients' level of PU and PEU (Ardiyansah, 2021).

In the current study, regarding the status of OTL, a sizable number of PSTs highlighted that learning material were made available through several platforms such as the institution's learning management system, social media platforms and emails. However, discussions were not frequently done and PSTs had to navigate their way without much anticipated assistance. These results corroborate some reports that teaching materials can be shared easily (Alexander et al., 2012). Much as learning resources were made available, some huddles which posted a challenge to meaningful learning were experienced. Minimal live discussions could have made some PSTs to feel disconnected, isolated from both teacher presence and other learners' presence. Lack of live discussions with instructors is likely to perpetuate segregation between extrinsically and intrinsically motivated students (Alexander et al., 2012; Zylfiu & Rasimi, 2020). The arrangement also did not allow ways to harness affordances of OTL in promoting classroom-talk (Dolenc et al., 2020) or meaningful interactions between students and with instructors (Arbaugh, 2005; Farrah & Al-Bakry, 2020). Absence of meaningful interactions has been regarded as a situation which downplays the importance of knowledge sharing (e.g., Khan et al., 2021). On average, and in agreement with the assertions by Zylfiu & Rasimi (2020) that OTL is susceptible to inadequate assessment procedures, PSTs in this study made strong assertions that assessments were not frequently given and the feedback was also not so frequent (see Table 2). This finding is in agreement with similar reports by Twesige et al., 2021). Moreover, respondents reiterated observations from previous studies that OTL is sometimes characterised by high workloads squeezed within limited time (Zylfiu & Rasimi, 2020). PSTs argued that the amount of work shared with them was far more than the time that was available. Therefore, PSTs found OTL arrangements during their learning not favouring their perceived ease of usefulness (PEU) as they had to do a lot of work within a short time and for a better part of the time, with minimal interactions with instructors. Infrequent feedback and lack of

interactions qualified PSTs arguments that their experience did not meet their expectations with regard to perceived usefulness (PU) of OTL. Nonetheless, without any reference to what happened during face-to-face, it is difficult to blame OTL for the 'infrequent' feedback. Generally, it surfaces that level of support for teaching and learning which is crucial to promote students' positive perceptions in terms of PEU and PU (Teo, 2010) was to a less extent.

A large number of the PSTs in this study collectively held strong negative perceptions about general feasibility of OTL of science (see Table 3). This finding is in contradiction to the finding by Cobanoglu & Cobanoglu (2021) who recorded positive perceptions. For instance, collective arguments of PSTs in this study are against reports that OTL can increase motivation for independent learning (Teo, 2010), collaboration and meaningful interactions (Farrah & Al-Bakry, 2020) as well as a platform for meaningful learner-centred approaches (Dolenc et al., 2020). Surprisingly, the PSTs' collective response on access to study materials was rated around average (see Table 3) on the Likert scale which does not match their previous response that materials were always deposited online. This perception may signal that, even though materials were made available online, access by students was still not without challenges that could include lack of suitable gadgets, costs of data, connectivity issues and limitations of gadgets used (Makafane & Chere-Masupha, 2021; DeCoito & Estaiteyeh, 2022; Mpungose & Khoza, 2021; Twesige et al., 2021; Samortin et al., 2022). Some research studies have further illustrated how demographic disparities adds to challenges experienced by students in OTL with those in rural areas being the most hit-hard group (Twesige et al., 2021; Yıldırım, 2022). Resources constraints, such as absence of virtual laboratories and no means of doing experiments, have been cited by PSTs as evidence that OTL is still clouded with pedagogical challenges which affect teaching learning of science through practical activities (Mukhtar et al., 2020; Hassan, 2021). Hassan (2021) further refers to the necessity of planning so that OTL can be effective. However, despite the fact that PSTs in this study had an unplanned emergency OTL experience some few PSTs still had positive perceptions about OTL, as being a flexible and technologically driven mode, arguing that instructors need to be well trained and resources be put in place for both teachers and students. The observation of mixed views of PSTs, with majority showing scepticism toward OTL and minority showing some hope, bring insights to practice that experience plays an important role in development of perceptions (DeCoito & Estaiteyeh, 2022). It may be argued that PSTs developed negative perception towards OT because of being part of abrupt implementation of OT due to the then prevailing circumstances when both instructors and learners did not have enough time to prepare for OTL (Önal & Özdemir, 2021) and some had challenges related to resources (Umit & Sezginsoy, 2021).

Reporting on their perceptions concerning online assessment feasibility for science, PSTs held strong beliefs that online assessment cannot adequately meet demands of meaningful assessment of science; both summative and formative assessments. PSTs made assertions that online assessment of science may lack authenticity as some skills may not be adequately assessed virtually and the practical aspects suffer the most. They further argued that online assessment is highly susceptible to malpractice and technological clichés which negatively affect its administration. They further highlight challenges with reflection on tasks when online mode is adopted for science. These findings are in agreement with Zylfiu & Rasimi (2020; Yıldırım, 2022) who highlighted that meaningful assessments may be a challenge during online teaching. Therefore, it may be helpful to engage a variety of assessment modes for OTL that would meet demands of science encompassing theoretical as well as practical aspects. However, as Yıldırım, (2022) pointed out, some PSTs optimistic notions argue for improvement of online systems and gatekeeping procedures when administering online assessment for it to be as meaningful as physical assessment.

Analysis of PSTs perceptions about their readiness to teach online after their emergency participation in OTL revealed a low self-efficacy for almost all them. Their most cited

arguments were that they did not have adequate time to fully understand how to determine if it would work for teaching of science; they anticipate it to be a highly specialised mode that needs special form of training. These findings are in contradiction to Ardiyansah, (2021) who reported that participants' exposure to online learning was responsible for their high levels of self-efficacy to study through OTL and to employ OTL as teachers. However, participants in Ardiyansah (2021) "...had proper technical equipment, and they were equipped with good quality of technical skills for teaching online" (p.97) indicating preparedness prior to the participation in OTL, while participants in this study had challenges with equipment and technical skills to fully engage in OTL as there was no preparation for this mode of teaching. A comparison depicted in Figure 1 show some positive relationship between experience and perceptions of PSTs. These summarises DeCoito & Estaiteyeh (2022) point that the kind of experience pre-service teachers have during training has a bearing on how they formulate their perceptions. Despite their scepticism towards OTL in science, PSTs acknowledge that they had acquired skills on how to search for information from the internet, appreciate research (Farrah & Al-Bakry, 2020) as well as some basic knowledge about affordances and constraints of OTL.

Conclusions

The anchoring problem under investigation in this study was about PSTs who had no to little experience of OTL but who had to, without other alternatives, access learning through online modes during Covid 19 pandemic. The findings from this study provide some indication that the status of OTL in relation to infrastructure and how it is implemented can promote positive or negative perceptions in pre-service teachers about OTL. This was demonstrated by PSTs perceptions that there were more teaching and learning challenges than affordances. As a result, PSTs to a large extent made strong arguments that OTL may not satisfactorily meet demands of science teaching and learning. Nonetheless, there are more opportunities tied to OTL when well-planned, provided with resources and strategically implemented. As suggested by some PSTs, these opportunities include promotion of self-regulated learning, promotion of research and provision of an alternative mode of access to education. Overall, it could be argued that if the experience during OTL does not prove to be effective in learning and in line with pre-service teachers' expectations, they are more likely to perceive it negatively and rate it low on PU and PEU and eventually show scepticism to implement it in their future practice.

Limitations

Even though important insights could be derived from the study findings, some limitations should also be stated, viz, the study only focused on a small purposive and convenient sample which made it challenging to engage robust statistical analysis of data. Consequently, the data collected may not be simply generalised to a wider population of science pre-service teachers. Nonetheless, it could still provide some useful insights to contexts similar to that of the study and beyond. Furthermore, the study findings could have also been influenced by other factors associated with the way OTL was introduced as an emergency remote teaching and learning intervention, rather than a planned initiative.

Recommendations

The study recommends that pre-service teachers should be given adequate experience and support with OTL so that, in case of emergencies, and even under normal circumstances, they have some required experience to employ OTL. As alluded to by Modise (2020), findings of this study further lead to a recommendation that institutions should exploit the space of OTL by investing in infrastructure as well as technical repertoire for both instructors and their students' clientele. Teachers' possession of digital skills and how to facilitate teaching and

learning across online platforms is an essential skill for the 21st century when the world is rapidly embracing affordances of information and communication technology in most sectors for betterment of societies and schools are not an exemption. However, challenges associated with OTL should not be overlooked in the process (Herkulaas & Oosthuizen, 2020). Lessons learned from OTL during the covid-19 pandemic could provide insights into how students and instructors could be equipped with technological skills as well as collaboration skills in remote environments (Samortin et al., 2022).

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Imagined Strategies in Managing Learner Behaviour in Schools *

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***Abstract*:** The purpose of this study is to look into and examine the ways that instructors might use to manage pupil discipline in secondary schools in Namibia's Hardap region. In this investigation, a qualitative case study design was used. Six secondary schools provided information. Data for this study was acquired from 24 participating teachers at six secondary schools via semi-structured individual interviews and an open-ended questionnaire. The investigation revealed referrals, detention, expulsion, and suspension as strategies used by teachers in managing learner discipline in their respective schools, as well as talking to learners, violation system, involving learners in the drafting of school and classroom rules, involvement of other stakeholders, and disciplinary committee. After the ban on corporal punishment in schools, it became critical to learn what tactics teachers are adopting to discipline students, according to the findings of this study. Evidence-based disciplinary tactics or interventions should be employed to address the problem of lack of learner discipline, according to the authors.
***Keywords**:* Strategies, Teachers, Learner, Behaviour, Secondary schools.

* The article was written based on the first author's PhD thesis.
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Introduction

According to Donnely (2018), general learner discipline issues, including school-based violence, are a problem that plagues most of the developing world, where most countries have abolished corporal punishment in schools in line with human rights agendas, but teachers struggle to implement alternative peaceful discipline measures. Many African countries that are UN member states have made it illegal to use corporal punishment in schools as a condition of fulfilling the act of declaration of human rights (Mushaandja, 2016). Following the shift in the educational system, Namibia, as a UN member state, prohibited corporal punishment in all Namibian schools in 1990, in accordance with the constitution. In this regard, all teachers must use various alternatives to corporal punishment in schools because a learner must be disciplined or shaped to comply with the rules and social interactions, as well as develop his or her academic abilities to the fullest extent possible Makendano (2019), as stated in the legal concept "Education Act, Act 16 of 2001." The removal of corporal punishment in schools, on the other hand, has received widespread support in schools. Most of these teachers only knew corporal punishment as a method of enforcing discipline, and it instils fear in students rather than preparing them to be responsible citizens before it was abolished. Teachers are in charge of keeping discipline among their students. According to Belle (2017), learner discipline management is a complex issue that has led to the development of interventions that they can utilize in the most efficient and effective way feasible (UK department for Education, 2016). According to Jonkwiski (2019), schools must adopt the most appropriate disciplinary measures for their scenario, focusing on essential skills such as conflict resolution and problem solving to deal with unruly behavior. According to Dreikurs (1968), the key technique for correcting learners' misbehavior is to use short, obvious, and straightforward procedures. Talking with learners, determination, expulsion and suspension, violation system, referrals, stakeholder involvement, and disciplinary committee are among the main strategies that teachers develop and implement when managing learner behavior at their respective schools, according to Makendano (2019). Mwamwenda (2018) backed up this argument, arguing that the best way to rectify learner misbehavior is to jointly determine the learner's goals and come to an agreement on the learner's objectives.

