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Tactics Used in Challenging Activities in English Language Teaching*

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ABSTRACT

This study aimed to determine the tactics used by teachers in activities in which middle school students have challenges in English language learning. The study, designed according to the phenomenological research model, consists of two phases. While the first phase was conducted in public secondary schools which are ranked at the middle level according to English scores on the High School Transition System (LGS) exam, the second phase was conducted in public secondary schools which are ranked at the high level according to English score on LGS exam in Efeler district of Aydın province. In the first phase of the study, the activities that students had challenges were identified. In the second phase, the tactics used by the teachers to overcome the challenges in the activities stated by the teachers in the first phase study group were determined. The data obtained through interviews with English language teachers in the first phase of the study was analyzed using the content analysis technique. The themes that emerged in content analysis were used in descriptive analysis in the second phase of the research. It was concluded that students had challenges in activities related to four main skills -speaking, listening, writing, and reading comprehension. Also, inadequate vocabulary and grammar, lack of motivation, and disciplinary problems especially in group or pair work emerged as common challenges in the activities related to the four skills. Participants in the second phase suggested various tactics to address these challenges.

Keywords: Challenges in English language learning, tactics in English language teaching

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Introduction

Countries have to follow the developments in different civilizations to keep up with the information age. Thus, they need to be in contact with those civilizations. This contact is realized through English, a language accepted by almost all countries (Demirel, 2012). In addition, knowing English as a foreign language, except for communication, has become a necessity for individuals to achieve their goals (Tin, 2013). Knowing a foreign language provides great opportunities in education and finding a job. In addition, language learning makes it easier to become a citizen of the world and to understand different cultures (Kalıpcı & Şimşek, 2022). Foreign language education plays a very important role in the self-development of individuals, both socio-economically and technologically (Mirici, 2001). In short, English language teaching is seen as an important subject due to the needs of both society and the individual (Maxom, 2009).

In Türkiye, as in many other countries, great importance is attached to English language teaching, but the desired level of English proficiency for students cannot be reached (Arslan, 2009). The development of the foreign language curriculum in Türkiye started in 1968 in cooperation with the Council of Europe (Demirel, 2012) and the importance given to foreign language teaching in our schools has increased over time. The English lesson, which was previously only taught in the sixth grade in the education programs, was introduced in 1997 for the fourth grade, and in the second grade in the 2013-2014 academic year (Bekleyen, 2016). In Türkiye, a student learns English as a foreign language for 12 years, from the second grade of primary school to the second year of higher education. Despite all these years, effort, and money (Karayazgan & Saracaloğlu, 2021), reaching the desired level of English proficiency has become unsuccessful (Tarcan, 2004). This situation is contrary to the principle of economy, which is one of the principles of teaching. According to the principle of economy, teaching should be carried out in the shortest time with the least amount of equipment, money, labour, and energy (Küçükahmet, 2009).

In language teaching, various activities such as developing speaking, writing, listening, reading skills, grammar, and vocabulary teaching are carried out (Celce-Murcia, Brinton, & Snow, 2014). In learning a new language, there are four macro skills that a learner must develop and use: listening, reading, speaking, and writing (Ambubuyog et al., 2023). Effective language education is made up of speaking, writing, and reading skills, and from these skills, listening and reading skills are defined as receptive skills, and speaking and writing skills are known as productive/expressive skills (Bygate, 1987; cited by Karayazgan & Yurdakul, 2014). On the other hand, Nation (2001; cited by Schmitt, 2008) provides a structure to integrate intentional and incidental vocabulary learning, emphasizing the importance of vocabulary in language acquisition. Moreover, grammar is considered the basis of language skills like listening, speaking, reading, and writing, highlighting its foundational role in language acquisition (Andriani et al., 2021).

During language learning activities, some challenges may arise for both the EFL (English as a foreign language) learners and the EFL teacher (Reiss, 2012). While carrying out the activities, various challenges may arise due to factors such as teacher competencies, student motivation, the limitation of learning English in a natural environment, lack or poor quality of materials, and deficiencies in the assessment and evaluation system (Arı, 2014; Özen et al., 2013; Yaman, 2018). To overcome these challenges, it is important to know which tactics are successful in terms of time and labour economy (Sharif, 2012). Tactic is the path followed to achieve the desired result (TDK, 2023). Şimşek (2014; 159) defines tactics as specific and narrow-scale parts of the technique. For example, while forming teams in a team game activity, a teacher can make the students who were

in the same group in the previous activity be in different groups, by determining colour cards. In other words, many different tactics can be used by teachers and students in the use of a technique or the realization of an activity. In education, employing effective teaching tactics is crucial for enhancing learning outcomes (Puranik, 2020). These tactics encompass a range of strategies including interactive teaching, cooperative learning, and redefining teachers' roles to improve student engagement and knowledge acquisition (Ma, 2023), and students use their ways and strategies while learning languages (Eken & Gündoğdu, 2021). The implementation of diverse and evidence-based tactics is essential for promoting student engagement, improving learning outcomes, and catering to the diverse needs of learners across various educational settings. This study aims to determine the tactics used by teachers in activities in which students have challenges in English language teaching. The sub-problems sought to be answered according to this purpose are given below;

1. What are the activities that students have challenges in learning English?
2. Which tactics do teachers use to overcome the challenges faced by English language learners?

The challenges faced by learners in learning a new language are multifaceted and can be daunting for many (Alsalihi, 2020). Understanding and addressing these challenges are crucial for educators to provide effective support and enhance the language learning experience for foreign language learners (Trninić-Janjić, 2018). Also, this study contributes to the literature by identifying the tactics that teachers use in activities where students have challenges in learning English. By engaging with teachers who have first-hand experience overcoming difficulties, this research offers a fresh perspective on the issues commonly faced in educational settings. In this way, the easy-to-implement, low-cost but effective teacher tactics used by teachers who overcome the challenges in English language teaching will guide practitioners. Moreover, the implementation of a two-phased study aimed at first identifying the challenges experienced by several English language teachers during English lessons, and then capturing the insights of English language teachers who have successfully navigated challenging circumstances, represents a departure from conventional research practices within the existing literature, which studied only challenges or tactics during English lessons.

Method

The study consisting of two phases, was designed according to the phenomenological research model, which is one of the qualitative research types. Phenomenological research is a type of study that makes sense of individuals' experiences about a phenomenon (Creswell, 2014). In the first phase of this study, the activities that students in public secondary schools in the Efeler district of Aydın province, which are ranked in the middle according to English score rankings in the High School Transition System (LGS) had challenges. In the second phase, the tactics used by the teachers working in public schools ranked higher according to the LGS exam English score ranking to overcome the challenges in the activities stated by the teachers in the first phase study group were determined.

Study Group

While determining the study group, criterion-based sampling, one of the purposeful sampling types, was used. In purposive sampling, the researcher determines the qualifications of the individuals who represent the study group and reaches the individuals with the determined qualifications (Christensen, Burke-Johson & Turner, 2015). In the first phase of this study, which

was conducted in the 2022-2023 academic year, the criterion was determined as "working in public secondary schools at the middle achievement level in terms of 2022 LGS English scores" in Efeler district of Aydın province. In the second phase, the criterion for the study group was determined as "working in public secondary schools with high achievement level in terms of 2022 LGS English scores" in the Efeler district of Aydın province. Information on achievement levels of the schools in terms of 2022 LGS was obtained from the Ar-Ge (Research and Development) Unit of the Aydın Provincial Directorate of National Education. The number of the study groups was decided by using data saturation; while in the first phase of the study, 13 volunteer teachers working in public secondary schools with medium achievement levels in English participated in the study, 11 teachers working in public secondary schools at a high level according to English achievement participated in the second phase of the study. The participants interviewed in the first phase were coded as "aP" and the participants interviewed in the second phase were coded as "bP" to keep the identities of the participants anonymous. Personal information about the participants is shown in Table 1.

Table 1. Participant information

Participants for the first phase													
Participant code	**aP1**	**aP2**	**aP3**	**aP4**	**aP5**	**aP6**	**aP7**	**aP8**	**aP9**	**aP10**	**aP11**	**aP12**	**aP13**
Gender	M	F	F	M	M	F	F	F	M	M	F	M	F
Age	43	36	42	40	44	49	40	45	40	39	41	42	50
Seniority	22	13	18	14	15	25	18	20	16	17	17	21	27
Participants for the second phase													
Participant code	bP1	bP2	bP3	bP4	bP5	bP6	bP7	bP8	bP9	bP10	bP11		
Gender	F	F	F	M	M	F	F	M	F	F	F		
Age	47	43	40	45	50	52	53	44	39	55	54		
Seniority	23	20	15	19	26	18	17	19	13	31	29		

Table 1 shows that there were 7 female and 6 male participants in the first phase of the research. The age of the participants varies between 36 and 50 years. The participants have a minimum of 13 and a maximum of 27 years of professional experience. In the second phase of the research, there were 8 female and 3 male participants. The age of the participants varies between 39 and 55 years. The participants have a minimum of 13 and a maximum of 29 years of professional experience.

Data Collection and Analysis

In this study, data were collected through interviews with English language teachers working in the identified schools. The necessary permissions were obtained from the national education directorate as well as approval from the educational research ethics committee for data collection. Volunteer participants signed a consent form before the interview, and the identities of

the participants were kept anonymous. Semi-structured interview forms developed by the researcher were used in the interviews. The first phase interview form was prepared for English teachers in public secondary schools at the middle level of English achievement, while the second phase interview form was prepared for English teachers in public secondary schools at the high level of English achievement. Expert opinion was taken while preparing the interview forms; expert opinion is a crucial component in qualitative research, contributing to the credibility and validity of study findings. Chapman et al. (2018) integrated peer debriefing with qualitative research experts to enhance the rigor of the research by seeking feedback on study design and analysis. Furthermore, a pilot study was conducted with an English teacher for each form. Pilot studies can also aid in establishing the validity and reliability of interview questionnaires, contributing to the overall quality of qualitative research (Aung et al., 2021). The interview forms were organized according to the feedback from the expert and the teacher. Examples of questions from the interviews in both phases are presented below;

Question from the interview in the first phase; *"In which activities do you notice that your students have the most challenges in your class? Can you give examples?"*

Question from the interview in the second phase; *"What do you do to overcome the fear of making mistakes in speaking activities?"*

In the first phase of the study, the data obtained from the interviews with the participants were analyzed using the inductive content analysis technique. In content analysis, data that are similar to each other are brought together within the framework of certain concepts and themes, organized and interpreted in a reasonable way (Yıldırım & Şimşek, 2008). The data collected in the first phase was analysed independently by two experts. To increase reliability, the findings were compared and disagreements between the experts were discussed. The themes that emerged in the content analysis were used in descriptive analysis in the second phase of the research. In descriptive analysis, the collected data are collected and interpreted in predetermined themes (Yıldırım & Şimşek, 2008). The data collection analysis process is given in Figure 1 below:

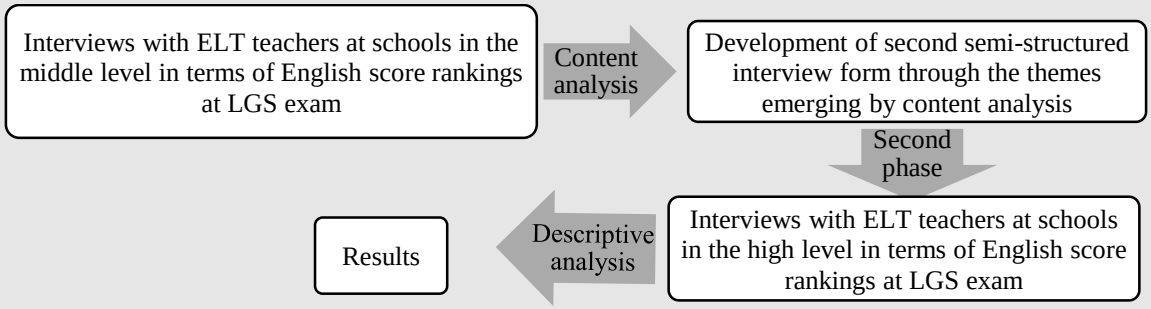

Figure 1. Data collection and analysis process

Figure 1 provides a brief explanation of the data collection and analysis process. In the first phase of the research, interviews were conducted with ELT teachers in schools at the middle level in terms of English score rankings in the LGS exam. The data collected in the first phase was analysed using content analysis. A second semi-structured interview form was developed based on the themes that emerged from the content analysis. In the second phase of the research, interviews were conducted with ELT teachers at schools at the high level in terms of English score

rankings at the LGS exam. Then, the data collected in the second phase were analysed by descriptive analysis and the results were obtained.