Teachers had to discover, adopt, and employ different tactics because they were not allowed to physically discipline their students, according to Marrson (2018). Mushaanja (2016) stated that instead of using punishment, teachers should utilize appropriate alternatives such as detention, suspension, or referrals. According to Hubbard and Coomer (2017), teachers employ a variety of ways to deal with student behavioral concerns in schools, including referrals, counseling, and determination. According to Antonio (2017), following the abolition of physical punishment, teachers have employed different tactics such as suspension and expulsion to discipline students who have committed either significant or minor offenses. Many teachers employed referrals, counseling, and determination as possible tactics to preserve discipline in their schools, according to Amutenya (2017). According to Hamm (2019), the ministry of education should evaluate its discipline policy and apply harsher tactics to reduce the prevalence of ill-discipline in Namibian schools. According to Ooshuizen and Rossouw (2018), many teachers have employed referrals, counseling, and detention as feasible measures to maintain school discipline since physical punishment was abolished. Many studies have been conducted on the causes of student disobedience and the many management tactics used by schools to instill discipline, but little has been done on the strategies used by instructors and the factors that impact their decision. Following the ban on corporal punishment in schools, it became critical to determine what tactics teachers are employing to discipline students. According to Lilemba (2018), instructors encounter daily problems in establishing a conducive learning environment. Brunette (2018) claims that in order to address these issues, teachers must completely comprehend and employ appropriate behavior management tactics and approaches that will improve teaching and learning. Many teachers in our schools today are finding it difficult to

implement the finest discipline measures, especially since corporal punishment has been banned.

Methodology

Teachers' tactics for managing learner behavior in schools were attempted to be discussed in this study. A qualitative research approach was utilized in the study since the description of tactics to be applied by teachers in managing student behavior in schools necessitates in-depth investigation. In this study, a qualitative approach was used to investigate the strategies that instructors can employ in schools to manage student behavior. Qualitative research is a means of analyzing how people understand their experiences, arrange their worlds, and assign meaning to their experiences, according to Ürünibrahimoglu et al. (2021). They also noticed that qualitative research makes it a point to express all of the descriptive data collected for the topic at hand in its completeness and in depth.

Sample/Study Group

The research was conducted in six high schools in the Auob circuit of Namibia's Hardap Region. Some of these schools are situated in rural areas, some 100-125 kilometres from the next mayor town. Because of a lack of suitable learning equipment, some schools have a population of roughly 123 students, which is decreasing year after year. Some school classrooms are in dire need of repair. They lack basic necessities such as electricity, running water, flushing toilets, and adequate learning and teaching materials. The scope of this study was limited to one circuit (Auob) in Namibia's Hardap Region. At six selected schools in Namibia's Hardap region, the study focused on teachers' perceptions/experiences, reasons, obstacles, and techniques to be developed and implemented by teachers and school principals in managing learners' disciplinary problems. The research was limited to the Auob Circuit of the Hardap Region due to Namibia's enormous nature/physical distance, time and financial constraints. There are eighteen secondary schools in the Hardap Region, with eighteen principals and 318 teachers. Twenty-four teachers (six junior teachers, six senior teachers, six department heads, and six school principals) were chosen at random for this study.

Sampling

On the list of schools provided by the Hardap directorate of Education, Art, and Culture, one circuit (Auob) and six secondary learning sites were criterion selected for this study. They assisted in the study by providing the most essential and relevant information. Non-probability sampling was used in this investigation, and by using non-probability sampling, entities of analysis in the population do not have the same chance of being included in the sample, and occasionally have no chance at all. Because it is inexpensive and convenient, this sample (selection) strategy is commonly used in research. The qualitative research approach, which is related with the interpretative, was used in this study. By looking at the experiences of 24 teachers in their individual schools, a paradigm was developed to analyze the depth, truth, and complicity of the present tactics used by instructors in schools to preserve student behavior. Purposive sampling is adopted since the chosen individuals are key informants on the situation, and the six selected schools are potential data collection sites. The permission form was explained to and signed by the participants after receiving prior approval from the Hardap Education Director. Throughout the data collection, processing, and interpretation stages, confidentiality and anonymity were maintained. The data analysis process followed the six steps of Lodico, Spaulding, and Vaegthe (2019), which included preparing and organizing the gathered information, reviewing and exploring it, coding the information into categories, creating thick descriptions of participants, schools, and activities, developing themes, and reporting and interpreting the gathered information (Mashall & Rossman, 2018).

Data Collection

Data for this study was acquired from 24 participating teachers at six secondary schools via semi-structured individual interviews and an open-ended questionnaire. The information from the participating teachers at three secondary schools in the Auob Circuit, Hardap Region, Namibia, was gathered using an open-ended qualitative questionnaire. Open-ended qualitative questionnaires, according to Maree (2015), are the type of questionnaire that has a set of data that can be analyzed. According to Creswell (2014), open-ended qualitative questionnaires are used to support what has been discovered in the literature and to determine the reasons for the replies. During this study, an open-ended questionnaire was used to determine what teachers' perceptions, experiences, and understanding of the phenomena of learner behaviour were.

Analysis of Data

Data analysis was done during data collection in this study. Following that, data was organized and prepared for analysis by browsing through interview transcripts as well as an open-ended qualitative questionnaire and categorizing and structuring the material into categories and themes. The full data was read several times in order to gain a thorough comprehension of what it all meant. The data was classified accordingly when it was analyzed (interview transcripts and open-ended qualitative questionnaires). Data themes and sub-themes were coded in this manner. The participants' experiences are obtained through semi-structured individual interviews and an open-ended qualitative questionnaire, and then analyzed using the textual analysis method.

Findings

A safe learning environment is essential for students of all ages. Without it they are unable to focus on learning the skills which are needed for a personalised learning and life-long learning. A healthy, safe, and supportive learning environment enables students, adults, and even the school as a system to learn in powerful ways in managing learner discipline. More so, such an environment reinforces and enhances the leadership capacity in the school because competent, excellent, and dedicated teachers want to work under such conditions (Umeghalu & Onyeike, 2022). Similarly, Nunan and Ntombela (2022) found that students' challenging behavior is impacting negatively on teachers' wellbeing worldwide. Currently, teaching for some teachers in South African primary schools has become exhausting and daunting to say the least. Teachers feel that they have had enough degradation and are not receiving the respect they, as professionals, deserve. Students' relentless rampages and their refusal to listen to teachers are pushing teachers to the near brink of mental breakdown.

The findings and comments collected following the interviews with participants are reported in this section of the research, which runs concurrently with the research goals. This study gives secondary school teachers and other stakeholders the opportunity to assess the efficacy of these techniques' implementation so that they may all consider adopting more effective and positive disciplinary ways to learner discipline management. Secondary school teachers have not been efficient in controlling learner discipline, according to Ayadin (2019), because they punish and criminalize student behavior.

Referrals

According to Donnelly (2018), general learner discipline problems, including school-based violence, are a phenomenon that plagues most of the developing world, where most countries, including Namibia, have abolished corporal punishment at school in line with human rights agendas, but teachers struggle to implement alternative peaceful discipline measures. According to participant 4, a male department head at school A, he revealed that: *"Learners who misbehave or who have transgressed must be first given a warning and if it does not change, he or she is referred for counselling and then if no improvement he or she is referred to the disciplinary committee".* According to participant 8, a female head of department, commented that:

> "Because when fail as the disciplinary committee, we refer the case then to the school board to take a decision. If they also fail them, refer the issue to the Regional Director up to the permanent secretary of the line ministry for the final decision".

According to Mutte (2017), this backs up the responses of the above participants, who named referrals as one of the most effective tactics for preserving learner behavior at their individual schools. Learners with significant disciplinary problems, as well as those with medical issues such as ear and eye disorders, should be sent to medical professionals, according to the Ministry of Education (2016). Brunette (2018) suggested that if there are students with medical issues, teachers should be informed so that they are prepared to deal with such circumstances. In support with Brunette (2018), Gichohi (2015) stated that monitoring learner behavior in high learning institutions is a group responsibility rather than a one-man show. Rossouw (2018) concluded this section by stating that, since corporal punishment was abolished, many teachers have used referrals, counseling, and detention as possible strategies to maintain school discipline. Dreikurs backed up this claim by stating that the primary strategy for correcting learner misbehavior is to investigate with the learners good stimulating the learner conduct.

Detention

Detention was discovered to be one of the most effective tactics used by teachers to maintain student behavior at their separate schools during this examination. This was stated by participant 2, a female teacher from school A, who stated:

> "One of the strategies that I personally use is detention. And during this detention is where they have to do their home works, where they need to work on improving their behaviours. And all those things that they did wrong in the previous week, is what they will try to improve on during the cause of that week. And most of the learners really do not want to sit detention, so in most cases they are really well-behaving".

At school A, another male teacher (H.O.D) who is participant 4, added that:

> "At our school we use detention for misbehaving learners you see this list of kids, they are busy with detention. At this stage, they are busy with detention in the afternoons, so this is the list. From Monday to Thursday, from 3 o'clock to 5 o'clock they have to come to school and sit in one class detention and they are not allowed to do anything else rather than study. They must bring their school work and they have to study. This is what we do after every four violations, so that is the group of learners that are at this stage busy with detention".

According to Woolfolk (2018), the majority of Namibian secondary school teachers are still dealing with a lack of student discipline in their classrooms. According to Morrison (2016), teachers are not allowed to physically punish their students and are expected to design, adopt, and implement certain tactics. Detention is indicated as another approach used by the above

individuals when managing learner behavior at their different institutions, based on their responses. In support of the aforementioned, the Legal Assistance Centre (2017) noted that detention in class or after school is more useful if the learner views it as extra help offered to him or her for his or her own advantage. When it comes to detention, there are several limitations on when it can be used at school. According to Hubbard and Coomer (2017), while this has drawbacks such as requiring a teacher's presence, it also has the specific advantage of emphasizing to parents that their children have been misbehaving, and the detention serves to involve the parents in the reformatory process.

According to Mushaandja (2016), in circumstances where the criminal likes the stay-in, this kind of punishment is ineffective. Canter and Canter (1992) believe that teachers know how and when to teach good behavior, and that when students choose to breach the rules, they utilize consistent and reliable negative consequences as a last choice. Canter (1996) claimed that in order for tutors to remain assertive, they must insist on ethical, responsible behavior from their students, which is required in society. Canter and Canter (1998) stated that punishments do not need to be served in order to be successful, and that negative consequences should be applied every time a student chooses to transgress. Dreikurs (2016) emphasized that instead of using punishment, teachers should employ appropriate alternatives such as detention and suspension referrals. Mutte (2017) closed this section by stating that teachers employ a variety of techniques to deal with student behavior issues in schools, including referrals, counseling, and detention. As a result, we must constantly assess ourselves against these ideals and alter our strategies and approaches as necessary.

Expulsion and Suspension

Participants in this study listed suspension and expulsion as two techniques they employ when dealing with student misbehavior in their schools. According to a female teacher from School C, who is also a participant 12, *"At our school one of the strategies that we use is suspension, currently for this term we have suspended five of them".* In addition, participant 11, at school C, who is a female teacher, explained that:

> "At our school suspension is common, I think this week we have already have five learners, I remember the names were mentioned three boys suspended for 14 days and one is from my own class, and the two girls also suspended for 14 days".

According to Antonio (2017), once physical punishment was abolished, teachers employed various tactics such as suspension and expulsion to discipline students who had committed either significant or minor offenses. In support of Antonio (2017), Legal Assistant Centre (2018) argued that in Namibia, a student can only be suspended or expelled from school by the school authorities if the learner has committed an offense, and that this can only be done as a last resort after all other options have been exhausted. According to Mushaandja (2016), a learner may be temporarily excluded for minor offenses such as truancy or disrespect for the school authority, while major offenses such as fighting, vandalism, sexual harassment, rape, use of drugs such as marijuana, and use of weapons at school may result in permanent exclusion. According to Lilemba (2018), in Namibia, only the office of the education director has the authority to expel a student from school temporarily, while the lime ministry's executive director has the authority to expel a student permanently (Antonio, 2017). Surprisingly, school principals are suspending students from school without the knowledge of the office of the education directors or the lime ministry. In support of the aforementioned, Amutenya (2016) recommended teachers and school principals to cease from such actions with immediate effect. According to Cloete (2019), six grade 7 boys were suspended from Kronlein Primary School in Keetmanshoop after they were allegedly spotted smoking dagga on the school grounds.

Talking to Learners

After the use of the cane was made illegal in 1990, participants' comments revealed that one of the tactics they employ to preserve learner behavior in their schools is talking to students. Participant 1, a female teacher at school A, for example, explained:

> "As part of your strategies, what I usually do is I take them outside talk to them privately telling them that we are going to the principal's office now. Then I just take him or her outside the class and I will tell him/her what you did now in my class is wrong and you are hurting my feelings, and I have never done something wrong against you, why are you doing that to me? I believe in you why do you not believe in yourself to be disciplined in my class? After talking to him/her then we come back and I say: now this is behind us, we are going to move forward".

According to Rossouw (2018), the teacher must speak individually with the student to determine the reason for such behavior, and he advises teachers to work together to solve the problem and find an acceptable solution. According to Curwin and Mendler (2018), conversation is used to work out a problem with the learner, and it is the most democratic technique to solve difficulties. Furthermore, participant 2, a male teacher at school A, stated:

> "Then if I have identified some learners who are seriously causing problems, I would call them aside after the period and talk to them and see what the root cause of this behaviour is. Then advise them and motivate them to focus on their future life by taking their education seriously".

Brunette (2017) emphasized that if a student misbehaves, a teacher should pull that student aside and try to talk to them discreetly. She also advises teachers against reprimanding unruly students in front of the class because this can make them hostile. Dreikurs (1968) backed up this argument, suggesting that the best way to remedy learner misbehavior is to investigate with the learners' gaol and stimulate their behavior. Dreikurs (2016) recommended instructors and students to collaborate while solving difficulties in order to build their relationships. Mwamwenda (2018) expanded on Dreikurs (2016)'s positive suggestions, arguing that teachers should let the offending student know that they are trusted, and that mistakes are valuable in learning. When talking to students, Mohapi (2013:40) recommended teachers to say things such, "You've improved, what did you learn from that mistake?"

Violation System

Because the use of cane has been prohibited in all Namibian schools since 1990, specific procedures should be employed by teachers in order to preserve pupil behavior at their respective schools, one of which is the demerit system. Participant 4, a male teacher at school a, stated:

> "We have a violation system as part of our strategy, that after four violations the kid has to be called by the school management and he/she are sent for detention you see this list of kids at this stage they are busy with detention in the afternoons".

Another male teacher participant 6 at school B added that:

> "Like I said earlier at our school, we have a violation system to control the behaviour of learners, like late coming or not doing homework. That is one of the systems we are using in order to ensure that we are consistent in administering the disciplinary issues at the school".

According to Mwamwenda (2018), the demerit system is a system in which students accumulate points or marks for various offenses such as tardiness, class disruptions, truancy, wandering around the school aimlessly, or any other misconduct. Brunette (2018), on the other

hand, defined the demerit system as a system in which a student who commits any transgression files a report as a way of maintaining student behavior, and when the report reaches a certain number of points (300 points), the student is either suspended or expelled from school. Mushaandja (2016) argued, based on Dreikurs' findings, that chastisement is a technique of assisting learners to improve their behavior rather than a punishment. Dreikurs (2016) emphasized appropriate options and that responsibility for individual acts is learned through accommodating the typical or related consequence through these behavioral choices. Dreikurs (1971) offers a number of other specific suggestions for how teachers should engage with students, emphasizing that instead of using punishment, teachers should utilize other approaches such as the demerit system and encouragements. In support of Dreikurs (1971), Glasser (2009) believes that chastisement should not be employed and instead encourages teachers to adopt non-forced discipline methods such as enragement and the demerit system. According to Glosser's theory of choice, enragement and the demerit system are two of the most essential tools that teachers can employ to help students improve their self-discipline. Moral values are values that deal with human behavior, prescribing how people should act and distinguishing between right and bad behaviors. Moral values, according to Lilemba (2018), are things that are good and right on moral grounds. This covers things like telling the truth, following through on promises, and other morally acceptable behaviors in society. Teachers are expected to instill values in their students as a means of developing their character. Without values, discipline will be impossible to achieve, because values develop character and allow students to distinguish between correct and incorrect behavior. Teachers have been known to embarrass their profession by binge drinking or engaging in romantic relationships with students. According to Yaghambe (2017), instructors must project the image of a well-educated, well-mannered, well-dressed, disciplined, and healthy individual. As a result, it is critical that the teacher be flawless in performing the national anthem or that she set a good example at all times (Lilemba, 2018). Nothing teaches mature behavior to a learner better than modeling it yourself. As a result, the purpose of school teachers is to instill values and serve as positive role models for their students (Ndakwa, 2016).

Involvement of Other Stakeholders

According to the findings of this investigation, including other stakeholders is another approach that participants employ to improve learner discipline at their schools. This was clearly recognized by participant 13, a school principal from school D, who stated:

> "As part of our strategies we involve other education stake holders such as the school counsellors, school board members, disciplinary committee members, police, parents of the concerned learners, motivational speakers from outsider, and people from the gender and child welfare ministry, psychologists from the ministry of health and learners' representative council members (L.R.C's)''.

According to Participant 20, a male teacher at school E, explained that:

> "At the beginning of the year, we always include other stake holders such as learner representative council (L.R.C's), school board, school counsellors and disciplinary committee members, when formulating set of school laws and regulations."

Maintaining learner discipline in school, according to Makendano (2016), is not a one-man show; it necessitates a collaborative effort from other interested stakeholders in education such as religious leaders, security forces, parents, psychologists, learners, doctors, teachers, school counsellors, disciplinary committee members, school board members, and the Education Ministry. In this vein, the replies of the aforementioned participants appear to show that including other stakeholders is one of the finest ways they use to preserve learner behavior at their schools. According to Meador (2017), it is the indomitable obligation of all stakeholders to

enhance the learning environment and preserve the school community. In support of Meador (2017), Gichohi (2015) stated that managing learner behavior in higher learning institutions is a difficult task that requires the participation of everyone. It goes without saying that everyone involved in the education of learners in a school must work together and have a common understanding when it comes to disciplinary issues. As evidenced by the literature, all stakeholders, including parents, students, teachers, counselors, and police, must collaborate in order to maintain a school as a place where good teaching and learning may take place. The need of motivating all stakeholders in school by involving them in decision-making regarding issues connected to learner behavior was acknowledged by Glasser's theory of choice (Aboluwadi, 2015). Non-forced discipline is at the heart of the Glasser theory of learning behavior. He shows misbehavior as a bad option and correct behaviour as a good one, and he encourages teachers to establish classroom rules (together with the consequences for breaking them) and to engage students in this course. According to Glasser, Lilemba (2018), the ideal of quality education cannot be realized without the active participation of all stakeholders in education. In support of Lilemba (2018), Mushaandja (2016) believes that Glasser's choice theory of the necessity acknowledges the significant power of inspiring learners in schools as well as involving them in making decisions about matters linked to their discipline.

To be able to engage in free learning, Amutenya (2016) thought that learners must be permitted to discover ways to achieve self-actualisation, self-assurance, and self-improvement through the choice theory. As a result, a combination of excitement and counseling for students may be appropriate for working with difficult students at school. Furthermore, Hamm (2018) indicated that incorporating other stakeholders, such as students, is one way to reduce violence in schools and reduce the number of dissatisfied students. Stakeholders such as learners, teachers, parents, teacher counsellors, members of the security services, and school board members, according to Kapueja (2014), should be part of education transformation in their schools because their key tasks are laid out. Given the failure of the line ministry, in particular, to change the education policy on discipline and apply stronger tactics to reduce positive annoyance in all Namibian educational institutions (Cawood, 2017).

Involving Learners in Drafting of School and Classroom Rules

Managing student discipline necessitates including students in the creation of school/classroom norms. Teachers usually design and implement classroom and school regulations with their students during the first week of the school year. The views expressed above are consistent with those expressed by participant 7, a female teacher from school B, in an open-ended qualitative questionnaire explaining that, *"Including the learners during formulating of school regulations is significant in managing ill-discipline in our schools and study classrooms".* This allows teachers to tell students when they make a mistake, which helps to maintain discipline. The school and classroom regulations serve as a guideline for both teachers and students in preserving proper school behavior. There should be standards in place at school and in the classroom to guide students' behavior; otherwise, there would be chaos and confusion. Another participant 4, a male department head at school A, made the following observations:

> "We should make our learners to participate in formulating/drafting of school and classroom rules as this will make them feel valued recognised and allow them to take more responsibility and ownership of these rules".

As a result, it's critical that students participate in the creation of both school and classroom norms. According to Koki (2015), one of the finest techniques teachers may use to manage learner behavior in schools is to involve students in the creation of school and classroom rules and regulations. Teachers and students must collaborate while designing,

managing, and revising school rules, according to Mushaandja (2016). Learners will generally only follow rules that they have devised in this regard. According to participant 12, a male administrator from school C, the following statements were made: *"Our learners should be freely engaged in drafting school rules and when designing decisions that directly affect them".* Woolfolk (2016) suggested that if students engage in the creation of school and classroom rules, they will be more likely to obey such rules than regulations imposed on them by authority. Antonio (2017) urged teachers to avoid making too many because students may find it difficult to recall them all and, as a result, will be less likely to take them seriously. Mushaandja (2016) and Dreikurs (2016) urged teachers and students to collaborate at the start of the school year to plan their school and classroom norms, as well as the consequences that come with them. According to Mohapi (2013), when students are involved in crafting the rules, they would receive a better education because incorrect discipline will be reduced.

Disciplinary Committee

The disciplinary committee was recognized as the best committee with mandatory power to deal with hearings of disciplinary problems of all those-ill-disciplined learners at their schools, according to the responses of the participants in this survey. Every school is expected to have a committee to deal with all learner misbehavior at their schools, according to Namibia's Education Act, Act no 16 of (2001). Participant 22 is a female teacher from school F who explained:

> "We have developed a disciplinary committee which is mandated to deal with the disciplinary problems of all those ill-discipline learners, where ill-disciplined learners and their parents are called in for hearing and keep records of all learner transgressions."