Results

In the first phase of the study, it was found that the participants had different challenges in activities on the four macro skills- speaking, listening, writing, and reading comprehension. It was also found that the participants had common challenges in the activities in terms of vocabulary, grammar, instructions, and group work. In the “results” chapter, the challenges and tactics in the four basic skills are given first, and then the common challenges and tactics are given. Direct quotations from participants are also included.

In the first phase of the study, 13 teachers working in public secondary schools at a middle-achievement level were asked the question "What are the activities that students have challenges in learning English?" The answers given by 13 participants were analysed by content analysis and the findings are given in Table 2.

Table 2. Activities in which students have challenges in learning English

Activities	**Teacher Code**	**Sample Quotations**
Speaking	aP1, aP2, aP3, aP5, aP6, aP7, aP8, aP10, aP11, aP12, aP13	aP1: "… Children have problems in every skill, they cannot speak, they cannot understand, they do not recognize words, they cannot follow instructions." aP8: "… they cannot follow what is spoken and read in English, they cannot understand." aP10: "Students cannot speak, write, understand. Even though reading is the skill we emphasize the most, we have a lot of problems with it too."
Listening	aP1, aP3, aP4, aP5, aP6, aP7, aP8, aP9, aP10, aP11, aP12	
Writing	aP1, aP2, aP3, aP4, aP5, aP6, aP9, aP10, aP11, aP13	
Reading comprehension	aP1, aP2, aP3, aP4, aP5, aP6, aP7, aP8, aP9, aP10, aP11, aP12, aP13	
Vocabulary	aP2, aP3, aP4, aP5, aP6, aP7, aP8, aP9, aP10, aP12, aP13	
Grammar	aP1, aP3, aP4, aP5, aP6, aP7, aP8, aP9, aP11, aP12, aP13	
Following instructions	aP1, aP2, aP3, aP4, aP6, aP7, aP8, aP9, aP10, aP12, aP13	
Group work	aP3, aP4, aP5, aP6, aP7, aP8, aP10, aP11	

An analysis of Table 2 shows that teachers had difficulties with the four macro skills and other components of language, namely vocabulary and grammar activities. In addition, instructions and group activities are also challenging for teachers. Challenges and tactics in speaking activities are given in Table 3.

Table 3. Challenges and tactics in speaking activities

Challenge 1: Not being able to speak/not knowing how to speak		
Tactic	**Teacher Code**	**Sample Quotations**
Modelling	bP2, bP3, bP5, bP6, bP7, bP8, bP10	bP5: "There are characters in the texts in the book; I want them to get into their roles, I want them to read the dialogues by acting them out, then I motivate them to say similar dialogues." bP9: "I also use the smart board, there are some programs, I make use of them, I make them watch videos with simple dialogues." bP11: "I have puppets in my closet. I put them in my hand and give them clues on how to speak. It is more fun and attracts their attention more."
Role-playing	bP1, bP2, bP3, bP4, bP5, bP6, bP7, bP9	
Support with body language	bP3, bP4, bP8, bP9, bP10	
Using materials (puppets, masks...)	bP2, bP4, bP5, bP6, bP7, bP8, bP11	
Using interactive programs	bP1, bP2, bP3, bP4, bP5, bP9, bP10	
Giving hints	bP1, bP3, bP4, bP5, bP6, bP7, bP11	
Using videos	bP4, bP5, bP6, bP7, bP9, bP10, bP11	
Challenge 2: Fear of making mistakes		
Tactic	**Teacher Code**	**Sample Quotations**
Encouragement	bP2, bP3, bP4, bP5, bP7, bP8, bP9, bP10	bP4: "I try to encourage the students. I also give them hints by saying, 'Say this, say that'; when they feel a little confident, they speak." bP6: "There are a few students, they are always making fun and mischief. In every speaking activity, I make especially one of those students speak so that they stop dealing with the others and focus on the lesson." bP8: "I ignore small mistakes. If I try to correct every mistake, the student will get tired of speaking, I try to minimize the intervention."
Preventing mockery	bP1, bP4, bP5, bP6, bP10, bP11	
Guidance by hinting	bP1, bP4, bP5, bP6, bP8, bP9, bP10, bP11	
Ignoring mistakes	bP2, bP3, bP4, bP5, bP6, bP7, bP8, bP10	
Challenge 3: Pronunciation error		
Tactic	**Teacher Code**	**Sample Quotations**
Instant correction	bP1, bP2, bP4, bP5, bP6, bP8, bP9, bP10, bP11	bP1: "There are too many pronunciation mistakes. I can ignore some of them, but if I don't intervene, then they learn as if they are correct. While I correct very big mistakes immediately so as not to disrupt the activity, I correct small mistakes later." bP5: "I make them listen to examples from videos and audio recordings in simple language. Then I make them repeat it to the class." bP7: "I tell them that mistakes can be made, that it is natural. I explain that the important thing is to say the right thing correctly. They ask me about the words they are not sure of and try to pronounce them correctly."
Ignoring small mistakes	bP1, bP3, bP4, bP6, bP7, bP8, bP9, bP10	
Playing audio recordings	bP1, bP2, bP3, bP5, bP6, bP7, bP8, bP9	
Repetition	bP2, bP3, bP4, bP5, bP7, bP10, bP11	
Modelling	bP2, bP5, bP6, bP7, bP8, bP9, bP10	
Creating phonemic awareness	bP3, bP4, bP5, bP7, bP8, bP11	
Motivating	bP1, bP2, bP3, bP4, bP7, bP9, bP10, bP11	

Table 3 shows the various tactics that teachers used and considered to be effective in the face of the challenges (not being able to speak/not knowing how to speak, fear of making mistakes, and pronunciation errors) that came to the fore in speaking activities. Challenges and tactics in listening activities are given in Table 4.

Table 4. Challenges and tactics in listening activities

Challenge 1: Failure to understand		
Tactic	**Teacher Code**	**Sample Quotations**
Guidance (cues, body language, etc.)	bP1, bP2, bP4, bP5, bP6, bP10	bP2: "I provide guidance by giving hints. First, I make them listen to the text completely, then I play it part by part and stop it. Listen, here, for example, he said travel, what travel means, where they went." bP4: "When there are very complex texts, the written text of a very long, challenging piece; I can read it more slowly and emphatically. While doing this, I also involve my body language, I try to explain it as they will understand." bP6: "I also tell them to listen to cartoons and animations in English. There are so many cartoon channels, I tell them to change the sound type and watch them, and you will benefit a lot. Sometimes I bring videos in simple language and make them watch them."
Dictation	bP2, bP3, bP4, bP7, bP8, bP9, bP11	
Incentives to watch foreign broadcasts	bP3, bP5, bP6, bP7, bP8, bP9	
Replay playback	bP1, bP2, bP3, bP5, bP6, bP7, bP9, bP10, bP11	
Challenge 2: Lack of interest		
Tactic	**Teacher Code**	**Sample Quotations**
Making a statement	bP1, bP3, bP4, bP5, bP8, bP11	bP3: "I explain what the piece is about, what they will focus on." bP7: "I can attract their interest by acting in those roles by performing the piece myself." bP8: "I try to attract their interest as much as I can with movements, different voices, and intonations."
Fun voice-over/animation	bP3, bP4, bP5, bP6, bP7, bP8, bP9	
Brainstorming	bP2, bP6, bP7, bP9, bP10, bP11	
Challenge 3: Insufficient time		
Tactic	**Teacher Code**	**Sample Quotations**
Reducing repeat listening by giving hints	bP1, bP2, bP5, bP6, bP9, bP10	bP5: "The listening texts in the book can be very challenging. Instead of making them listen to them and wasting time in vain, I find videos that are more suitable for the level of the students and go through them." bP6: "Audio texts and videos about some subjects should not be skipped. I make them watch and listen to audio files and videos related to official days and important events. Sometimes I may skip other activities or skills." bP10: "Unfortunately, the audio files sent to us are far above the level of the students. Therefore, I have a folder with pieces and videos suitable for our subject at the most basic simple level. I choose the most appropriate ones; I save both time and effort."
Selection of the most appropriate listening texts for the purpose	bP2, bP3, bP4, bP5, bP7, bP8, bP10, bP11	
Taking time from other activities	bP3, bP4, bP5, bP6, bP7, bP8, bP9	

Table 4 shows the various tactics that teachers used and considered to be effective in the face of the challenges (failure to understand, lack of interest, and insufficient time) that came to the fore in listening activities. Challenges and tactics in writing activities are given in Table 5.

Table 5. Challenges and tactics in writing activities

Tactic	Teacher Code	Sample Quotations
Challenge 1: Spelling error		
Rewriting	bP2, bP4, bP6, bP7, bP8, bP11	bP2: "I can reprint words or sentence patterns so that their hands get used to them. While they are writing, I repeat those patterns and words verbally." bP10: "I print the words we learn in a few examples. It is effective to print a few examples in context." bP11: "I make them keep a vocabulary notebook; they write the words in their vocabulary notebooks according to the alphabetical number. I also make them write sample sentences, I make them repeat them, and check the notebooks."
Correction	bP1, bP3, bP4, bP6, bP8, bP10	
Doing vocabulary study	bP1, bP4, bP5, bP7, bP9, bP10, bP11	
Challenge 2: Sentence structure		
Additional spelling practice	bP1, bP4, bP5, bP6, bP7, bP9	bP1: "I make them repeat as much as possible in order to reduce the errors in sentence formation." bP5: "I give additional exercises; I ask them to write by making different examples." bP9: "I check the examples and ask them to correct the mistakes."
Grammar practice	bP1, bP2, bP3, bP5, bP8, bP11	
Visual stimuli	bP2, bP3, bP6, bP8, bP9, bP10	
Sample writing	bP1, bP4, bP5, bP7, bP10, bP11	
Correction	bP3, bP6, bP7, bP8, bP9, bP11	
Challenge 3: Inflectional suffixes		
Rewriting	bP2, bP3, bP4, bP6, bP7, bP9, bP10, bP11	bP3: "I give different words; I make them write what their second forms are. Sometimes I make it a contest. The ones who get it right the most win the contest." bP4: "I try to increase retention by reprinting with plenty of examples." bP9: "I ask them to write different words, it can be overcome by practicing spelling a lot."
Additional spelling work	bP3, bP4, bP5, bP8, bP9, bP10	
Visual stimuli	bP1, bP2, bP5, bP6, bP7, bP8	
Challenge 4: Reluctance		
Sample spelling	bP3, bP4, bP5, bP6, bP10, bP11	bP3: "I first write an example and explain how to write it." bP5: "In a fun and lively way, I explain and motivate which element will be where, which will come where, how it will be added a few times." bP9: "I explain why this spelling is important, where you will need it in the future, I explain it well and motivate you."
Motivating	bP2, bP5, bP6, bP7, bP8, bP9,	
Challenge 5: Fear of making mistakes		
Motivating	bP1, bP2, bP3, bP4, bP6, bP7, bP8, bP10	bP3: "I try to motivate them by saying why this writing activity is important, why it will work." bP7: "I tell them that mistakes are inevitable, that I can sometimes make mistakes myself. I say that the important thing is to learn the right thing."
Talking about experiences	bP1, bP4, bP5, bP6, bP7, bP9	

Warning other students	bP2, bP3, bP5, bP9, bP11	bP11: "When students who come to the board make mistakes, there may be people who make fun of them. I prevent students who intervene, I give time for students to correct their own mistakes."