According to another female teacher who is participant 16, at school D, added that: *"As part of our strategy, misbehaving learners are referred to the disciplinary committee before that particular learner is referred for counselling''.* Brunette (2018) backed the committee set up to deal with student disciplinary issues in schools. Teachers, according to Mohapi (2007), have the right to utilize basic and clearly stated rules, processes, and penalties for learners to understand. In agreement with Mohapi (2007), Streere (2018) believes that sanctions should be administered through a disciplinary structure. Canter (1997) believes that teachers determine how and when to instill good behavior, and that when students choose to breach these laws, they apply consistent and reliable harmful consequences as a last choice. Canter (1996) suggested that in order for educators to be forceful, they must insist on correct accountable behavior from their students, which is demanded by all stakeholders, including parents, students, and the general public. The assertive theory of canter provided a system for dealing with inappropriate behavior as it occurred; this distinguishes it from other conceptions of discipline. Rather than making value judgments about the learner's personality, the discipline theory focuses on the learner's actions. This idea, according to Andruis (2014), provides a highly effective form of corrective discipline. This also assists instructors in obtaining support from school administration and parents prior to the first day of implementing the plan. Anayo (2014) emphasized that whatever behavior control system a teacher wishes to use must first be discussed with the school administration, as both the administration and the parents should be aware of the proposed method. This will allow parents to understand the teacher's perspective on the importance of noble behavior and its impact on teaching and learning. In support of Anayo (2014), Curwin and Mendler (2018) stated that disciplining with dignity is a beneficial means of assisting proper classroom management, and that the core of punishment with dignity is instruction and building responsible human behavior. Curwin and Mendler's hypothesis helps the investigator in comprehending how teachers can discipline their students while maintaining their self-respect as humans. Mendler and Curwin used the term dignity to convey the importance they place on human life. They claim that the school exists more for the benefit of the students than for the

benefit of the professors (Mohapi, 2013). As a result, it's becoming increasingly vital to devise strategies for preventing discipline issues while also preparing for how to deal with misbehavior if it arises.

Discussion

The goal of this article is to establish the tactics that secondary school instructors in Namibia's Hardap region are currently using to preserve learner discipline and to critically evaluate their success. The data identified eight disciplinary tactics that teachers frequently use in regulating student discipline in their classrooms. Teachers can use a variety of ways to deal with student behavior issues in the classroom (Mutte, 2017). According to Frels (2019), the proactive discipline tactics listed below should be considered for the control of student behavior in schools and classroom situations. Teachers are expected to guide students toward adjudicating their own conduct rather than passing judgment on the actions of others, which encourages students to examine their own behavior (Zaibert, 2016). Teachers should focus on supporting students in accepting responsibility in this area (Ramsey, 2018).

Parental involvement in school activities and aid with their children's homework can help children's academic progress as well as their home-school relationships (Mushaandja, 2018). Teachers should assist in coordinating paternal involvement in school activities. Parents are stated to be essential postures in their children's education and success in life, according to Oosthuizen and Rossouw (2018). According to Woolfolk (2018), the influence of parents is another factor that encourages youngsters to act immorally.

According to Donnelly (2018), general learner discipline problems, including school-based violence, are a phenomenon that plagues most of the developing world, where most countries, including Namibia, have abolished corporal punishment at school in line with human rights agendas, but teachers struggle to implement alternative peaceful discipline measures. "Learners who misbehave or who have transgressed must first be given a warning, and if it does not alter, he or she is recommended for counselling, and if there is no progress, he or she is referred to the disciplinary committee," said participant 4, a male head of department at school A. "Because when we fail as the disciplinary committee, we bring the case to the school board to make a decision," said participant 8, a female head of department. If they fail them as well, refer the matter to the Regional Director, who will make the final judgment, up to the Permanent Secretary of the line ministry." According to Mutte (2017), this backs up the responses of the above participants, who named referrals as one of the most effective tactics for preserving learner behavior at their individual schools. Learners with significant disciplinary problems, as well as those with medical issues such as ear and eye disorders, should be sent to medical professionals, according to the Ministry of Education (2016). Brunette (2018) suggested that if there are students with medical issues, teachers should be informed so that they are prepared to deal with such circumstances. In support with Brunette (2018), Gichohi (2015) stated that monitoring learner behavior in high learning institutions is a group responsibility rather than a one-man show. Rossouw (2018) concluded this section by stating that, since corporal punishment was abolished, many teachers have used referrals, counseling, and detention as possible strategies to maintain school discipline. Dreikurs backed up this claim by stating that the primary strategy for correcting learner misbehavior is to investigate with the learners good stimulating the learner conduct.

According to Woolfolk (2018), the majority of Namibian secondary school teachers are still dealing with a lack of student discipline in their classrooms. According to Morrison (2016), teachers are not allowed to physically punish their students and are expected to design, adopt, and implement certain tactics. Detention is indicated as another approach used by the above

individuals when managing learner behavior at their different institutions, based on their responses. In support of the aforementioned, the Legal Assistance Centre (2017) noted that detention in class or after school is more useful if the learner views it as extra help offered to him or her for his or her own advantage. When it comes to detention, there are several limitations on when it can be used at school. According to Hubbard and Coomer (2017), while this has drawbacks such as requiring a teacher's presence, it also has the specific advantage of emphasizing to parents that their children have been misbehaving, and the detention serves to involve the parents in the reformatory process.

According to Mushaandja (2016), in circumstances where the criminal likes the stay-in, this kind of punishment is ineffective. Canter and Canter (1992) believe that teachers know how and when to teach good behavior, and that when students choose to breach the rules, they utilize consistent and reliable negative consequences as a last choice. Canter (1996) claimed that in order for tutors to remain assertive, they must insist on ethical, responsible behavior from their students, which is required in society. Canter and Canter (1998) stated that punishments do not need to be served in order to be successful, and that negative consequences should be applied every time a student chooses to transgress. Dreikurs (2016) emphasized that instead of using punishment, teachers should employ appropriate alternatives such as detention and suspension referrals. Mutte (2017) closed this section by stating that teachers employ a variety of techniques to deal with student behavior issues in schools, including referrals, counseling, and detention. As a result, we must constantly assess ourselves against these ideals and alter our strategies and approaches as necessary.

It's a good idea to organize youngsters in a U-Shape or in separate groups so that they can see, hear, and converse. Desks can be moved to the back of the class and chairs can be positioned in a semicircle in front of the class when the teacher is demonstrating something (Lilemba, 2015). According to Antonio (2017), once physical punishment was abolished, teachers employed various tactics such as suspension and expulsion to discipline students who had committed either significant or minor offenses. In support of Antonio (2017), Legal Assistant Centre (2018) argued that in Namibia, a student can only be suspended or expelled from school by the school authorities if the learner has committed an offense, and that this can only be done as a last resort after all other options have been exhausted. According to Mushaandja (2016), a learner may be temporarily excluded for minor offenses such as truancy or disrespect for the school authority, while major offenses such as fighting, vandalism, sexual harassment, rape, use of drugs such as marijuana, and use of weapons at school may result in permanent exclusion. According to Lilemba (2018), in Namibia, only the office of the education director has the authority to expel a student from school temporarily, while the lime ministry's executive director has the authority to expel a student permanently (Antonio, 2017). Surprisingly, school principals are suspending students from school without the knowledge of the office of the education directors or the lime ministry. In support of the aforementioned, Amutenya (2016) recommended teachers and school principals to cease from such actions with immediate effect. According to Cloete (2019), six grade 7 boys were suspended from Kronlein Primary School in Keetmanshoop after they were allegedly spotted smoking dagga on the school grounds.

According to Rossouw (2018), the teacher must speak individually with the student to determine the reason for such behavior, and he advises teachers to work together to solve the problem and find an acceptable solution. According to Curwin and Mendler (2018), conversation is used to work out a problem with the learner, and it is the most democratic technique to solve difficulties. "Then, if I have recognized some learners who are significantly generating problems, I would call them aside after the period and talk to them and determine what the main reason of this behavior is," said participant 2, a male teacher at school A. Then counsel and encourage them to concentrate on their future by taking their studies seriously."

Brunette (2017) emphasized that if a student misbehaves, a teacher should pull that student aside and try to talk to them discreetly. She also advises teachers against reprimanding unruly students in front of the class because this can make them hostile. Dreikurs (1968) backed up this argument, suggesting that the best way to remedy learner misbehavior is to investigate with the learners' gaol and stimulate their behavior. Dreikurs (2016) recommended instructors and students to collaborate while solving difficulties in order to build their relationships. Mwamwenda (2018) expanded on Dreikurs (2016)'s positive suggestions, arguing that teachers should let the offending student know that they are trusted, and that mistakes are valuable in learning. When talking to students, Mohapi (2013) recommended teachers to say things such, "You've improved, what did you learn from that mistake?"

According to Mwamwenda (2018), the demerit system is a system in which students accumulate points or marks for various offenses such as tardiness, class disruptions, truancy, wandering around the school aimlessly, or any other misconduct. Brunette (2018), on the other hand, defined the demerit system as a system in which a student who commits any transgression files a report as a way of maintaining student behavior, and when the report reaches a certain number of points (300 points), the student is either suspended or expelled from school. Mushaandja (2016) argued, based on Dreikurs' findings, that chastisement is a technique of assisting learners to improve their behavior rather than a punishment. Dreikurs (2016) emphasized appropriate options and that responsibility for individual acts is learned through accommodating the typical or related consequence through these behavioral choices. Dreikurs (1971) offers a number of other specific suggestions for how teachers should engage with students, emphasizing that instead of using punishment, teachers should utilize other approaches such as the demerit system and encouragements. In support of Dreikurs (1971), Glasser (2009) believes that chastisement should not be employed and instead encourages teachers to adopt non-forced discipline methods such as enragement and the demerit system. According to Glosser's theory of choice, enragement and the demerit system are two of the most essential tools that teachers can employ to help students improve their self-discipline.

Maintaining learner discipline in school, according to Makendano (2016), is not a one-man show; it necessitates a collaborative effort from other interested stakeholders in education such as religious leaders, security forces, parents, psychologists, learners, doctors, teachers, school counsellors, disciplinary committee members, school board members, and the Education Ministry. In this vein, the replies of the aforementioned participants appear to show that including other stakeholders is one of the finest ways they use to preserve learner behavior at their schools. According to Meador (2017), it is the indomitable obligation of all stakeholders to enhance the learning environment and preserve the school community. In support of Meador (2017), Gichohi (2015) stated that managing learner behavior in higher learning institutions is a difficult task that requires the participation of everyone. It goes without saying that everyone involved in the education of learners in a school must work together and have a common understanding when it comes to disciplinary issues. As evidenced by the literature, all stakeholders, including parents, students, teachers, counselors, and police, must collaborate in order to maintain a school as a place where good teaching and learning may take place.

The need of motivating all stakeholders in school by involving them in decision-making regarding issues connected to learner behavior was acknowledged by Glasser's theory of choice (Aboluwadi, 2015). Non-forced discipline is at the heart of the Glasser theory of learning behavior. He shows misbehavior as a bad option and correct behaviour as a good one, and he encourages teachers to establish classroom rules (together with the consequences for breaking them) and to engage students in this course. According to Glasser, Lilemba (2018), the ideal of quality education cannot be realized without the active participation of all stakeholders in education. In support of Lilemba (2018), Mushaandja (2016) believes that Glasser's choice theory of the necessity acknowledges the significant power of inspiring learners in schools as

well as involving them in making decisions about matters linked to their discipline. To be able to engage in free learning, Amutenya (2016) thought that learners must be permitted to discover ways to achieve self-actualisation, self-assurance, and self-improvement through the choice theory. As a result, a combination of excitement and counseling for students may be appropriate for working with difficult students at school. Furthermore, Hamm (2018) indicated that incorporating other stakeholders, such as students, is one way to reduce violence in schools and reduce the number of dissatisfied students. Stakeholders such as learners, teachers, parents, teacher counsellors, members of the security services, and school board members, according to Kapueja (2014), should be part of education transformation in their schools because their key tasks are laid out. Given the failure of the line ministry, in particular, to change the education policy on discipline and apply stronger tactics to reduce positive annoyance in all Namibian educational institutions (Cawood, 2017). As persons acting in loco parentis, teachers have a significant role to play in creating a secure learning environment in order to promote effective instruction, which is the school's core duty (Belle, 2017).