Table 5 shows the various tactics that teachers used and considered to be effective in the face of the challenges (spelling errors, sentence structure, inflectional suffixes, reluctance, and fear of making mistakes) that came to the fore in writing activities. Challenges and tactics in reading comprehension activities are given in Table 6.

Table 6. Challenges and tactics in reading comprehension activities

Challenge 1: Not understanding what they read		
Tactic	**Teacher Code**	**Sample Quotations**
Additional reading comprehension practice	bP2, bP3, bP4, bP7, bP8, bP10	bP3: "We have simple storybooks that they will like. I assign them to read it. They ask about the parts they don't understand, take notes on the words, summarize it." bP6: "I ask them to take small notes on the book while reading the passage. I make them underline the important parts and take notes next to it." bP9: "After the reading text is read, I ask them to summarize it. I help them where they have challenges."
Note-taking	bP1, bP3, bP5, bP6, bP11	
Summarizing	bP3, bP4, bP8, bP9, bP10	
Supporting	bP2, bP5, bP9	
Giving hints	bP1, bP11, bP7	
Challenge 2: Reluctance		
Tactic	**Teacher Code**	**Sample Quotations**
Motivating	bP1, bP2, bP3, bP6, bP10, bP11	bP1: "They mentioned an important event here, it can happen to us too, let's read what happened. This text happened to a man in this profession, I make them wonder what it could be and make them read it." bP4: "Some parts can be very boring. I agree, I try to attract their interest by reading the text with different emphasis and voice tones." bP10: "I emphasize what the passage is about, why it is important. I explain what it will do to understand what is written here. Thus, I realize motivation."
Making it fun	bP3, bP4, bP5, bP7, bP8, bP9	

Table 6 shows the various tactics that teachers used and considered to be effective in the face of the challenges (Not understanding what they read and reluctance) that came to the fore in reading comprehension activities. Challenges commonly faced in activities on four main skills emerged through content analysis in the first phase of the research, and tactics for every challenge are given in Table 7.

Table 7. Common challenges and tactics in activities

Challenge 1: Lack of vocabulary		
Tactic	**Teacher Code**	**Sample Quotations**
Engaging activities/ games	bP2, bP3, bP4, bP7, bP8	bP2: "I make competition-oriented games, children are more willing to learn vocabulary when they enjoy it." bP9: "For each unit, I give vocabulary quizzes on the words that appear there." bP10: "They have vocabulary notebooks; they write down the words in their vocabulary notebooks. Sometimes I call the students randomly and check their notebooks. When they are checked, they pay attention to their notebooks."
Visuals	bP1, bP4, bP6, bP11	
Repeating	bP3, bP5, bP6, bP7, bP8, bP10	
Keeping a vocabulary notebook	bP4, bP5, bP6, bP9, bP10	
Memorization	bP1, bP3, bP5, bP11	
Quizzes	bP1, bP6, bP7, bP8, bP9	
Using song	bP4, bP6, bP8, bP11	
Dictionary usage	bP1, bP3, bP4, bP6, bP7, bP9	
Plenty of practice	bP2, bP3, bP6, bP10, bP11	
Challenge 2: Grammatical error		
Tactic	**Teacher Code**	**Sample Quotations**
Abundant examples	bP1, bP2, bP5, bP8, bP10	bP1: "I give plenty of examples. As the term progress, as similar patterns come, I remind them again and give examples." bP3: "When students make mistakes, instead of giving them the correct answer directly, I make them find the right answer on their own. I remind them of the examples I gave while explaining the subject, I make them see where the mistake is." bP6: "We write the important grammar rules in the unit on the appropriate places on the board and teach the unit and the topic in that way. Students make use of them while giving examples appropriate to those patterns."
Make them find the right answer themselves	bP2, bP3, bP4, bP8, bP9	
Making a statement	bP5, bP6, bP11	
Mold comparison	bP4, bP5, bP8	
Giving the grammar rule	bP3, bP4, bP6, bP10, bP11	
Gamification	bP2, bP3, bP4	
Interactive program	bP1, bP7, bP9, bP10, bP11	
Challenge 3: Following instructions		
Tactic	**Teacher Code**	**Sample Quotations**
Doing activities on instruction patterns	bP5, bP7, bP8, bP9	bP4: "The thing to do about the instruction patterns is to minimize the use of Turkish and give the instructions in the target language unless it is very difficult." bP5: "It is necessary to repeat and remind the instruction patterns from time to time. I give commands and apply them myself; I model them." bP9: "I have a list of instructions; I can prepare activities related to the instructions I choose from that list. I can have them do activities such as matching patterns with Turkish or asking the meaning of the pattern."
Language exposure	bP1, bP2, bP4,	
Modelling	bP5, bP7, bP8,	
Repeating	bP3, bP4, bP6, bP9	
Peer support	bP2, bP3, bP10	
Challenge 4: Ensuring participation in group work		
Tactic	**Teacher Code**	**Sample Quotations**
Heterogeneous group formation	bP1, bP2, bP3, bP4, bP5, bP10	bP2: "I try to make the successful students and the distribution of girls and boys equal in the groups. When there are balanced groups, more challenging and fun competitions emerge."
Increase participation by supporting	bP4, bP7, bP8, bP11	
Explaining the rules	bP3, bP6, bP8, bP9, bP10	

Changing participants in each group activity	bP1, bP2, bP3, bP5, bP11	bP8: "During group work, I support the students who remain passive by moving between the groups to see where and how they can contribute." bP11: "Joint activities with the same people can be boring. Therefore, I determine different groups for each group activity."

Table 7 shows the various tactics that teachers used and considered to be effective in the face of the common challenges (lack of vocabulary, grammatical error, following instructions, and ensuring participation in group work) faced in activities on four major skills (speaking, listening, writing and reading comprehension) that came to the fore in reading comprehension activities.

The analysis of the data revealed that students face difficulties in speaking, listening, writing, and reading comprehension skills. Common challenges include insufficient vocabulary and grammar, lack of motivation, and discipline issues, especially in group work. Speaking challenges stem from fear of making mistakes and limited vocabulary while listening difficulties arise from comprehension issues and lack of motivation. Writing challenges include spelling errors, sentence structure mistakes, and low motivation. Reading comprehension challenges are primarily due to limited vocabulary and grammatical errors. Teachers employ various strategies such as modelling, providing guidance, using visual aids, and encouraging participation to overcome these challenges. Additionally, teachers use activities like songs and games to enrich vocabulary and provide grammar examples and comparisons to address grammar-related issues. In group work, creating diverse groups, explaining rules, and rotating participants help enhance participation.

Discussion and Conclusion

From the findings obtained from the analysis of the data, it was concluded that the students had challenges in activities related to speaking, listening, writing, and reading comprehension skills. Insufficient vocabulary and grammar, lack of motivation, and discipline problems that arise especially in group work have emerged as common challenges in the activities. Speaking proficiency is a common challenge, with learners experiencing anxiety when trying to improve their speaking skills (Meng et al., 2020). Writing skills present another hurdle for foreign language learners, as mastering writing in a second language is complex and can be influenced by their first language literacy skills (Karlina & Pancoro, 2018). Furthermore, challenges in areas such as vocabulary, grammar, spelling, pronunciation, reading, and listening are commonly reported by foreign language learners in distance learning settings (Wulandari & Budiyanto, 2017).

Reasons for challenges in speaking activities; students are weak in speaking skills in a foreign language, they are afraid of making mistakes in front of their friends and teachers, they make too many pronunciation and grammatical errors, and their vocabulary is insufficient. To overcome these challenges, teachers serve as models for students, motivate them, ignore minor mistakes, and use various materials. Foreign language learners encounter numerous challenges in speaking activities, including linguistic barriers, speech processing issues, lack of confidence, limited access to speaking opportunities, anxiety, fear of making mistakes, shyness, and inadequate vocabulary and topical knowledge (Trinh & Pham, 2021). External factors like peer pressure and fear of judgment (Alrasheedi, 2021), along with classroom conditions like class size and crowdedness (Alsalihi, 2020), and internal factors like shyness, anxiety (Alrasheedi, 2021), lack of motivation, and unfamiliarity with topics (Alsalihi, 2020), significantly impact students' speaking performance. To address these challenges, educators employ various strategies, including using songs, interactive activities, social media tools, and gamification to reduce anxiety and

promote communication (Latkovska & Cine, 2022). Classroom activities like storytelling, speeches, debates, and English movies are recommended to enhance speaking proficiency (Al-Hassaani & Al-Saalmi, 2022).

Reasons for challenges in listening activities are students' failure to understand what they are listening to, problems related to the materials, lack of motivation, and lack of lesson time. To overcome these challenges, teachers guide them with clues, make students listen to the text again, vocalize the listening text themselves, use the audio files and materials they have acquired, and encourage students to participate by encouraging them. Listening is widely considered the most challenging language skill due to its complexity and the diverse knowledge required for successful comprehension (Nowrouzi et al., 2015). Listening challenges are compounded by factors like limited vocabulary and lack of understanding of discourse genres (Su & Liu, 2012). Developing active engagement with listening materials to enhance comprehension (Moreira and Montes, 2021), incorporating multimedia resources and interactive tools for engaging practice (Peixoto et al., 2019), encouraging extensive listening practice and exploration of strategies (Ariani et al., 2020), involving peer interaction for practice and feedback (Thandevaraj et al., 2021) and strengthening vocabulary to aid comprehension have been suggested to overcome the problems faced during listening activities.

In writing activities, students make a lot of spelling mistakes, make mistakes in sentence structures, and confuse the cases of verbs and adjectives. Also, insufficient vocabulary and low motivation are among the problems that arise. Teachers try to overcome these challenges by making sample writing, showing sample writings, additionally doing vocabulary and grammar studies and writing activities, and motivating students and encouraging them to participate in the activity. Foreign language learners face several challenges in writing, including writing anxiety, lack of vocabulary, mother tongue interference, grammar challenges, weak organization, and poor spelling (Li, 2022). Lack of vocabulary, ideas, anxiety, and poor structure compound these challenges (Cheng, 2002), exacerbated by insufficient practice (Alzahrani et al., 2021). To address these challenges; teaching strategies, skills, and knowledge can empower students to write effectively (Paz & Graham, 2002). Planning, monitoring, and evaluating writing processes enhance writing performance (Yan, 2019). Digital resources can facilitate writing organisation and revision (Schcolnik, 2018). Also, peer interaction and feedback promote skill enhancement, and understanding writing's social function improves contextual production (Saksono, 2022). Finally, emphasizing vocabulary acquisition enhances proficiency (Pichette et al., 2011).

The main reasons for the challenges experienced in reading comprehension activities are the students' insufficient vocabulary knowledge and grammatical errors. Other reasons include students' low motivation and participation in reading activities. Teachers try to overcome these challenges by doing vocabulary and grammar studies, assigning additional reading assignments, making summaries, making reading activities more fun, and using different materials. Foreign language learners face a myriad of challenges in reading comprehension, including reading anxiety, unfamiliar topics, lack of understanding of the language system, poor recognition of reading strategies, and low language proficiency (Sellers, 2000). Challenges related to vocabulary, grammar, and syntactic knowledge further complicate comprehension (Morvay, 2012). Ambiguous words and unfamiliar vocabulary pose additional obstacles (Generoso & Arbon, 2020), exacerbated by perceived challenges and fear (Noorezam et al., 2022). Emphasizing vocabulary acquisition is crucial for comprehension (Zhang & Anual, 2008). Peer interaction and feedback exchange can enhance reading skills (Stranovska & Gadusova, 2022). Also, regular reading enhances cognitive and linguistic abilities (Syafitri, 2019).