Dean (2018) emphasizes the importance of a positive and friendly interaction between a teacher and a student. According to Dean (2018), every learner should feel accepted, and the teacher should be interested in each learner's growth. The student-teacher interaction should also be healthy. A pupil who is frequently mocked or beaten is terrified and loses focus in class. Friendship among students should be encouraged and fostered by teachers. According to Smith (2019), as a teacher in the classroom, you should be aware that you are working with students that have unique variances that affect their classroom performance. Every child in the classroom should be treated with respect and provided for. Make use of courteous language. This aids in the creation of a conducive environment for teaching and learning. Learners are individuals with their own preferences, dislikes, interests, and emotions. Some are quick to understand things, while others are difficult to learn. When working with students, all of this should be considered. Many teachers, according to Jackson (2018), forget that it is the teacher, not the students, who is to blame when students get everything wrong. If the student hasn't picked up anything, it's because the teacher hasn't taught.

Results

Punitive tactics do not add considerably to positive learner discipline, according to the findings of this study. It is clear from a critical examination of their implementation that secondary school teachers should reconsider their current techniques in order to fulfill their essential duties and obligations in controlling student behavioural problems in secondary schools. They must employ the most effective management practices that have proven successful in the industrialized world.

The teacher cannot succeed in the classroom on her or his own; she or he requires the involvement of other stakeholders as well as the school's immediate outside community. This is due to the fact that learner discipline is a complicated and diverse issue (Belle, 2017). One of the most effective techniques teachers may use to reduce student behavior in schools is to involve students in the creation of school rules and regulations. Koki (2015). Woolfolk (2015) proposes a package of laws aimed at secondary school students: Bring all of the things you'll need to class. The type of pen, pencil, paper, note book, and text books must be specified by the teacher. When the bell rings, get in your seat and get ready to work. When the bell sounds, many professors combine this regulation with a normal class routine, such as a warm-up exercise on the board or a requirement that students have paper with a correct heading available. Everyone should be treated with respect and politeness. Fighting, verbal abuse, and general mischief are examples of this. The teacher is included in this group. Respect the property of

others. Teachers are encouraged to engage in democratic interactions with students. In this approach, instructors should act as facilitators rather than masters in the classroom. This is in line with Charles (2017), who advised teachers to employ democratic leadership styles in the classroom and discouraged teachers from using autocratic leadership styles. As a result, teachers must provide firm direction but not encouraging disobedience (Sonn, 2016), and students should be permitted to make decisions while simultaneously being informed that they are expected to take responsibility for their actions and face the consequences. Learners will develop self-discipline in this manner (Cotton, 2016; Griffin, 2017).

Conclusion and Suggestion

The way stakeholders view the concept of learner discipline and the tactics they use to effectively manage this challenge should alter.

Traditional approaches to learner disciplinary management should give way to proactive rather than reactive approaches. To address the problem of a lack of discipline, it is advised that evidence-based disciplinary measures or interventions be implemented.

The Ministry of Education, Arts, and Culture should ensure that all discipline policies are amended or replaced with new ones that provide clear, effective, and straightforward alternatives to corporal punishment, assisting school administrators in dealing properly and effectively with learner disciplinary problems in schools, which has become a source of concern for all stakeholders.

At the pre-primary, secondary, and university levels, the Ministry of Art, Culture, and Education should update the curriculum and introduce subjects such as religious and moral education. Teachers should go to the homes of their students to see how they live. Makendano (2019) emphasizes that this will allow teachers to gain a better understanding of their students' familial backgrounds and better manage them.

Teachers should include students and their parents in the development of school and classroom regulations. "Curriculum and educational interventions that have been proved to be helpful for most learners based on scientific research that use empirical methodologies, including rigorous and appropriate data analysis, have been applied to a large study sample and are repeatable," according to the definition (Belle, 2017). Adopting and implementing researched-based tactics that have proven to be successful elsewhere is always prudent and wise, yet they must be contextualized to be effective. The Ministry of Education, Art, and Culture should assess how far they can be implemented within the current legislative and political framework. Furthermore, not only learners' rights should be protected by the law, but teachers' duties and responsibilities should also be educated by the law, particularly when living in the social setting of their schools.

Antonio (2018) suggests that the ability to help learners learn and monitor their progress be monitored, and that learners' learning needs be monitored and that learners be given the opportunity to speak or read while the instructor listens intently, so that the teacher can correct the learner. The most effective technique to keep track of development is to grade students' work (Mushaandja, 2016). This aids teachers in identifying students who require encouragement and counseling. There should be some kind of record keeping (Brunette, 2017).

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Investigation of the Effects of School Principals' Instructional Leadership Behaviors on Teachers' Self-Efficacy According to Teachers' Views

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Abstract: The aim of this study is to determine the relationship between school administrators' instructional leadership levels and teachers' self-efficacy perception levels according to teachers' views. 334 teachers working in primary and secondary schools participated in the research carried out with the correlational survey method. In this study, the MANOVA test was used to examine the views on the sub-dimensions of the scales according to the variables and Pearson correlation was used. Also multiple regression analysis was used to determine the level of the relationship. When the results obtained from the research were evaluated in terms of teachers' self-efficacy perceptions, it was seen that there was no significant difference between the groups in terms of gender and age variables. However, it was observed that there was a significant difference between the groups in terms of school type and seniority variables ($p<.05$). When the results of the research on the instructional leadership scale were examined, it was concluded that there was no significant difference between the groups in terms of seniority variable ($p.>05$), but there was a significant difference in sub-dimensions in terms of gender, school type and age variables. When the Pearson correlation results of this study were examined, it was concluded that there were relations at different levels in terms of various variables. The results of multiple linear regression analysis also showed that there is a significant relationship ($R=.217$; $R2= .047$) between instructional leadership sub-dimensions and teacher self-efficacy. It was concluded that three sub-dimensions explained 4.7% of teachers' self-efficacy.

Keywords*:* Instructional Leadership, Self-efficacy, School Principals, Teachers.

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Introduction

One of the prerequisites for performing qualified studies in schools is that the administrators in charge of the school have the qualifications of instructional leadership. In this context, instructional leadership requires that the school administrator and school stakeholders other than himself be recruited (Şişman, 2011; Kiraz, 2022).

It has been determined that school administrators who have instructional leadership skills become a model for students, teachers and parents by guiding them, and studies show that there is a positive relationship between increasing the academic success of the school and school administrators having instructional leadership and other leadership qualities (Yılmaz & Kurşun, 2015). It is thought that there is a direct proportion between the school administrators developing their schools in accordance with their goals, managing the school with this awareness, and knowing the management concepts and processes well and instructional leadership (Bursalıoğlu, 2000). The majority of a school principal's time, it was claimed, is spent on administrative tasks rather than instructional activities. Additionally, it was claimed that school principals placed less emphasis on extracurricular activities, teacher development and training, the availability of instructional resources, and the preservation of instructional time (Marks & Printy, 2003).

Two duties of school administrators, namely administrative and cultural dimensions, are mentioned. While cultural duties, including instructional leadership, include studies aimed at improving student achievement and gaining family and community support, administrative studies cover the relations of the school with the upper units and the works related to the building and facility (Şişman, 2002). Instructional leadership, a concept that has been brought to the literature with the examination of successful schools since the 1980s, is generally defined as the ability of school administration and teachers to influence school-related stakeholders (Camgöz et al., 2022). Although school administrators have various leadership styles, it is stated that the type of leadership that contributes the most to school success is instructional leadership, thus changing the traditional role of the school principal (Oğuzer & Ozkan, 2022). Therefore, school administrators, teachers, educational goals, curricula, evaluation of instruction, etc. requires an active cooperation on issues such as (Kiraz, 2021). School administrators with instructional leadership are aware of the school mission, attach importance to professional development and strive to create a positive school climate (Tatlılıoğlu & Okyay, 2012). However, it is stated that individuals with self-efficacy have more effective leadership characteristics (Tschannen-Moran & Gareis, 2004; Ramchunder & Martins; 2014). Bandura (2001) also stated that perceived efficacy is very important on an individual's work. Paglis and Green (2002) stated that school principals with high self-efficacy strive to exert effective leadership behaviors, and at the same time, they strive to improve teachers' work success and students' academic work. In this context, the instructional leadership of school administrators and teachers' self-efficacy are of great importance. In this context, it is aimed to determine the relationship between school administrators' instructional leadership levels and teachers' self-efficacy perception levels according to teachers' opinions. For this, the following questions of the study were tried to be answered.

1. Is there a significant difference between teachers' self-efficacy levels in terms of gender, school type, seniority and age variables?
2. According to teachers' opinions, is there a significant difference between school administrators' levels of instructional leadership in terms of gender, school type, seniority and age?

3. According to teachers' opinions, what level of relationship is there between school administrators' instructional leadership and teachers' self-efficacy perception levels in terms of variables?
4. According to teachers' opinions, is the instructional leadership of school administrators a significant predictor of self-efficacy perception levels?

Methodology

Model of the Research

This study was carried out with the relational survey model, which is one of the quantitative research types. In order to reach a conclusion about a universe consisting of many elements with the general scanning model, it is aimed to determine whether the variables have changed in the relational scanning model, and if there has been a change, in what way it has taken place (Karasar, 2011).

Sample

The sample of this research consists of classroom and branch teachers in primary and secondary schools in the center of Elazig in 2022-2023. 334 teachers participated in the research. Descriptive data regarding the demographic characteristics of the sample are given in the tables below:

Table 1
Distribution by gender

Gender	**n**	**%**
Female	165	49.4
Male	169	50.6
Total	334	100

While 165 (49.4%) of the teachers participating in the research were female teachers, 169 (50.6%) were male teachers.

Table 2
Distribution by school type

School type	**n**	**%**
Elementary School	160	47.9
Secondary School	174	52.1
Total	334	100

While 160 (47.9%) of the teachers participating in the research are primary school teachers, 174 (52.1%) are secondary school teachers.

Table 3
Distribution by seniority

Seniority	**N**	**%**
1-10 years	67	20.1
11-20 years	119	35.6
21 years and elder	148	44.3
Total	334	100

While 67 (20.1%) of the teachers participating in the research were teachers with 1-10 years of seniority, 119 (35.6%) of them were teachers with 11-20 years of seniority; 148 (44.3%) were teachers. It consists of teachers with 21 years or more seniority.

Table 4
Distribution by age

Age	**N**	**%**
33-43 ages	189	56.6
44 ages and elder	145	43.4
Total	334	100

While 189 (56.6 %) of the teachers participating in the research are between the ages of 33-44, 145 (43.4 %) are teachers aged 44 and over.

Data Collection Tools

Personal data form

The personal data form developed to obtain the demographic data of the teachers participating in this research was used.

Instructional leadership scale

The scale developed by Alig-Meilcarek (2003) in its original form was translated by Şahin (2011). A 5-point Likert-type rating was used on the 23-item scale with the options "Totally Agree-Strongly Disagree". The factor loads of the scale, which has a three-dimensional structure: "Providing professional development throughout the school, defining and communicating shared goals, and providing feedback and supervising the teaching and learning process", were calculated above .50. The Cronbach Alpha reliability coefficient of the original scale was found to be .94, and this coefficient was calculated between .94 and .89 in the sub-factors. In this study, the reliability coefficient of the instructional leadership scale was found to be .95.

Self-efficacy perception scale

Teachers' self-efficacy perceptions, Tschannen-Moran, Woolfolk Hoy (2001) developed and adapted to our language by Çapa, Çakıroğlu, and Sarıkaya (2005) Teacher Self-Efficacy Scale (SES) was used. The scale, which consists of 24 items, consists of the sub-dimensions of "student participation, teaching strategies and classroom management". Each factor has 8 items with item loads ranging from .47 to .72. The reliability coefficient of the original form of the scale is .94. In this study, the reliability coefficient of the instructional leadership scale was found to be .94.

Data Collection Process

The research data started to be collected after the approval of the Ethics Committee and the permissions obtained from the Elazig Directorate of National Education. With the prepared directive, the purpose of the research was clearly stated and the teachers who filled out the voluntary consent form were asked to fill in the personal data form and two different scales and demographic data.

Analysis of Data

Percentage and frequency analyzes were used in the analysis of personal data, along with the views of teachers in terms of their perception levels of Instructional leadership and the sub-dimensions of Teachers' Self-efficacy levels. At the same time, after evaluating the normality distribution of the data, the MANOVA test was used to examine the perception levels of instructional leadership and the views of teachers on the sub-dimensions of self-efficacy scales in terms of various variables. In cases where there was a significant difference between the groups, the Schefee test, one of the post-hoc tests, was used. In order to make the MANOVA analyzes used in the research, the assumptions of sample size, normality, extreme values, linearity, homogeneity of regression, multicollinearity and singularity, and homogeneity of variance and covariance matrices were examined and it was determined that there were no serious violations. Pearson correlation was used to determine the relationship between proficiency levels. At the same time, multiple regression analysis was performed to determine the level of relationship between the two scales. Before these analyses, the assumptions were checked and it was determined that there were no serious violations. Data were made with SPSS 21.0 (Balcı & Ahi, 2017).

Findings

Findings on Teachers' Self-Efficacy Levels

Table 5
Results regarding the sub-dimensions of self-efficacy levels

Self-Efficacy Levels	**N**	**$\bar{X}$**	**SD**
Student participation	334	32.41	4.14
Instructional Strategies	334	33.65	3.89
Classroom Management	334	33.52	4.24

When the mean scores of the sub-dimensions of the self-efficacy levels of the teachers participating in the research are examined, it is seen that the highest arithmetic mean score is for the "teaching strategies" sub-dimension ($X = 33.65 \pm 3.89$), and the lowest arithmetic mean score is for the "student participation" sub-dimension ($X = 33.41 \pm 4.14$). determined.

Table 6
Results regarding Instructional Leadership sub-dimensions

Instructional Leadership	**N**	**$\bar{X}$**	**SD**
Ensuring professional development throughout the school	334	29.70	4.33
Define and communicate shared goals	334	33.86	4.79
Providing feedback and supervising the teaching and learning process	334	31.70	4.04

When the mean scores of the teachers participating in the study regarding the instructional leadership sub-dimensions are examined, the highest score average is for the "defining and communicating shared goals" sub-dimension ($X = 33.86 \pm 4.79$), and the lowest score average is for the "providing professional development throughout the school" sub-dimension ($X = 29.70$). ± 4.33).

Descriptive Statistics

In order to determine the normal distribution of the data, mean, truncated mean, mode, median, kurtosis skewness values, histogram, extreme values, box line plot, Kolmogorov-Smirnov, Shapiro-Wilk test results were examined and it was concluded that the data showed a normal distribution (Table 13).

Table 7
Descriptive statistics

Scales / Subscales	Mean	Trimmed mean	Min.	Maks.	Mod	Median	Kurtosis	Standart errors of Kurtosis	Skevnes	Standart errors of Skevness	Kolmogorov-Smirnov	Shapiro-Wilk
Student participation	34.41	32.52	15.00	40.00	32.41	32.00	.508	.133	-.441	.266	.000	.000
Instructional Strategies	33.65	33.82	15.00	40.00	32.00	33.00	1.305	.133	-.656	.266	.000	.000
Classroom Management	33.52	33.72	16.00	40.00	32.00	34.00	.669	.133	-.637	.266	.000	.000
Self-efficacy level (total scale)	99.59	99.94	61.00	120.00	99.59	100.00	.115	.133	-.414	.266	.000	.000
Ensuring professional development throughout the school	29.70	30.05	14.00	35.00	35.00	30.00	.997	.133	-.865	.266	.000	.000
Define and communicate shared goals	33.86	34.16	16.00	40.00	40.00	33.00	.328	.133	.328	.266	.000	.000
Providing feedback and supervising the teaching and learning process	31.70	31.85	17.00	40.00	36.00	32.00	.669	.133	-.571	.266	.000	.000
Instructional Leadership (total leadership)	95.26	96.04	50.00	115.00	111.00	95.00	.614	.133	-.700	.266	.000	.000

When the results of the Kolmogorov-Smirnov test, which was performed to determine the normal distribution of the data, were examined, the significance values of the scales and their sub-dimensions were found to be less than .05. At the same time, Shapiro-Wilk results of Instructional Leadership and Self-Efficacy scales were found to be .000. It is stated that there are hesitations about the Kolmogorov Smirnov test used in cases where the sample size is more than 50 (Can, 2017). In Social Sciences, it is possible that the Kolomogorov-Smirnov test results will be less than .05, especially in cases where the sample is large (Balcı & Ahi, 2017). However, if the number of samples in each cell is more than 20, it is considered as a sign that the results are sufficiently robust (Tabachnick & Fidell, 2007). Together with these data, it becomes necessary to check the mean, median, mode, kurtosis skewness values, as well as the results such as q-q, box and line, histogram, branch-leaf results (Tabachnick & Fidell, 2013). It is seen that the mean, mode and median values of the two separate scales and their sub-dimensions used in the research are close to each other. The fact that these values are close to each other is seen as a sign that the distribution is normal (Can, 2017). In addition, the kurtosis and skewness values of the data being between -1.96 and +1.96 and the standard error values of these values as .133 and .266, respectively, indicate that normality is achieved (Uysal & Kılıç, 2021).

Table 8
Results of sub-multivariate analysis of variance of Self-Efficacy scale by gender variable

Effect	Wilk's Lambda	F	Hypothesis df	Error df	p	Partial Eta Squared	Observed Power
Intercept	.012	8865.303	3.00	330.00	.000	.988	1.00
Group	.995	.533	3.00	330.00	.000	.005	.159

Table 9
Intergroup effects for self-efficacy scale sub-dimension scores

Source	Dependent Variable	df	F	p*	Partial Eta Squared	Observed Power
Intercept	Student Participation	1	20397.370	.000	.984	1.00
	Instructional Strategies	1	24391.406	.000	.987	1.00
	Classroom Management	1	20867.198	.000	.984	1.00
Gender	Student Participation	1	.332	.565	.001	.089
	Instructional Strategies	1	.376	.540	.001	.094
	Classroom Management	1	1.381	.241	.004	.216

*p>.05

When the results of multivariate analysis of variance are evaluated in terms of gender variable, it is seen that there is no significant difference in terms of female and male teachers in all sub-dimensions (p>.05).

Table 10
Multivariate analysis of variance results of Self-Efficacy scale sub-dimensions according to school type variable

Effect	Wilk's Lambda	F	Hypothesis df	Error df	p	Partial Eta Squared	Observed Power
Intercept	.012	8853.249	3.00	330.00	.000	.988	1.00
Group	.952	5.548	3.00	330.00	.000	.048	.941

Table 11
Intergroup effects for self-efficacy leadership scale sub-dimension scores

Source	**Dependent Variable**	**df**	**F**	**p***	**Partial Eta Squared**	**Observed Power**
Intercept	Student Participation	1	20791.174	.000	.984	1.00
	Instructional Strategies	1	24889.406	.000	.987	1.00
	Classroom Management	1	20748.469	.000	.984	1.00
School type	Student Participation	1	6.813	.009	.020	.740
	Instructional Strategies	1	.288	.592	.001	.083
	Classroom Management	1	.044	.833	.000	.055

*p<.05

When the results of the multivariate analysis of variance are evaluated in terms of the school type variable, it is seen that there is a significant difference in favor of the teachers working in the primary school in the student participation sub-dimension (p<.05). This difference appears to have a small effect size in practice (η2: .020). When the arithmetic mean values in the sub-dimension of student participation were examined, it was seen that this value was 33.02±3.95 for teachers working in primary schools and 31.85±4.24 for teachers working in secondary schools.

Table 12
Results of multivariate analysis of variance of Self-Efficacy scale sub-dimensions according to seniority variable

Effect	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**p**	**Partial Eta Squared**	**Observed Power**
Inrcept	.013	8085.492	3.00	329.00	.000	.987	1.00
Group	.965	1.951	3.00	329.00	.071	.017	.720

Table 13
Intergroup effects for self-efficacy leadership scale sub-dimension scores

Source	**Dependent Variable**	**df**	**F**	**p***	**Partial Eta Squared**	**Observed Power**
Intercept	Student Participation	1	18703.364	.000	.983	1.00
	Instructional Strategies	1	22580.907	.000	.986	1.00
	Classroom Management	1	19073.170	.000	.983	1.00
Seniorty	Student Participation	1	4.680	.010	.028	.784
	Instructional Strategies	1	2.468	.086	.015	.494
	Classroom Management	1	4.011	.019	.024	.715

*p<.05

When the results of multivariate analysis of variance are evaluated in terms of seniority, it is seen that there is a significant difference in favor of teachers with 21 years or more seniority in student participation and classroom management sub-dimensions (p<.05). This difference appears to have a small effect size in practice (η2: .028-.024). According to the seniority variable, according to the Scheffee analysis results of post-hoc analyzes, it was found that there was a significant difference in student participation and classroom management sub-dimensions between teachers with 11-20 years of seniority and teachers with 21 years and more seniority (respectively, p=.012, p. =.49). When the arithmetic mean values of both sub-dimensions were examined, it was seen that this value was 33.93±4.16 for teachers with 21 years and more seniority in the classroom management sub-dimension, and this value was 32.96±4.59 for teachers with 11-20 years of seniority. Regarding the student participation sub-dimension, the arithmetic mean of teachers with a seniority of 21 years or more was found to be 33.01±4.10, while this value was found to be 31.50±4.28 for teachers with a seniority of 11-20 years.

Table 14
Results of multivariate analysis of variance of sub-dimensions of Self-efficacy scale by age variable

Effect	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**p**	**Partial Eta Squared**	**Observed Power**
Intercept	.012	8710.234	3.00	330.00	.000	.988	1.00
Group	.975	2.850	3.00	330.00	.000	.025	.681

Table 15
Intergroup effects for self-efficacy leadership scale sub-dimension scores

Source	**Dependent Variable**	**df**	**F**	**p***	**Partial Eta Squared**	**Observed Power**
Intercept	Student Participation	1	20215.572	.000	.984	1.00
	Instructional Strategies	1	24555.717	.000	.987	1.00
	Classroom Management	1	20416.792	.000	.984	1.00
Age	Student Participation	1	38.343	.135	.007	.321
	Instructional Strategies	1	10.197	.413	.002	.129
	Classroom Management	1	5.361	.586	.001	.084

*p>.05

When the results of the multivariate analysis of variance were evaluated in terms of age, it was seen that there was no significant difference between the groups regarding the sub-dimensions (p>.05).