To enrich students' vocabulary, teachers teach vocabulary with songs and games, use visual materials, make them repeat a lot, and conduct vocabulary exams. In addition, challenges related to vocabulary are tried to be reduced by using vocabulary notebooks and dictionaries during the activities. Providing explicit instruction on vocabulary acquisition, including teaching word meanings, usage, and context, can help learners expand their vocabulary knowledge (Lock et al., 2007). Incorporating interactive tools like Quizlet, Padlet, and educational games can make vocabulary learning engaging and effective (Sanosi, 2018). Encouraging learners to acquire vocabulary in context through extensive reading and exposure to authentic materials can improve the retention and application of new words (Barcroft, 2004). Implementing collaborative tasks that involve vocabulary acquisition can provide opportunities for peer interaction, practice, and reinforcement of new words (Sadeghi & Safari, 2012).

To overcome grammar-related problems, sample examples of relevant grammatical patterns are provided, visual materials are used during the activities, grammar patterns are compared, different materials are used and games are included. Providing explicit instruction on grammar rules, structures, and usage can help learners understand and apply grammar concepts effectively (Brown, 2009). Incorporating interactive tools and educational games focused on grammar can make learning engaging and effective (Fithriani, 2022).

Creating heterogeneous groups, increasing participation by supporting, explaining the rules, and changing participants in each group ensure participation in group work. Clearly defining objectives, assigning specific roles, and setting expectations for participation and collaboration fosters participation in group work (Meiramova & Zhanysbayeva, 2020). Also, encouraging open communication, active listening, and providing opportunities for students to express ideas can create a supportive environment (Ahmadi et al., 2012). Also, encouraging peer support and feedback within groups facilitates learning and provides constructive feedback on language use (Leong & Masoumeh, 2017).

Suggestions

The results of the research highlighted numerous challenges faced by students in foreign language learning, particularly in speaking, listening, writing, reading comprehension skills, vocabulary, and grammar. These challenges stem from various factors including insufficient vocabulary and grammar knowledge, lack of motivation, discipline issues, anxiety, fear of judgment, and limited access to speaking opportunities. However, educators have employed diverse strategies to address these challenges, including modelling, motivation, varied materials, interactive activities, and peer support. Researchers can further explore the underlying psychological factors contributing to language learning anxiety, fear of judgment, and motivation issues. Investigating effective teaching methodologies tailored to individual learning styles and preferences could enhance language acquisition outcomes. Additionally, longitudinal studies could provide insights into the long-term effectiveness of interventions in improving language proficiency and reducing learning barriers. On the other hand, implementers should prioritize creating a supportive and inclusive learning environment where students feel encouraged to participate and make mistakes without fear of judgment. They can incorporate a variety of engaging tactics, which can enhance language learning outcomes and overall student engagement. Also, teachers in the same educational district could meet periodically to share their experiences of challenges and tactics. Moreover, pre-service teachers could be provided with videos, visuals, or role-playing examples of possible challenges in undergraduate courses and discuss how to

overcome them. As for curriculum makers, there could also be a section on common challenges and tactics that can be applied within the curriculum.

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Conflicts of Interest

The author conducted the study alone. There is no conflict of interest.

Ethics

This study was carried out in accordance with the ethics committee permission dated 08.12.2020 and numbered 2020/19 obtained from Aydın Adnan Menderes University Educational Researches Ethics Committee.

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A Case Study on the Implementation of Experiential Learning Integrated with Virtual Reality Technology in Teacher Education*

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ABSTRACT

In this study, the implementation of experiential learning integrated with virtual reality (VR) technology in teacher education was investigated. The study involved 29 pre-service teachers selected through purposive sampling for its case study design. Within the study, the participants first received an informative training session on experiential learning theory and VR technologies. Subsequently, they engaged with two different scenarios, each offering three degrees of freedom, using cardboard VR glasses. This process aligned with the stages of Kolb's Experiential Learning Theory, encompassing concrete experience, reflective observation, abstract conceptualization, and active experimentation. Data collection employed semi-structured interviews, metaphor analysis, and unstructured researcher observations. The data were then analyzed using content analysis techniques. The results revealed that 19 pre-service teachers encountered VR technology for the first time, whereas 7 had previously experienced VR only for gaming purposes. None of the participants had prior experience using VR technology for educational purposes. Participants generally responded positively to the VR-integrated experiential learning implementation, finding it engaging. VR appears to hold potential for widespread use in education, particularly during challenging periods like pandemics. Additionally, VR could prove effective in adapting instruction to individual differences and fostering inclusive education. The potential benefits of integrating VR technology into teacher education programs were highlighted. However, the frequent citation of unequal technology access by participants was noted as a disadvantage. This criticism, rather than targeting the VR-integrated experiential learning practice itself, underscores socioeconomic barriers that may hinder its widespread adoption.

Keywords: Virtual reality in education, technology-enhanced learning, experiential learning, teacher training

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Introduction

Technological advancements are steering teacher education toward more innovative models, transitioning from traditional approaches to ones that actively engage teacher candidates in their learning journeys. This shift emphasizes practical, experiential learning, and reflective thinking (Clarke & Hollingsworth, 2002), fosters collaborative environments (Kimmelmann & Lang, 2018), and integrates technology effectively (Laxmi & Gure, 2016). However, the evolution of teacher education, globally and in Turkiye, struggles to reach the anticipated standards in these areas (Bala, 2018; Girvan, Conneely, & Tangney, 2016; Yıldırım, 2013). Humanity's inherent openness to innovation has ushered in the "age of experience" via digitalization. In this era, digital technologies transform traditional educational content into vivid virtual experiences, allowing learners to actively engage and craft their narratives within these settings. This age highlights the role of interactive virtual platforms in simulating real-life experiences to deepen learning. Consequently, training teachers skilled in leveraging technological advancements to enrich educational experiences is deemed essential (Hu & Lee, 2008; Wadhera, 2016).

Built upon the foundational works of pioneers such as Dewey, Lewin, and Piaget, experiential learning has gained widespread acceptance globally through a comprehensive and holistic model developed by Kolb. Experiential Learning Theory posits that learning is not merely an outcome but a process of re-learning, where the learner shapes the learning under their own responsibility (Kolb, 2015). The experiential learning cycle is characterized by two primary dimensions—comprehension and transformation—and unfolds in four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This cycle suggests that concrete experiences provide the basis for reflective observation, leading to the transformation of insights into abstract concepts. These concepts, in turn, catalyze new experiences in the active experimentation stage (Evin Gencel, 2020; Evin Gencel, Erdogan, Kolb & Kolb, 2021; Kolb & Kolb, 2017). By adhering to the experiential learning cycle, individuals are supported in adapting to various learning approaches, utilizing the strengths of their prevalent learning styles and enhancing less dominant ones. Over time, this approach facilitates the evolution of learners' styles toward a more developed state. Kolb's Experiential Learning Cycle is compatible with diversified instructional methodologies integrated with technology. Moreover, the techno-pedagogical approach holds a pivotal position in teacher education in the rapidly advancing information technologies of the 21st century (Fox-Turnbull & Snape, 2011). The COVID-19 pandemic has highlighted the necessity of using technology in teaching, transitioning its status from optional to essential (Zakrzewski & Newton, 2022).

Changes in the global economy have increased the demand for individuals skilled in technology. In meeting this demand, integrating technology into teacher education holds distinct importance. However, it is observed that research on various dimensions of advanced technology use in teacher education is lacking (Dursun, 2019). On the other hand, experiential learning is seen as a promising approach to meet the demands of the era in pre-service teacher training (Girvan et al., 2016; Harfitt & Chow, 2018). However it is observed that a significant portion of studies focus only on the learning styles of teacher candidates, overlooking the comprehensive aspects of the experiential learning cycle (Akbulut, 2021). Research indicates that the experiential learning cycle has the potential to enhance learning outcomes by leveraging the strengths of individuals' preferred learning styles and encouraging the development of less dominant styles (Evin Gencel, 2020).

The integration of technology into teacher education requires careful consideration of its broad curriculum incorporation, relevance to specific pedagogical contexts, and the cultivation of enriched learning environments through innovative technologies. The Association for Information Technologies and Teacher Education emphasizes that innovative technologies can elevate learning beyond conventional tech use, making experiences more impactful and significant (Laxmi & Gure, 2016). Virtual reality (VR), as a leading-edge technology, embodies these principles, offering immersive, three-dimensional, and interactive settings that simulate real-world scenarios in a controllable virtual space. It transports users to new realms, enabling them to navigate, influence narratives, and interact within a fully virtual environment, detached from everyday life's constraints. n VR, individuals immerse themselves in this alternate universe using devices such as goggles or headsets, exploring and interacting as if they were truly part of that world, despite being physically elsewhere (Bown, White, & Boopalan, 2017).

The VR experience immerses users in a 360-degree panorama, allowing exploration in all directions. Depth perception is enhanced through stereoscopic vision, achieved by presenting slightly different images to each eye. Head movement sensitivity and image adaptation are facilitated by gyroscopes in head-mounted devices, which can be either standalone or integrated into smartphones. Beyond visual engagement, VR experiences incorporate auditory elements to heighten realism and immersion, highlighting sound technologies (Marougkas, Troussas, Krouska & Sgouropoulou, 2023; Wright, 2014). This multisensory integration creates an inclusive, interactive experience. Interaction with the VR environment, essential for realism, involves choices, manipulation, and movement. Choices, made through controllers, eye movements, or gestures, enable users to interact with virtual objects (Fox, Park, Borcar, Brever & Yang, 2018). Manipulation, or modifying objects, can include moving, resizing, or reshaping (Poupyrev, Billinghurst, Weghorst & Ichikawa, 1996). Movement within VR, achieved by teleportation or virtual walking, enriches the experience, enhancing user satisfaction (Wright, 2014; Lege & Bonner, 2020).

VR technology is becoming increasingly prevalent in teaching situational, adaptable, and complex skills across various professional fields and has been rarely utilized in teacher education since 2010 (McGarr, 2020). Studies have shown that learning environments leveraging VR technology have positive effects on teacher candidates' digital literacy levels (Huh, 2020), reflective thinking skills (Stavroulia & Lanitis, 2020), and abilities to interpret classroom incidents (Kosko, Ferdig, & Zolfaghari, 2021). In Turkiye, however, no other studies have explored the use and impacts of virtual reality technology in teacher education, apart from an Erasmus+ Project (Vr4Gifted), in which the researchers also participated as part of the project team. In this study, two of the VR scenarios, which are among the intellectual outputs of the mentioned project aimed at enhancing teacher candidates' competence in organizing inclusive educational environments, were utilized. The implementation process, detailed in the method section, was designed in accordance with the experiential learning cycle, integrating the stages of concrete experience and active experimentation with VR technology. Essentially, the purpose of this study was to examine teacher candidates' views on experiential learning supported by virtual reality technology, their metaphors related to the experiential learning scenarios they experienced with virtual reality support, and an analysis of researcher observations.

Method

Research Model

This research, exploring the integration of VR technology into experiential learning within teacher education, utilized the case study approach, a qualitative research method. The case study method focuses on understanding the functioning and operations of a system by gathering information via various data collection tools (Mills, Durepos, & Wiebe, 2010). Given the limited availability of literature on the utilization of VR technology in teacher education in the current research, the illustrative case studies design is deemed appropriate. The illustrative case studies, also referred to as explanatory or descriptive case studies, represent a qualitative research approach that examines a specific situation or phenomenon through in-depth analysis of one or two cases. In this design, a confined unit or phenomenon can be examined either at a specific point in time or over an extended duration. This methodology particularly valuable for investigating uncommon or under-researched phenomena where data is scarce (Gerring, 2007; Guetterman & Fetters, 2018). The illustrative case study design was chosen for this research due to its suitability for examining underexplored or novel areas within a specific context. This approach allows for a focused investigation of the nuances and complexities involved in integrating VR technology with experiential learning in teacher education. By centering the study on specific cases, researchers can gain a more in-depth understanding of the unique challenges and opportunities presented by this emerging field. Additionally, this method supports a comprehensive analysis by capturing real-world experiences and contexts, which is essential for developing practical insights and guiding future research in the field.