Table 16
Results of Instructional Leadership Scale sub-multivariate analysis of variance according to gender variable

Effect	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**p**	**Partial Eta Squared**	**Observed Power**
Intercept	.016	6955.871	3.00	330.00	.000	.984	1.00
Group	.981	2.097	3.00	330.00	.100	.019	.534

Table 17
Intergroup effects for instructional leadership scale sub-dimension scores

Source	Dependent Variable	df	F	p*	Partial Eta Squared	Observed Power
Intercept	Ensuring professional development throughout the school	1	15710.949	.000	.979	1.00
	Define and communicate shared goals	1	16737.965	.000	.981	1.00
	Providing feedback and supervising the teaching and learning process	1	20778.216	.000	.984	1.00
Gender	Ensuring professional development throughout the school	1	2.423	.121	.007	.342
	Define and communicate shared goals	1	2.736	.099	.008	.378
	Providing feedback and supervising the teaching and learning process	1	5.693	.018	.017	.662

*P<.05

When the results of multivariate analysis of variance are evaluated in terms of gender variable, we see that there is a significant difference between male and female teachers in favor of male teachers in the sub-dimension of "providing and supervising the teaching and learning process" (p:.018). This difference appears to have a small effect size in practice (η2: .017). When the arithmetic mean of this sub-dimension was examined, it was found that the arithmetic mean of female teachers was 31.16 ± 4.12, and the arithmetic mean of male teachers was 32.21±3.90.

Table 18
Results of multivariate analysis of variance of Instructional Leadership scale sub-dimensions according to school type variable

Effect	Wilk's Lambda	F	Hypothesis df	Error df	p	Partial Eta Squared	Observed Power
Intercept	.016	6927.452	3.00	330.00	.000	.984	1.00
Group	.965	4.007	3.00	330.00	.008	.035	.836

Table 19
Intergroup effects for instructional leadership scale sub-dimension scores

Source	Dependent Variable	df	F	p*	Partial Eta Squared	Observed Power
Intercept	Ensuring professional development	1	15785.631	.000	.979	1.00

	throughout the school					
	Define and communicate shared goals	1	16640.867	.000	.980	1.00
	Providing feedback and supervising the teaching and learning process	1	20720.025	.000	.984	1.00
School type	Ensuring professional development throughout the school	1	4.006	.046	.012	.514
	Define and communicate shared goals	1	1.012	.315	.003	.171
	Providing feedback and supervising the teaching and learning process	1	4.731	.030	.014	.583

*P<.05

When the results of the multivariate analysis of variance are evaluated in terms of the school type variable, it is seen that there is a significant difference in favor of the teachers working in the primary school in the sub-dimensions of "Providing professional development throughout the school" and "Providing feedback and supervising the teaching and learning process" (respectively, p:.046, .030). This difference appears to have a small effect size in practice (η2: .012, .014, respectively). When the arithmetic mean values of both sub-dimensions were examined, this value was found to be 30.20±3.36 for teachers working in primary schools and 29.25±5.04 for teachers working in secondary schools in the sub-dimension of "Providing *professional development throughout the school". The arithmetic mean values for the sub-dimension of "providing and supervising the teaching and learning process" were found to be 32.20±3.65 for primary school teachers and 31.24±4.33 for secondary school teachers.*

Table 20
Results of multivariate analysis of variance of Instructional Leadership scale sub-dimensions according to seniority variable

Effect	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**p**	**Partial Eta Squared**	**Observed Power**
Intercept	.018	6105.804	3.000	329.00	.000	.982	1.00
Group	.987	.713	6.000	658.00	.639	.006	.286

Table 21
Intergroup effects for instructional leadership scale sub-dimension scores

Source	**Dependent Variable**	**df**	**F**	**p***	**Partial Eta Squared**	**Observed Power**
Intercept	Ensuring professional development throughout the school	1	13909.975	.000	.977	1.00
	Define and communicate shared goals	1	14817.814	.000	.978	1.00

	Providing feedback and supervising the teaching and learning process	1	18226.195	.000	.982	1.00
Seniority	Ensuring professional development throughout the school	1	.184	.832	.001	.079
	Define and communicate shared goals	1	.055	.947	.000	.058
	Providing feedback and supervising the teaching and learning process	1	.693	.501	.004	.167

*p>.05

When the results of multivariate analysis of variance were evaluated in terms of seniority, it was seen that there was no significant difference in all three sub-dimensions (p>.05).

Table 22
Results of multivariate analysis of variance of Instructional Leadership Scale sub-dimensions by age variable

Effect	**Wilk's Lambda**	**F**	**Hypothesis df**	**Error df**	**p**	**Partial Eta Squared**	**Observed Power**
Intercept	.016	6871.672	3.00	330.00	.000	.984	1.00
Group	.977	2.616	3.00	330.00	.051	.023	.639

Table 23
Intergroup effects for instructional leadership scale sub-dimension scores

Source	**Dependent Variable**	**df**	**F**	**p***	**Partial Eta Squared**	**Observed Power**
Intercept	Ensuring professional development throughout the school	1	15536.934	.000	.979	1.00
	Define and communicate shared goals	1	16473.150	.000	.980	1.00
	Providing feedback and supervising the teaching and learning process	1	20551.883	.000	.984	1.00
Age	Ensuring professional development throughout the school	1	3.150	.077	.009	.425
	Define and communicate shared goals	1	2.109	.147	.006	.305

	Providing feedback and supervising the teaching and learning process	1	6.180	.013	.018	.698

*P<.05

When the results of multivariate analysis of variance are evaluated in terms of age variable, we see that there is a significant difference between the groups in the sub-dimension of "providing and supervising the teaching and learning process" in favor of teachers aged 44 and over (p:.013). This difference appears to have a small effect size in practice (η2: .018). When the arithmetic averages related to this sub-dimension were examined, it was found that the arithmetic average of the teachers aged 33-43 was 31.22±4.21 and the arithmetic average of the teachers aged 44 and over was 32.32±3.73.

Pearson Correlation Results

Table 24
Simple correlation results by gender

Subscales	**Gender**	**n**	**Instructional Leadership**	**Self-efficacy**
Instructional Leadership	1	165	1.00	.291**
	2	169	1.00	.120
	Total	334	1.00	.195**
Self-efficacy	1	165	.291**	1.00
	2	169	.120	1.00
	Total	334	.195**	1.00

p<.01**

When the simple linear correlation results were examined, it was concluded that there was a small relationship between the instructional leadership of school principals and the self-efficacy of female teachers (r=.291, p<.01**). When the results were examined in terms of male teachers, no significant relationship was found between the instructional leadership of school principals and the self-efficacy of male teachers. It was determined that the instructional leadership of school principals explained the self-efficacy of female teachers by 8.4%. It is thought that the fact that female teachers have a more emotional structure and need more support in the education-teaching process than male teachers is effective in the emergence of this finding reached in the research.

Table 25
Simple correlation results by school type

Subscales	**School type**	**n**	**Instructional Leadership**	**Self-efficacy**
Instructional Leadership	Elementary School	160	1.00	.122
	Secondary School	174	1.00	.238**
	Total	334	1.00	.195**
Self-efficacy	Elementary School	160	.122	1.00
	Secondary School	174	.238**	1.00
	Total	334	.195**	1.00

p<.01**

When the results of the simple linear correlation according to the school type variable were examined, no significant correlation was found between the instructional leadership of the school principals and the self-efficacy of the teachers working in primary schools. However, a small correlation was found between the instructional leadership of school principals and the self-efficacy of teachers working in secondary schools (r=.238, p<.01**). It was determined that the instructional leadership of the school principals explained the self-efficacy of the teachers working in secondary schools at the rate of 5.6%. The reason for this situation can be shown as the fact that teachers working in secondary schools have more responsibilities.

Table 26
Simple correlation results by seniority

Subscales	**Seniority**	**n**	**Instructional leadership**	**Self-efficacy**
Instructional leadership	1-10 years	67	1.00	.373**
	11-20 years	119	1.00	.067
	21 years and elder	148	1.00	.240**
	Total	334	1.00	.195**
Self-efficacy	1-10 years	67	.373**	1.00
	11-20 years	119	.067	1.00
	21 years and elder	148	.240**	1.00
	Total	334	.195**	1.00

p<.01**

When the simple linear correlation results were examined, a moderate correlation was found between the instructional leadership of school principals and the self-efficacy of teachers with 1-10 years of seniority (r=.373, p<.01**). In addition, a small relationship was found between the instructional leadership of school principals and the self-efficacy of teachers with more than 21 years of seniority (r=.240, p<.01**). However, no significant relationship was found between the instructional leadership of school principals and the self-efficacy of teachers with 11-20 years of seniority. It was determined that the instructional leadership of the school principals explained 13.9% of the self-efficacy of the teachers with a seniority of 1-10 years, while the self-efficacy of the teachers with a seniority of 21 years and above explained 5.7%. The reason why the instructional leadership of school principals explains the self-efficacy of teachers with a seniority of 1-10 years is higher than that of teachers with a seniority of 21 years and above, it can be interpreted that new teachers need more support. In addition, we can explain the reason why this rate is lower for teachers with a seniority of 21 years and above, as teachers with this seniority are relatively more closed to development and change. At the same time, we can explain the reason why school principals' instructional leadership does not have a significant relationship between the self-efficacy of teachers with 11-20 years of seniority, as teachers with this seniority follow the developments themselves without being dependent on external support.

Table 27
Simple correlation results by age

Subscales	**Age**	**n**	**Instructional leadership**	**Self-efficacy**
Instructional	33-43 years	189	1.00	.208**

leadership	44 years and older	145	1.00	.173*
	Total	334	1.00	.195**
Self-efficacy	33-43 years	189	.208**	1.00
	44 years and older	145	.173*	1.00
	Total	334	.195**	1.00

p<.05*, p<.01**

When the simple linear correlation results according to the age variable are examined, there is a difference between the instructional leadership of school principals and the self-efficacy of teachers aged 33-43 (r=.208, p<.01**) and teachers aged 44 and over (r=.173, p. <.05*) was found to be slightly correlated with self-efficacy. It was determined that the instructional leadership of the school principals explained 4.3% of the self-efficacy of the teachers in the 33-43 age range, and 2.9% of the self-efficacy of the teachers over the age of 44. The reason for this situation can be shown as the fact that teachers aged 44 and over are more closed to change or have higher proficiency due to their experience.

Table 28
Multiple linear regression results between instructional leadership sub-dimensions and Self-Efficacy

Self-Efficacy	**n**	**B**	**Standard error**	**β**	**t**	**p**	**Zero-order r**	**Partial r**
Constant	-	4.804	-	-	17.407	.000	-	-
Student participation	334	-.115	.374	-.117	-.794	.428	-.044	-.043
Instructional Strategies	334	.333	.348	-.333	2.251	.025	-.123	.121
Classroom Management	334	-.019	.290	-.019	-.185	.853	-.010	-.010

The results of the multiple linear regression analysis conducted to determine how the dimensions of providing professional development, defining and communicating shared goals, and providing feedback and supervision to the teaching and learning process, which are thought to have an impact on teachers' self-efficacy, predicted a significant relationship between instructional leadership sub-dimensions and teacher self-efficacy. a relationship (R=.217; R2= .047) was detected (F(3-330)=5.427; p<.001). These three sub-dimensions explain 4.7% of teachers' self-efficacy. According to the standardized regression coefficients, the order of importance of the predictive variables on teaching self-efficacy is the dimension of defining and communicating shared goals (β=0.333), providing professional development throughout the school (β=0.115), and providing feedback and monitoring to the teaching and learning process (β=0.019). . Considering the significance tests of the regression coefficients, it is seen that the dimension of defining and communicating shared goals (p<0.001), one of the predictive variables, is a significant predictor of teachers' self-efficacy. When the relationships between the predictor variables and teacher self-efficacy are examined, the dimensions of providing professional development throughout the school (r=0.44; when the effect of other predictor variables are controlled), defining and communicating shared goals (r=0.123; when the effect of other predictive variables is controlled), teaching and learning process It has been observed that there is a level of correlation with providing feedback and monitoring (r=0.10; when the effect of other predictive variables is controlled). According to the results of the regression analysis, the regression equation that predicts teacher self-efficacy is as follows: (-0.115 x student participation scale score) + (0.333 x teaching strategies scale score) + (-.019 x classroom management scale score) + (4,804).