Participants

This study involved the participation of 29 prospective teachers who were recruited from a Faculty of Education at a state university located in Turkey's Marmara Region. These participants had all successfully completed a course on Teaching Principles and Methods and volunteered to participate in the research study. The selection of participants was conducted using criterion sampling, a purposeful method that ensures participants meet specific predefined criteria, such as educational background and readiness to engage with the research topic. Moreover, the convenience sampling method was also employed as participants were chosen from an institution that was easily accessible to the researchers, streamlining the logistical aspects of the study (Robinson, 2014). This combination of criterion and convenience samplingmethods allowed for the recruitment of a specific, yet accessible, group of participants who were equipped with relevant educational experience and willingness to contribute to the study, thus enriching the research outcomes.

Participants were recruited through a promotional poster shared on social media platforms, which provided details about the study's objectives, eligibility criteria, and contact information. The poster also included a Google Forms link for registration, which garnered 58 applications: 55 via the Google Forms link and three via email. From these applicants, 31 were initially selected based on their suitability for the study's focus and criteria. A WhatsApp group was created to facilitate communication and coordination among consenting participants, streamlining logistical arrangements and ensuring efficient dissemination of information. Preliminary interviews resulted in the exclusion of two applicants due to health and logistical reasons, leaving a final sample size of 29 participants. For privacy and confidentiality, each participant was assigned a code such as P01, P02, and so on. A table was maintained that listed their code, age, gender, and department.

This careful selection and organizational process ensured a diverse and manageable group of participants for the study. The characteristics of the participants are shown in Table 1.

Table 1. Participants characteristics

Code	Age	Gender	Department
P01	23	Male	Geography Education
P 02	25	Male	English Language Education
P 03	22	Male	English Language Education
P 04	23	Female	Primary School Education
P 05	22	Female	Primary School Education
P 06	20	Male	English Language Education
P 07	21	Female	Art Education
P 08	24	Male	Computer and Instructional Technologies Education
P 09	21	Female	Pshycological Counseling and Guidence
P 10	21	Female	Art Education
P 11	22	Female	Pshycological Counseling and Guidence
P 12	25	Female	Early Childhood Education
P 13	21	Male	Turkish Language Education
P 14	23	Male	Computer and Instructional Technologies Education
P 15	22	Female	Geography Education
P 16	24	Male	Computer and Instructional Technologies Education
P 17	23	Male	Computer and Instructional Technologies Education
P 18	23	Female	Geography Education
P 19	23	Male	Computer and Instructional Technologies Education
P 20	26	Female	English Language Education
P 21	24	Male	Computer and Instructional Technologies Education
P 22	22	Male	English Language Education
P 23	22	Male	Computer and Instructional Technologies Education
P 24	23	Male	English Language Education
P 25	24	Male	Computer and Instructional Technologies Education
P 26	21	Male	English Language Education
P 27	21	Female	English Language Education
P 28	27	Male	Computer and Instructional Technologies Education
P 29	21	Male	Pshycological Counseling and Guidence

Table 1 reveals that 18 males and 11 females' prospective teachers volunteered for the study, encompassing a diverse group from eight different departments. This variety included 9 participants from Computer and Instructional Technologies Education, 8 from English Language Education, 3 from Geography Education and Psychological Counseling and Guidance, 2 each from Art Education and Primary School Education, and one each from Early Childhood Education and Turkish Language Education. The age range of participants was between 20 and 27 years. The inclusion of students from a broad spectrum of departments was seen as a strength, bringing varied perspectives and interests to the study. Notably, while three participants were of foreign nationality, their Turkish descent and education in Turkish ensured proficiency nearly equivalent to native speakers.

Data Collection Tools

The study employed a semi-structured interview form and participant-created metaphors as data collection tools. The interview form was developed after reviewing literature on experiential learning and virtual reality in education, drafting an initial version, and obtaining feedback from experts in Educational Sciences and Turkish Education. This process led to the finalization of the interview form, which included nine questions. A metaphor form was also utilized, allowing participants to complete the sentence "The experiential learning application integrated with virtual reality is like … because …" to share their views. Furthermore, the researcher documented observations before, during, and after the interviews, both on the interview forms and through computer notes.

Data Collection

Interviews were conducted in a faculty member's office, with only the researcher, participant, and a research assistant (witness) present. Audio and video recordings were made with participants' consent. Prior to the interviews, an informed consent form was distributed to participants through a WhatsApp group. This form was read and signed by each participant before the interview. The interview setting included a desktop computer with a webcam for video and audio recording, the researcher's laptop for audio recording, and a 27” monitor to display presentations to the participant. An illustration of the interview setup is shown in Figure 1.

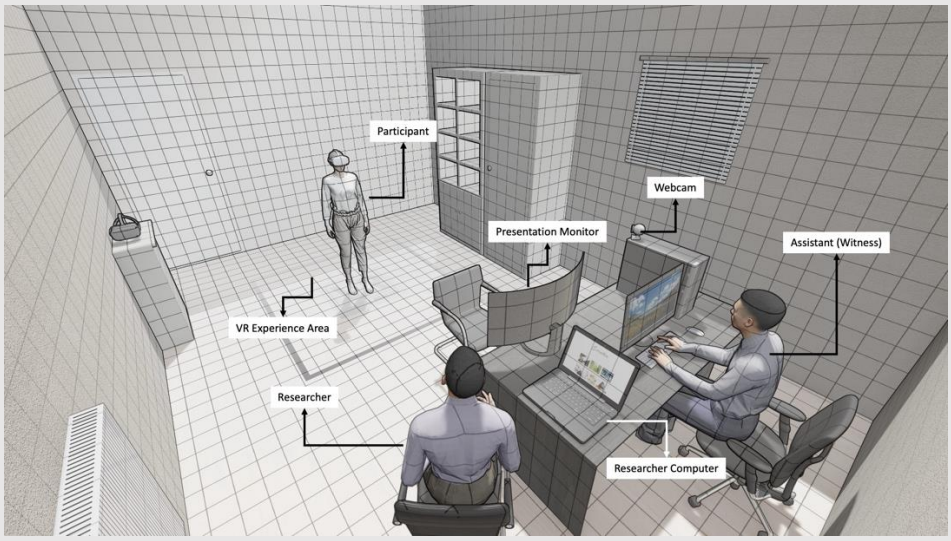

Figure 1. Setting of the interviews

In the setup depicted in Figure 1, the room was arranged with necessary desks, chairs, and devices for the research, along with additional space for a comfortable and safe virtual reality experience. Interview durations varied, with the shortest at 39 minutes and the longest at 54 minutes, averaging 46 minutes across all interviews. The first interview phase averaged 15 minutes, ranging from 11 to 18 minutes. The second phase averaged 14 minutes, with durations between 12 and 18 minutes. The third phase was longer, averaging 17 minutes and varying from 11 to 28 minutes. Total durations were 7 hours and 15 minutes for the first phase, 7 hours, and 6 minutes for the second, and 8 hours and 32 minutes for the third, culminating in 22 hours and 23 minutes for all 29 interviews. Figure 2 illustrates the start, end, and duration of each interview phase.

Figure 2. Phase Durations of Interviews

The interviews began with discussions on experiential learning and virtual reality technology, Participants then engaged in virtual reality scenarios to explore personalized education planning. The final phase was dedicated to reflections on the experience and the creation of metaphors. Audio recordings were made on a laptop, and both audio and video recordings were captured on a desktop computer. Throughout the process, the researcher observed and recorded significant insights related to participants' responses and personal reflections both on observation forms and electronically.

Data Analyses

In the study, content analysis was utilized to systematically examine the data, enabling the generation of codes, categories, and themes to elucidate the relationships among concepts. This process began with the digitization of all audio and visual materials. Segments pertinent to the study within the audio recordings were isolated using Audacity and saved for further coding. Instead of transcribing the interviews in their entirety, annotations and codings were directly applied to the audio files using Audacity, enhancing the efficiency of the analysis. For the initial coding, audio recordings were listened to once, and preliminary codes were extracted. Following the completion of co-coding, the researcher and the co-coder, an expert in educational sciences, convened to discuss the coding. Further reviews led to the refinement of codes, and the development of categories and themes aligned with the study's objectives. The Excel application facilitated a structured coding process, offering clear visualization of the coding framework and precise relationships between codes and categories. Codes from audio recordings, along with associated participant references, were organized in Excel. New codes were added, some merged, and categories redefined as the analysis evolved. In addition to the table regarding codes and participants, notes kept on Audacity were amalgamated into an Excel file. This consolidation facilitated easy access to query all responses provided by each participant to every question. As a result, a total of 1,095 annotations were identified from the data across 29 participants.

Validity and Reliability

The high level of agreement among the codings made by co-coders during the data analysis process indicates the internal consistency of the research. 93% reliability is obtained between coders according to Miles and Huberman coders reliability formula Miles & Huberman (1994). The presentation of findings through direct quotations from participant and obtaining approval from participants regarding the data enhances the credibility of the study. The preservation of all data by the researchers contributes to the verifiability of the work. Moreover, the detailed description of the data collection and analysis processes demonstrates the transferability of the research.

Examples of screenshots from the virtual reality environment

Ethics committee approval process

The study was carried out with the approval of Canakkale Onsekiz Mart University Ethics Commission dated 14/04/2022 and numbered 08/13.

Results

Upon analyzing the data obtained from the interviews, three main themes emerged. These themes are "virtual reality," "experiential learning," and "teacher education." Under these three themes, a total of 32 categories and subcategories have been identified. The themes and categories resulting from the research are summarized in Figure 3.

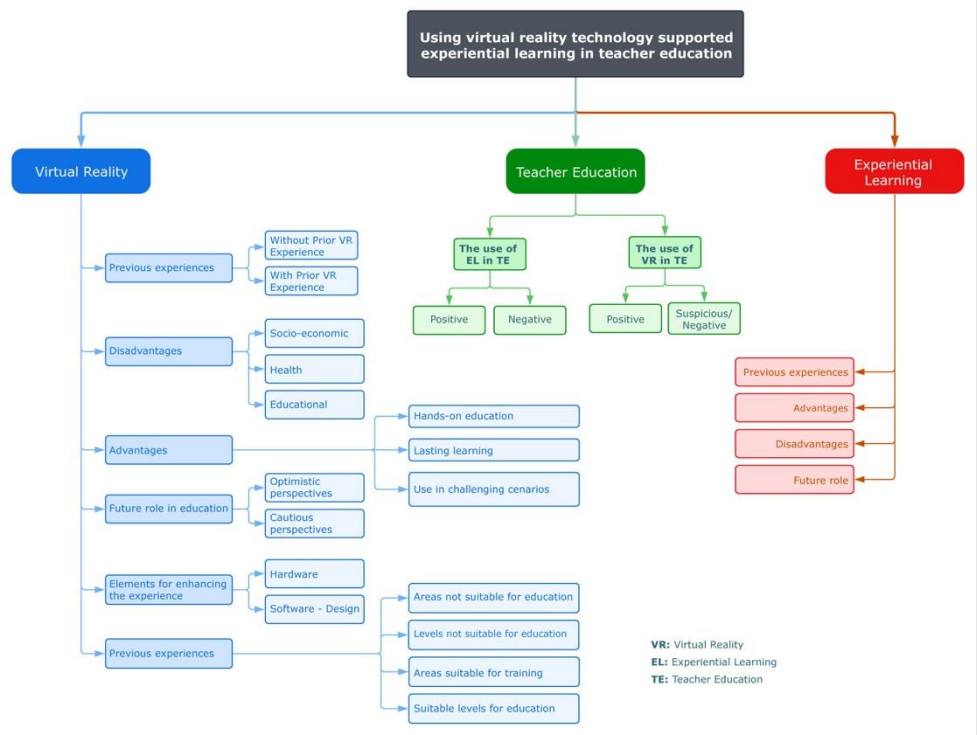

Figure 3. Themes and categories derived from content analysis.