Discussion / Conclusions and Suggestions

Spillane, Hallett, and Diamond (2003) stated that the success of the school and the student largely depends on the school leader who provides the instructional change in the school. However, there are few studies on the effects of instructional leadership on school and student success (Ovando, & Ramirez, 2007; Bround, 2016). When the results of multivariate analysis of variance were evaluated in terms of gender and age variables of teachers' self-efficacy, it was seen that there was no significant difference between the groups in terms of sub-dimensions (p>.05). When the results were evaluated in terms of the school type variable, it was seen that there was a significant difference in favor of the teachers working in the primary school in the student participation sub-dimension (p<.05). This difference was determined to be small effect size in practice (η2: .020). When the arithmetic mean values in the student participation sub-dimension were examined, it was seen that this value was 33.02±3.95 for teachers working in primary schools and 31.85±4.24 for teachers working in secondary schools. When the results are examined in terms of the seniority variable, it is seen that there is a significant difference in favor of teachers with 21 years and more seniority in the sub-dimensions of student participation and classroom management, and this difference has a small effect size in practice (p<.05; η2: .028-.024). According to the seniority variable, according to the Scheffee analysis results of post-hoc analyzes, it was found that there was a significant difference in student participation and classroom management sub-dimensions between teachers with 11-20 years of seniority and teachers with 21 years and more seniority (respectively, p=.012, p. =.49). When the arithmetic mean values of both sub-dimensions were examined, it was seen that this value was 33.93±4.16 for teachers with 21 years and more seniority in the classroom management sub-dimension, and 32.96±4.59 for teachers with 11-20 years of seniority. Regarding the student participation sub-dimension, the arithmetic mean of teachers with a seniority of 21 years or more was 33.01±4.10, while this value was determined as 31.50±4.28 for teachers with a seniority of 11-20 years. In the study conducted by Aslan and Kalkan (2018), it was concluded that there was no significant difference between the teachers' self-efficacy perceptions in terms of gender variable, but a significant difference in terms of professional seniority and school type variables. However, in the study conducted by Korkut and Babaoğlan (2012), they concluded that, contrary to the findings of our study, the self-efficacy of classroom teachers differs according to the gender variable and does not differ according to seniority. In the study conducted by Özkurt (2017), it was concluded that the self-efficacy perceptions of classroom teachers do not differ according to gender and professional seniority. Özdemir, in his study on instructional leadership in 2020, stated that school principals should have a deeper instructional leadership feature for various fields. In addition, the researcher stated that school principals' classroom management and basic pedagogical practices are not sufficient (Özdemir, 2020).

When the results of the instructional leadership scale were examined, it was seen that there was a significant difference between male and female teachers in the sub-dimension of "providing and supervising the teaching and learning process" in terms of gender variable in favor of male teachers, and this difference had a small effect size in practice (p:.018; η2. : .017). When the arithmetic averages related to this sub-dimension were examined, it was determined that the arithmetic average of female teachers was 31.16±4.12, and the arithmetic average of male teachers was 32.21±3.90. When the results of the multivariate analysis of variance were evaluated in terms of the school type variable, it was found that there was a significant difference in favor of the teachers working in the primary school in the sub-dimensions of "Providing professional development throughout the school" and "Providing feedback and

supervising the teaching and learning process" (respectively, p:.046, . 030). This difference appears to have a small effect size in practice (η2: .012, .014, respectively). In the sub-dimension of "Providing professional development throughout the school", it was observed that the arithmetic mean value for teachers working in primary schools was 30.20±3.36, and the arithmetic mean value for teachers working in secondary schools was 29.25±5.04. The arithmetic mean values of the sub-dimension of "providing and supervising the teaching and learning process" were calculated as 32.20±3.65 for primary school teachers and 31.24±4.33 for secondary school teachers. Similarly, the results of the research conducted by Yılmaz and Kurşun in 2015 concluded that the mean scores of classroom teachers in the sub-dimensions of instructional leadership were higher than that of branch teachers. However, Yılmaz and Kurşun (2015) concluded that there was no significant differentiation in any of the sub-dimensions of instructional leadership according to teachers' gender, professional seniority and age. When the results of multivariate analysis of variance were evaluated in terms of the seniority variable of our study, it was seen that there was no significant difference between all three sub-dimensions (p>.05). When the results of multivariate analysis of variance are compared in terms of age, it is seen that there is a significant difference between the groups in the sub-dimension of "providing and supervising the teaching and learning process" in favor of teachers aged 44 and over, and this difference has a small effect size in practice (p:.013; η2: .018). When the arithmetic averages for this sub-dimension were examined, it was found that teachers aged 33-43 were 31.22±4.21 and 32.32±3.73 for teachers aged 44 and above. When the results of Derbedek, (2008)'s research were examined, they stated that there was no significant difference in the instructional leadership characteristics of school principals according to age and gender variables. In addition, the researchers say that the instructional leadership characteristics of school principals are noticed more according to the years of seniority of the teachers. When the results of the research conducted by Derbedek (2008) were evaluated according to the branches of the teachers, it was seen that there was a significant differentiation in the dimension of instructional leadership in defining the purpose. In this dimension, they concluded that the arithmetic mean values of the classroom teachers are higher than the branch teachers, and they stated that the classroom teachers think more positively than the branch teachers in defining the school principals' goals, understanding the duties and responsibilities of the staff. In their study, Bozkurt and Soner (2022) stated that school principals often exhibit all of the dimensions of instructional leadership, and that they exhibit the most common behavioral dimension in determining and sharing school goals; he says that the dimension of instructional leadership, which he performs at least, is used to support and develop the teacher. In addition, it has been seen that school principals ensure unity and integration with all stakeholders in the school by clearly sharing the aims of the school, guiding the school personnel, adopting the school and seeing himself as a part of the school by using the instructional leadership characteristics of the school principals (Şişman, 2018). Hosseingholizadeh et al. (2020) also showed that the instructional leadership of school principals contributes to the professional learning of teachers. In similar studies, Köstereliogl u and Olukçu (2019), Yaman and Ezer (2015), Bas and Yıldırım (2010) and Serin (2011) also stated that school principals use instructional leadership characteristics in this way.

When the Pearson correlation results of this study were examined, it was concluded that there was a small relationship between the instructional leadership of school principals and the self-efficacy of female teachers (r=.291, p<.01**). No significant relationship was found between the instructional leadership of school principals and the self-efficacy of male teachers. The rate of explaining the self-efficacy of female teachers by the instructional leadership of school principals was found to be 8.4%. It is thought that the fact that female teachers have a more emotional structure and need more support in the education-teaching process than male teachers is effective in the emergence of this difference. When the results of the simple linear correlation according to the school type variable were examined, no significant correlation was found between the instructional leadership of the school principals and the self-efficacy of the

teachers working in primary schools. However, a small correlation was found between the instructional leadership of school principals and the self-efficacy of teachers working in secondary schools (r=.238, p<.01**). The rate of the instructional leadership of school principals explaining the self-efficacy of teachers working in secondary schools was found to be 5.6%. The reason for this situation is thought to be that teachers working in secondary schools have more responsibilities and need more support. When the simple linear correlation results were examined in terms of seniority variable, it was concluded that there was a moderate relationship between the instructional leadership of school principals and the self-efficacy of teachers with 1-10 years of seniority (r=.373, p<.01**). While a small correlation was found between the instructional leadership of school principals and the self-efficacy of teachers with a seniority of over 21 years (r=.240, p<.01**), no significant relation was found between the instructional leadership of principals and the self-efficacy of teachers with a seniority of 11-20 years. It was determined that the instructional leadership of the school principals explained 13.9% of the self-efficacy of the teachers with a seniority of 1-10 years, and the self-efficacy of the teachers with a seniority of 21 years and above was 5.7%. It is thought that the reason why the instructional leadership of school principals explains the self-efficacy of teachers with a seniority of 1-10 years is higher than that of teachers with a seniority of 21 years and above, because new teachers need more support. In addition, it is thought that the fact that this rate is lower among teachers with a seniority of 21 years and above is due to the fact that teachers are relatively more closed to development and change. At the same time, we can explain the reason why school principals' instructional leadership does not have a significant relationship between the self-efficacy of teachers with 11-20 years of seniority, as teachers with this seniority follow the developments themselves without being dependent on external support. When the simple linear correlation results are evaluated according to the age variable, there is a significant difference between the instructional leadership of school principals and the self-efficacy of teachers aged 33-43 (r=.208, p<.01**) and teachers aged 44 and over (r=.173,). p<.05*) was found to be slightly correlated with self-efficacy. It was determined that the instructional leadership of the school principals explained 4.3% of the self-efficacy of the teachers in the 33-43 age range, and 2.9% of the self-efficacy of the teachers over the age of 44. The reason for this situation can be shown as the fact that teachers aged 44 and over are more closed to change or have higher proficiency due to their experience. In a similar study conducted by Sığrı et al., (2010), significant differences were found between the instructional leadership levels of administrators with a high perception of general self-efficacy and those with a low perception of general self-efficacy. In the studies conducted, it was concluded that the administrators with high self-efficacy perform the instructional leadership better. School principals with high self-efficacy perceptions are successful role models, Lyons and Murphy (1994) state that school principals with high self-efficacy perceptions rely on their personal power resources to influence teachers, not with the limitations imposed by procedures and legislation, and that they rely on expertise, reference and information. states that they bring their inner strengths, such as strength, to the fore. Ma and Marion (2021) also concluded in their study that instructional leadership directly and positively affects teacher efficacy. In addition, researchers stated that instructional leadership contributes to the mission of the school, the execution of the curriculum, and the formation of a positive school learning climate (Ma & Marion, 2021). In the study conducted by Liaquat et al. (2021), it was stated that the instructional leadership of school principals affects teacher efficacy.

The results of the multiple linear regression analysis conducted to determine how the dimensions of providing professional development, defining and communicating shared goals, and providing feedback and supervision to the teaching and learning process, which are thought to have an impact on teachers' self-efficacy, predicted a significant relationship between instructional leadership sub-dimensions and teacher self-efficacy. a relationship (R=.217; R2=.047) was found. It was concluded that these three sub-dimensions explained 4.7% of

teachers' self-efficacy and when the significance tests of the regression coefficients were taken into account, the dimension of defining and communicating shared goals, one of the predictive variables ($p<0.001$), was a significant predictor of teachers' self-efficacy. When the relationships between the predictor variables and teacher self-efficacy are examined, the dimensions of providing professional development throughout the school ($r=0.44$; when the effect of other predictor variables are controlled), defining and communicating shared goals ($r=0.123$; when the effect of other predictive variables is controlled), teaching and learning process It was concluded that there was a correlation at the level of providing feedback and monitoring ($r=0.10$; when the effects of other predictor variables were controlled).

Considering the results obtained from this study, the following recommendations are made:

1. The research can be studied with more samples and different school levels.
2. Partial correlation etc. Variables that have an impact on instructional leadership and self-efficacy variables can be determined with different analyzes.
3. Structural Equation Modeling studies can be done with the variables in this study.
4. In addition to the quantitative results related to instructional leadership and self-efficacy, qualitative studies can contribute to the field.
5. Based on the conclusion that the instructional leadership of school principals predicted teachers' self-efficacy by 4.7%, various experimental et al. studies can be done.
6. Since this research is limited to primary and secondary schools in the city center of Elazig, future studies can be conducted on teachers at different education levels.
7. By keeping the sample group larger, more teachers' opinions can be included.
8. Studies can be conducted on the relationship between instructional leadership and different variables.
9. As a sample group, new studies can be conducted on the opinions of school principals.

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