Findings Related to the Virtual Reality Theme

Figure 3 identifies six main categories within the virtual reality theme: "previous experiences," "advantages," "disadvantages," "future role in education," "elements for enhancing the experience," and "application in education." The "previous experiences" category are divided into those with and without prior VR experience. The "advantages" category encompasses hands-on education, lasting learning, and use in challenging scenarios. "Disadvantages" cover socio-economic, health, and educational concerns. The "future role" category reflects both optimistic and cautious perspectives. "Elements for enhancing the experience" focus on hardware and software, while "application in education" outlines suitable and unsuitable areas and levels for VR's use.

When participants who tried virtual reality for the first time during the interview were asked why they had not experienced this technology before, nearly all indicated that they had not had the opportunity. For instance, P12, when asked if they had experienced virtual reality before, initially mentioned an experience in augmented reality. Upon being reminded by the researcher that the technology was different, they acknowledged that they had not experienced virtual reality before. When further asked why, the response was, "*…no opportunity, I never came across any chance.*" Participant coded P17, after stating they were experiencing virtual reality for the first time, attributed it to *"...let's say, I never encountered anything related to virtual reality, neither at*

work nor during my education. I never leaned in that direction. It's not about preference; actually, I didn't have the opportunity." P05, who also had no prior virtual reality experience, stated, *"…but I never had the chance to go and try it somewhere. But when I saw this (volunteer participant advertisement), I was frankly more intrigued, so I came because I was curious.*". Many participants' initial VR experiences were through gaming (P01, P02, P03, P08, P10, P11, P20, P22, P29), with P08 recalling the use of a VR headset for a box-cutting game, likely Beat Saber, described as a "*very realistic experience*." P29 cited playing a zombie game, noting it as more sensory and exciting, even affecting blood pressure due to its realism.

Participants with prior VR experience generally held positive views, except for P01, who experienced motion sickness. P01 stated, "*Because of the glasses... it causes some headache, so I prefer not to use it much*," attributing the discomfort to their prescription glasses and visual impairment. Nevertheless, the consensus on VR technology remained positive, emphasizing its benefits for practical education, lasting learning, and use in difficult scenarios. Below are abridged comments on its educational utility:

P03 discussed virtual reality's (VR) potential to lower the affective filter, enhancing learning: "*...the positives include experiential learning. You feel immersed...the affective filter decreases...if applied in elementary school, it could be combined with music and cartoons...*" P04 emphasized VR's ability to engage, motivate, and spark curiosity: "*...drawing in the student, motivating, and arousing curiosity… new things excite and intrigue them...*" P12 suggested VR could boost classroom participation: "*...it arouses curiosity...*" P11 spoke on learning's permanence of learning with VR, highlighting the value of personal experience: "*If conditions are met, it'd be wonderful...subjective experiences are unforgettable...I see no limitations or negatives."* P25 pointed out VR's accessibility and experiential benefits: "*...things you can't access or experience are possible in VR. We were just in a classroom setting, which I can't currently access*." This summary captures participants' views on VR's educational advantages, emphasizing immersive learning, engagement, and the unique experiences it offers.

While acknowledging VR technology's benefits, discussions also surfaced its socio-economic, health, and educational disadvantages. Key socio-economic worries included the risk of mechanization, with P01 noting, "*I momentarily thought... that it seems like we're moving towards robotization, slightly drifting away from teaching*." P02 highlighted the drawback of diminished physical interaction, stressing face-to-face education's value: "...*the negative part is the lack of eye contact, hand gestures, body language.*". P29 saw VR's promise but criticized its primitiveness and cost: "*It's a very new technology right now. It appears quite primitive... But it's related to the cost...*" Nonetheless, a cautious optimism persisted. Fourteen participants expressed both positive and cautious views about VR's use, access, and equity. P10 stressed the need for quick VR adoption: "*We're late in shifting to virtual...*" There was a notable interest in 6 Degrees of Freedom (6 DoF) for immersion. Five participants discussed enhanced movement and realism in VR, desiring larger spaces and accurate tracking.

Participants were asked about potential applications of virtual reality-supported experiential learning beyond teacher training, leading to four identified subcategories: Suitable and unsuitable areas for education, and suitable and unsuitable levels for education. Here are selected insights from these categories: "*I don't think there are many (areas where it shouldn't be used), it's like a prediction...*" (P02); "*Actually, none… even in art class, because it also relaxes the inner world. It provides a different observation area…*" (P12); "*Sir, I think it would work in all of them. That's what I believe...*" (P18). Most participants (P02, P03, P04, P06, P09, P10, P13, P20, P18,

P19, P24, P25, P28, P29) expressed the view that experiential learning integrated with virtual reality would be beneficial in medicine and related fields. "*It would be highly beneficial and successful in medicine.*" (P19), "*... especially if the student can participate with their own hand movements, especially in surgery…* " (P20). Some participants mentioned that it would not be suitable for use in certain areas. For example, P13, P15, and P24 said it could not be used in sports and/or arts education, while P05, P20, P22, P25, P26, and P29 stated it would not be suitable for linguistics and social sciences. "*I don't see it being used much in physical education*" (P24); "*I don't think it would be very useful in English*" (P26);"*Generally speaking, I don't think it will be necessary in verbal subjects…* " (P25).

Concerns were voiced about VR in early education by several participants (P03, P08, P09, P11, P12, P13, P14, P15, P20, P23, P26, P27). P23 specifically mentioned, "*I believe it shouldn't be used until adolescence...*"; P08 pointed out, "*preschool, I think (should not be used). Because preschool is a very different audience…*" Despite this, VR was seen positively for high school and higher education. A few (P07, P19, P24, P25, P28, P29) supported VR for younger students. P28 argued, "*... for preschool, elementary, and middle school, I think it would be much more successful...*"; P19 suggested, "*Definitely, it should start from elementary school*." This captures the varied perspectives on VR's appropriateness across educational levels, including direct quotes for clarity.

Participant insights demonstrated the broad potential of VR in enhancing experiential learning across various educational levels.

Findings Related to the Teacher Education Theme

Within this theme, two main categories were identified: the application of experiential learning in teacher education, and the integration of virtual reality (VR) technology within the same context. Participants largely held positive opinions about incorporating experiential learning into teacher education. For example, P03 highlighted its importance for inclusivity and individualized education, stating, "*Considering individual differences and being able to offer inclusive education to all students is necessary... experiential learning can be provided both theoretically and in practice during internships.*" This comment underlines the value of experiential learning in addressing individual needs within teacher education.

Participants indicated that experiential learning is not sufficiently integrated into education faculties, often limited to the final year. P08 argued for its increased use, emphasizing the importance of repetition and hands-on experience: "*It's used in our last year... It needs to be more active...*"; P09 shared that practical knowledge is applied in the fourth year during the Ministry of Education internship, highlighting the value of seeing theory in practice. P11 advocated for extending experiential learning beyond the final year, citing the lasting impact of practical experiences over theoretical ones: "*Let's not only do it in the last year; let's apply it always...*"; P06 suggested that more frequent use of experiential learning methods would enable teachers to recognize and address individual student needs, potentially making lessons more effective. These comments underscore a consensus on the need for broader and earlier implementation of experiential learning methods in teacher education.

The interviews indicate that teacher candidates hold a positive view of integrating of Virtual Reality (VR) technology into teacher education. Yet, there are reservations regarding its practicality under current educational conditions. P11 pointed out the challenges of implementing VR technology given the present school infrastructures but acknowledged its potential benefits

once these hurdles are overcome: "*It would probably be difficult, considering the conditions of our school"*. P15 emphasized the necessity of establishing clear guidelines and ensuring comprehensive training for both teachers and students to facilitate effective VR integration: "*If it can adhere to certain rules and if the training is properly shared with the students and teacher candidates beforehand…*". These insights reflect enthusiasm for VR's educational potential while acknowledging its challenges.

A majority of the participants expressed favorable attitudes towards incorporating Virtual Reality (VR) technology into teacher education. Specifically, eighteen participants explicitly endorsed its usage, whereas eleven advocated for its application with certain stipulations. Notably, participants such as P01, P02, P03, P04, P06, P09, P10, P11, P12, P13, P14, P16, P17, P18, P20, P21, P26, and P28, demonstrated unconditional support for integrating VR technology in this context: "*If it's done with virtual reality, the impact could be much greater. Students might gain more experience than they would in a traditional classroom setting*" (P16), "*Virtual reality has been popular for nearly a decade but remains underused in schools. It could significantly enhance learning. Practical training is crucial in teacher education, yet we focus mostly on theory. VR should be utilized to bridge this gap* (P06), "*... I think we should keep up with the updates and developments in education. It should be offered in faculties of education, at least as an elective course*" (P03), "*It should be used, as it feels like a real experience. Using it now would be beneficial, and it's likely to develop further. Once developed, it must be fully integrated into education faculties* (P13).

Some participants (P05, P07, P11, P15, P18, P19, P22, P23, P24, P27, P29) have expressed positive attitudes towards the implementation of virtual reality technology in teacher education but have also raised certain reservations. "*I think it's something that needs to be developed and used. I've thought before about how it would be if this were implemented. I believe it will be beneficial for education if it's developed and adjusted properly*" (P29). "*Of course, going to school and experiencing it firsthand is always much better. If we were to use this technology through glasses, we would need to recreate the same environment in the virtual space, which I don't think is necessary…"*. They acknowledge VR's potential to enrich learning while stressing the necessity for meticulous planning, early introduction, and judicious use to genuinely aid future teachers.

Findings Related to the Experiential Learning Theme

The theme of Experiential Learning revealed categories including previous experiences, advantages, disadvantages, and its future role. Most participants highlighted their lack of prior knowledge or experience with the theory of experiential learning often conflating it with related concepts like practical education and constructivist teaching. Notably, none of the participants remembered engaging with the experiential learning cycle in their courses. For instance, P05, when asked about experiential learning in their classes, stated, "*No, I don't remember anything. Generally, the emphasis was primarily on traditional methods*..." The COVID-19 pandemic also exacerbated this gap, as P05, P11, P12, P13 mentioned forgetting much of their online coursework. P16 admitted to likely forgetting due to inattention, while P26 noted, "*…But we never really saw it laid out in four stages like that…*" highlighting an indirect familiarity with related topics. P10 added, " *...now I understand experiential learning better."*

Responses to questions about the implementation of experiential learning in teacher education were varied and insightful. "*... Because, sometimes, even when people are not in their best mood, they can disengage from the class. Experiential learning increases the productivity in class*" (P10). Participant 19 stated that "*If classes were conducted this way (according to the*

experiential learning theory), it would be more engaging and ensure greater student participation..." Participant 26 said, " *I think it should be used because to be honest, the experiential learning is the real learning*" Participant 03 stated, "*considering individual differences and being able to offer inclusive education to all students is necessary…Therefore, experiential learning can be provided both theoretically and in practice during internships*." Similarly, some participants believe that the experiential learning theory in educational activities will become more widespread in the future. "*I believe experiential learning will increase. We are already moving towards experiential learning… w*e want this kind of learning, not rote memorization." (P04). "*I think it will increase…these could initially be like, not virtual reality but augmented reality, like experiments on cards…"* (P28). "… because the more you apply, the more you learn. It appeals to more senses..." (P28). These reflections highlight the pivotal importance of incorporating experiential learning into teacher education programs. It bridges the gap between theoretical knowledge and practical application, ensuring educators are well-equipped to accommodate diverse learning needs and fully prepare future teachers for the dynamic nature of classroom settings. The adoption of experiential learning strategies aim to boost student engagement and learning outcomes while fostering the development of adaptable, reflective, and skilled educators ready to meet the changing demands of modern education.

Metaphorical Insights from Participants' Experiences with VR

The metaphors created by participants, with the exception of P15, convey a positive outlook. These are summarized in Table 2.

Table 2. Metaphors created by the participants.

Code	Metaphor	Code	Metaphor
P 01	It is an extraordinary experience.	P 16	It is like a child taking their first steps.
P 02	It is discovery.	P 17	It is like hitting the jackpot (positive)
P 03	It is a second life.	P 18	It is learning by doing and experiencing.
P 04	It is riding a bicycle.	P 19	It is looking into the future.
P 05	It is isolation.	P 20	It is a video game
P 06	It is a parallel universe.	P 21	Unable to provide a metaphor.
P 07	It is being inside the canvas	P 22	It is living John Dewey.
P 08	It is being in a dream.	P 23	It's a dissimilar experience.
P 09	It is being in a dream.	P 24	It is an entrance to a different world.
P 10	It is space.	P 25	It is an experience itself
P 11	It is life itself.	P 26	It is being in a dream.
P 12	It is an application cloud.	P 27	It is being in a different dimension.
P 13	It is a different world.	P 28	It is being a character in a computer game
P 14	It is like you are inside it.	P 29	It is swimming with diving gear.
P 15	It is like a delusion (negative).		

The explanations for the metaphors provided by some participants in response to the "because" structure is quoted below:

Participants shared diverse metaphors to describe their experiences with virtual reality in education, reflecting a range of perceptions. P01 described the VR experience as "an extraordinary experience," noting the surreal aspect due to lack of personal experience but foreseeing its eventual necessity in daily life. P03 likened it to "a second life," drawing parallels with the game Second Life to emphasize the blend of practice and reflection inherent in experiential learning within a

virtual realm. P05's metaphor of "isolation" depicted a sense of detachment from reality, highlighting the immersive aspect of VR as transporting users to another world. P09 chose "a dream" to describe the experience, capturing the transient yet impactful nature of emotions and events felt within VR, similar to a dream's fleeting reality. P11 described it as "life itself," suggesting that VR experiences can mirror life's lessons, where missed or mistaken experiences shape our understanding and memories. P15 offered a negative view with "a delusion," expressing skepticism about the accessibility and practicality of VR technology in education and the extensive training required for teachers. P22 used "living John Dewey" to honor the educational reformer's philosophy of learning through doing and experiencing, embodied by VR's interactive environment. Lastly, P29 described their experience as "swimming with diving gear," emphasizing the safety and exploratory freedom VR provides, allowing users to transcend their usual limitations. These explanations illustrate the complex and nuanced attitudes toward VR in education, ranging from optimistic and immersive to critical and skeptical, each encapsulating unique insights into the potential and challenges of integrating virtual reality into educational contexts.

The varied perspectives and metaphors from participants highlight the range of experiences and expectations with experiential learning and virtual reality in education. Despite a generally positive outlook and anticipation of technological advancements and wider adoption, concerns about accessibility and the need for comprehensive teacher training highlight existing challenges. Integrating VR and experiential learning methods into educational practices is recognized as a complex yet potentially transformative process, requiring a balanced approach to leverage the benefits while addressing obstacles to successful implementation.

Notes from Researcher Observations

Researchers have observed that teacher candidates were eager and enthusiastic during the application process. However, despite participants having successfully completed the Teaching Principles and Methods course, it was noted that their knowledge and proficiency levels regarding experiential learning were considerably limited. While participants expressed positive views about the integration of virtual reality technology with experiential learning, researchers also observed a lack of optimism regarding the broad adoption of this practice. This pessimism is primarily attributed to economic constraints and the prevailing perception that, despite the adoption of a learner-centered educational philosophy, the educational system still largely relies on rote learning in practice. Participants reflected the viewpoint that the use of virtual reality technology in teacher education could enrich the teaching practice as an alternative. Yet, there is a strong belief that no technology can replace the importance of eye contact and direct communication with students. Considering the rapid advancements in artificial intelligence, it is not far-fetched to anticipate that virtual reality technology, enhanced with AI, could create interactive environments with virtual characters in teacher education in the future. However, it has also been observed that teacher candidates do not have a flexible mindset regarding this issue. Some participants struggled significantly with producing metaphors, which could be attributed to both a lack of technological literacy and insufficient creative thinking skills. While some tried to create metaphors related to their experiences, they ended up using statements that merely summarized their experiences. For example, P18 described the experience as "*like learning by doing and experiencing"* essentially providing a summary of their experience.

Discussion, Conclusion and Suggestions

In this research it was found that teacher candidates' view the integration of virtual reality technology with experiential learning in teacher education positively and beneficially. The metaphors generated by participants, which are almost entirely positive, corroborate the expressions shared during interviews. Researchers also observed that teacher candidates experienced the application of virtual reality integrated with experiential learning with excitement and high motivation. Pantelidis (2010) notes that the use of virtual reality technology in education enhances student motivation by supporting active participation in an interactive environment. The study reveals that even with a basic virtual reality application, teacher candidates generally experienced an immersive experience, were impacted by it, and believe that this experience should be expanded across different educational levels and fields. However, financial barriers to accessing this technology and challenges in content development processes have emerged as significant limitations. Literature review shows that the number of studies on virtual reality applications in teacher education is exceedingly insufficient. The findings of the few available studies align with those of the current research (Billingsley, G., Smith, S., Smith, S., & Meritt, 2019; Grossman, 2018; Clark, 2011; Serin, 2020).

McGarr (2020) notes that research on the application of virtual reality technology in teacher education has only emerged in the last decade, indicating its potential to guide the development of teacher education programs for training future teachers. McDonald, Kazemi & Kavanagh (2013) emphasize the importance of this technology in enriching teaching practices processes. In this study, virtual reality technology integrated with experiential learning was applied as a teaching practice, and teacher candidates were generally satisfied. However, they also stated that teaching requires real eye contact and communication, which virtual reality technology cannot replace. Therefore, it is thought that this technology could be effectively used not directly as a practice but as preparation for authentic teacher training internships. Indeed, Nissim and Weissblueth (2017) have highlighted that the use of virtual reality technology in teacher education positively affects teacher self-efficacy, creativity, and innovative thinking skills. Developing different VR scenarios could allow teacher candidates to experience some situations they may encounter in the future. Kim and Ko (2012) mention that virtual reality technology plays a significant role in providing equal opportunities in processes such as recognizing and experiencing different cultural characteristics. In this study, VR technology integrated with experiential learning was found beneficial by teacher candidates for applying theoretical knowledge. The literature also emphasizes significant developments in bridging the gap between theory and practice in teacher candidates' education through VR (Cohen, Wong, Krishnamachari & Berlin, 2020; Ke, Lee & Xu, 2020). Clark (2011) has stated the necessity of training teacher candidates with an awareness of the advantages and disadvantages of this technology. Moreover, the unique opportunities of virtual reality are closely aligned with the objectives of application-based teacher education (Grossman, 2018; Lamb & Etopio, 2020). Kosko and colleagues (2021) argue for an increase in conceptualization studies and applied research on the implementation of VR and extended reality in teacher education. Atal, Admiraal, and Saab (2023) also state that technological applications in teacher education should not be applied independently but supported by an instructional model. In this study, Kolb's Experiential Learning Cycle was experienced with VR technology accordingly. Researching how different learning models can be integrated with virtual reality technology and examining their effects will contribute to the knowledge base in this field.

This study revealed that VR technology's potential to revolutionize education with innovative methods. However, unequal access to technology could hinder these advancements, a challenge similar to that faced by earlier technologies like television and the internet, which eventually became widely accessible. The educational landscape anticipates a substantial surge in immersive applications, driven by advancements in VR, artificial intelligence, and wearable technology. Consequently, integrating VR into educational programs and teacher training is necessitates for its broad adoption. Such integration serves as a critical cornerstone for improving teaching methods and equipping future educators with the necessary skills to leverage VR effectively within the classroom. To this end education programs must provide practical VR integration training and address issues like privacy, data security, and fair representation in virtual environments. Through the exchange of ideas in scientific conferences and the pursuit of rigorous research initiatives, a more comprehensive understanding of VR's effectiveness in education can be cultivated, paving the way for the development of well-defined best practices within this field.

Based on the findings of this study, to gain a more comprehensive understanding of VR technology's impact on education, researchers should explore a wider range of research methodologies. Experimental studies could be valuable in confirming VR's contributions to teacher training and evaluating its measurable outcomes on student learning. Moreover, conducting descriptive and mixed-methods research with larger sample groups could shed light on the broader role and practical applications. This research could also illuminate the potential of VR in promoting inclusivity and accommodating individual differences in education. Therefore, researchers are encouraged to adopt these methodologies further investigate the potential benefits and multifaceted impacts of VR integration in educational contexts.

To equip future educators with the skills to leverage emerging technologies, teacher education programs require continuous revision and integration of innovative tools like virtual reality. This approach will ensure that teacher candidates graduate with the necessary skills to keep pace with technological advancements and adopt dynamic and flexible teaching approaches after graduation. Virtual Reality environments offer unique opportunities for structuring knowledge and promoting creative thinking, by immersing learners in realistic scenarios. These experiences change learners' knowledge, perceptions, attitudes, and emotions, offering meaningful and creative learning opportunities. These experiences not only change learners' knowledge, perceptions, attitudes, and emotions, but also culminate in the creation of a rich and transformative learning space. Virtual reality environments should be viewed not merely as technological tools but as transformative educational systems with the potential to revolutionize teacher education through their innovative integration.

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Relationship Between Resilience and Transformational Leadership According to the Perception of Academics*

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ABSTRACT

The aim of this study was to determine the views of academics related to transformational leadership and resilience attitudes in terms of various variables and the relationship between transformational leadership and resilience in higher education setting. This quantitative correlational study was carried out with 390 academics in the state universities in Ankara. Data of the study was collected with the "Resiliency Scale" which was developed by the researcher and the "Multifactor Leadership Questionnaire" developed by Bass and Avolio. Descriptive statistics and regression analysis were utilized. According to the results the resilience and leadership perceptions of the participants do not show a significant difference according to their academic positions and that the positivity and empathy dimensions of resilience are predictors of leadership. The findings that are expected to contribute to the literature were discussed, and based on the results of the research, suggestions were made to strengthen the resilience perceptions of the faculty members and to develop their leadership skills.

Keywords: Transformational leadership, resilience, higher education

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Introduction

Universities today operate in an ever-changing environment (Cohen & Kisker, 2010). Advances in technology, changes in student demographics and educational policy, and increased accountability expectations are just some of the factors that require the higher education field to respond like never before (Del Favero, 2005; Lucas, 2000), and these factors have created a challenging operating environment for higher education administrators for many years. In order to overcome these challenges, it is important for academics to operate effectively and have the necessary skills to succeed despite the adversities. In this respect, it is important to understand whether transformational leadership can help academics cope with these challenges and maintain their resilience.

As change continues in higher education, it is important that faculty members have the necessary knowledge and skills, are equipped with leadership behaviors, and are effective in implementing and sustaining positive changes so that other members of the organization have the same behaviors. Leadership and resilience are two general frameworks that can benefit academics in fulfilling their responsibilities (Jones, Lefoe, Harvey & Ryland, 2002; Trowler, 1998). A great deal of research has been conducted on transformational leadership and resilience, but there is no strong empirical evidence for the importance of these two conceptual frameworks in higher education leadership. Therefore, it is assumed that this study will add knowledge to the academic research and literature on transformational leadership and resilience in higher education leadership.

From a leadership perspective, resilience theory emphasizes the leader's ability not only to follow a particular model but also flexibility and adaptability (Ledesma, 2014). A leader must be able to adapt his strategies and approach to changing conditions. Thus, the leadership process is affected not only by the internal characteristics of the leader but also by the variables in the leader's environment. This theory emphasizes the need for leaders to constantly adapt to changing conditions and show flexibility, instead of predictability and a fixed model in leadership (Ledesma, 2014; Smith, 2017). In this context, it is revealed that leaders must have a wide range of skills and abilities to respond rapidly and effectively to changing situations.

Examining the relationship between transformational leadership and academic resilience in higher education is an area of increasing interest in empirical research (Chen, Xie, Liu, 2021; Shelton, Hein, Phipps, 2022; Wang, Li, Li, 2017). The rationale for this interest is that the higher education environment is becoming increasingly complex and demanding, requiring academics to be resilient in the face of challenges and change. On the other hand, transformational leadership is argued to be effective in promoting organizational change, creating a positive organizational culture, and enhancing employee well-being and job satisfaction (Chen et al., 2021). In general, empirical studies indicate that there is a strong relationship between resilience and transformational leadership in higher education (Trowler, 1998; Jones, Lefoe, Harvey & Ryland, 2002). Although there are studies that address both transformational leadership and resilience individually in higher education, there is evidence that these two concepts should be addressed together (Valero, Jung, Andrew, 2015).

First, transformational leadership is known to positively affect academic performance by providing motivation, inspiration, and guidance to academics. By examining the relationship between transformational leadership and academic resilience, institutions can identify factors

that contribute to academic resilience and develop interventions to improve academic performance (Shelton et al., 2022).

Second, academics face various challenges and stressors, such as workload, time constraints, and job insecurity, which can negatively affect their academic resilience. By examining the relationship between transformational leadership and academic resilience, universities can identify leadership practices that can help academics overcome these challenges, and build their resilience (Chen et al., 2021).

Another important rationale is that academic resilience is critical for job satisfaction. When academics feel supported and valued by their leaders, they are more likely to stay in their positions and have higher levels of job satisfaction (Shelton et al., 2022). By examining the relationship between transformational leadership and academic resilience, universities can develop strategies to retain talented academics and foster a positive work culture (Wang, et al., 2017).

Considering all these factors, examining the relationship between transformational leadership and academic resilience is important to support academic achievement, address challenges and stressors, enhance organizational effectiveness, and promote job satisfaction and retention. Transformational leaders can foster academic resilience by creating a positive work environment that nurtures job satisfaction, organizational commitment, and job engagement. Therefore, investing in transformational leadership development in higher education institutions can be an effective strategy to increase academic resilience and ultimately improve organizational outcomes (Reivich & Shatte, 2002; Scott, 2002).

Literature Review

Resilience

The concept of resilience is derived from the Latin root "resiliens" (resilient) and means that a substance is flexible and can easily return to its original state (Greene, 2002). According to Masten, Best, and Garmezy (1990), resilience means adapting to challenging conditions and situations where goal achievement is threatened and achieving success through this adaptation. According to Henderson and Milstein (1996), resilience is defined as the process of self-correction and improvement or the capacity to recover, withstand adversity, and improve oneself. According to Grotberg (2003), resilience means the ability to cope with the difficulties encountered in life when faced with these difficulties, as well as the competence that enables people to emerge from these difficulties even stronger.

Academic Resilience

Academic resilience refers to the capacity of academics to withstand and adapt to the challenges and pressures inherent in their profession (Regehr, Nelson, Hildyard, 2017). It encompasses their ability to recover from adversity, maintain their well-being, and continue to make positive contributions to their institutions and the academic world (Dohaney et al., 2020). Resilience is a psychological construct that refers to an individual's capacity to adapt to and overcome adversity, stress, or significant life challenges. In the context of academics, resilience includes the ability to cope with the demands of the academic profession, such as teaching, research, administrative responsibilities, and work-life balance (Mackey, Gilmore, Dabner, Breeze, Buckley, 2012).

Transformational Leadership

Transformational leadership provides leaders with the ability to create an environment or social setting that changes leader-employee interactions, attitudes, and behaviors in ways that increase performance and commitment to the organization's vision and goals, and positively impacts individual and organizational outcomes (Bass & Avolio, 1990; Northouse, 2016). Specifically, transformational leadership has a positive influence on employee satisfaction, engagement, and performance and organizational outcomes related to culture, performance, change, and organizational innovation (Bass & Avolio, 1990; Northouse, 2016).

Transformational leadership is a leadership style characterized by leaders who inspire and motivate followers to go beyond their interests. Transformational leadership is explained by four main dimensions. These are inspirational motivation, idealized influence, individualized attention, and intellectual stimulation (Avolio et al., 2009; Avolio et al., 2014).

Transformational Leadership in Higher Education

Transformational leadership is considered an appropriate leadership approach to guide change in higher education institutions (Northouse, 2016; Voon, Lo, Ngui, Ayob, 2011). Transformational leaders in higher education are those who promote a shared vision, innovation, and personal and professional development among faculty and staff (Berson, Waldman, Pearce, 2016). Therefore, they are expected to be leaders who foster a culture of continuous improvement and promote a shared vision for the future of the institution. As the university environment is highly unstructured, flexible, and autonomous, employees prefer to have leaders who provide them with a clear mission and vision and instill confidence in them to do their jobs. For example, academic staff, who often work in solitary environments, need clear direction and vision from their leaders to be able to carry out their work based on clear vision and direction from senior management (Voon et al., 2011).

It is stated that transformational leadership can positively affect organizational culture and performance in Turkish universities (Kondakçı & Zayim-Kurtay, 2019). Leaders who inspire and motivate academic staff and encourage a culture of collaboration and innovation contribute to the development of universities (Çetin & Kınık, 2025; Yüner, 2020). However, it can be asserted that the implementation of transformational leadership in Turkish higher education faces difficulties such as bureaucratic structure, hierarchical traditions, and political influences, and is affected by various contextual factors. For example, centralized decision-making processes and legal regulations restrict the autonomy and innovative practices of university leaders (Kondakçı & Zayim-Kurtay, 2019). Transformational leadership of administrators in Turkish higher education institutions has the potential to positively impact the resilience of academic staff by empowering them and supporting them in their professional efforts (Gözükara & Şimşek, 2015; Yüner, 2020). Therefore, further research on this topic may reveal the specific mechanisms through which this relationship operates and identify strategies for developing resilience among academic staff in the Turkish context.

Exploring the relationship between transformational leadership and academics' resilience can provide insights into strategies through which academic leaders can increase their leadership effectiveness and promote resilience among their colleagues. In this study, which investigated the relationship between transformational leadership and resilience according to the views of faculty members, the following questions were sought to be answered;

1. Do faculty members' perceptions of resilience differ according to their academic positions?

2. Do faculty members' perceptions of leadership differ according to their academic positions?

3. Are faculty members' perceptions of resilience a significant predictor of their leadership behaviors?

Method

Research Design

This study, which examines the relationship between resilience and leadership according to the opinions of faculty members working at the Faculties of Science, Literature, Education, Economics, Administrative Sciences, and Engineering of four state universities in Ankara in the 2018-2019 academic year, was conducted with quantitative correlational research method. This study was designed in the correlational research model because it examines the relationship between two quantitative variable groups (Fraenkel et al., 2012). Correlational research provides insight into the relationship between two or more variables or conditions and the strength and direction of the relationship (Ary et al., 2006).

Population and Sample

The population of the study consists of faculty members working in state universities in Ankara, which were established before 2000. There are 2441 faculty members in the common faculties of these universities. A stratified sampling method was adopted in sample selection. The aim is to divide the population into different sub-strata before selecting the sample and then select the samples from these strata (Onwuegbuzie & Collins, 2007). It is presented in Table 1.

Table 1. Descriptive statistics of sample

Universities	Number of academics	Percent (%)	Sample	Percent (%)
Ankara University	446	18.27	71	18.20
Gazi University	741	30.36	115	29.48
Hacettepe University	653	26.75	158	40.5
METU	601	24.62	46	11.80
Total	2441	100	390	100

As seen in Table 1, it was calculated that there should be a total of 390 participants in the study, including 71 faculty members at Ankara University, 115 faculty members at Gazi University, 158 faculty members at Hacettepe University, and 46 faculty members at METU. Due to the problems that may arise in the return of the data collection tool, the data collection tools were distributed to 500 faculty members in the implementation phase.

Data Collection Tools

Resilience Scale

In the study, the "Resilience Scale" developed by the researcher was used to measure the resilience perceptions of faculty members. This scale consists of seven dimensions and 34 items. The reliability of the scale and its seven subscales was examined with Cronbach alpha, and the Cronbach alpha coefficient for the entire scale was calculated as 0.89. Cronbach's alpha values for the sub-dimensions of the scale are .83 for "Self-Confidence-Personal Efficacy", respectively; .72 for “Positivity-Empathy”; .77 for “Proactivity”; .64 for “Interpersonal Interaction”; .60 for “acceptance”; .61 for “Internal Discipline”; .72 for “improvement”. According to these results, based on the data set collected from 390 participants, it was concluded that the Self-Confidence-Personal Efficacy, Positivity-Empathy, and Proactivity subscales of the Resilience scale and the entire scale were highly reliable.

The appropriateness of the model created for the seven-factor structure of the resilience scale was first evaluated by the ratio of the chi-square value to the degrees of freedom. Accordingly, the ratio of the chi-square value to degrees of freedom should be less than 5 (Kline, 2005). It is stated that acceptable fit values for AGFI, GFI, NFI, CFI, IFI are .90 and above for goodness of fit indices, and 0.08 and below for RMR and RMSEA (Byrne & Campbell, 1999). In this study, according to the results of confirmatory factor analysis, the fit indices of the measurement tool were found to be at the desired level (x2 /sd = 3.82, RMSEA= .05, NFI= 0.88, CFI=0.91, GFI= 0.83). When the goodness-of-fit results obtained in the current study are evaluated as a whole, it is concluded that the seven-dimensional factor structure of the Resilience scale is also valid in the current study.

Multifactor leadership scale (MLQ)

In the study, the Multifactor Leadership Scale developed by Bass and Avolio (1990) and used in many studies was utilized to determine the leadership perceptions of higher education administrators. The scale has been utilized in many studies and the version adapted into Turkish by Mehmet Korkmaz under the name of "Leadership Inventory" was used in this study. As a result of the factor analysis conducted for the leadership inventory adapted into Turkish by Korkmaz (2005), a two-factor structure emerged. The factor loadings of the sub-dimensions of transformational leadership ranged from .56 to .88. The factor loadings for interactional leadership ranged from .52 to .77. The leadership scale consists of eight subscales. Cronbach's alpha coefficients were calculated to test the reliability of each subscale. Accordingly, the alpha value of the "Contingent Rewarding" subscale of the leadership scale is .86; the alpha value of the "Inspirational Motivation" subscale is .88; the alpha value of the "Idealized Influence" subscale is .89; the alpha value of the "Intellectual Stimulation" subscale is . 87; the alpha value of the "Individual Consideration" subscale is .84; the alpha value of the "Management by Exception (Active)" subscale is .72 and the alpha value of the "Management by Exception (Passive)" subscale is .62; the alpha value of the "Laissez-faire" subscale is .61; and the alpha value of the whole scale is .93. As a result of confirmatory factor analysis, the fit indices were found to be at an acceptable level (x2 /sd = 3.45, RMSEA= .08, NFI= 0.96, CFI=0.97, GFI= 0.76).

Data Collection Process

While the data collection tool was sent to the faculty members via e-mail, it was also personally applied by visiting them for face-to-face interviews. For faculty members who had time problems or were absent from their offices, the scales were left at the department secretariat and collected by revisiting after a certain period of time. Participants took part in the study voluntarily.

Data Analysis

In order to calculate the scores of the answers given by the participants in the data analysis, the items in the scales were given 5 points for "always", 4 points for "mostly", 3 points for "sometimes", 2 points for "rarely" and 1 point for "never". The responses to each item in the scale ranged from 5.00 to 1.00 from positive to negative in accordance with these grades. Based on the assumption that the intervals in the data collection tools are equal (4/5), lower and upper limits for the options were determined. The data obtained as a result of the research were first analyzed in terms of normality tests.

Ethics

All ethical rules were followed during the collection and analysis of the research data. Ethical approval for the research was obtained by the decision of the Hacettepe University Educational Sciences Ethics Committee dated 03.02.2021 and numbered 1431179. It was stated that the data obtained from the research will be used only for scientific purposes and will not be shared with third parties.

Findings

In this section, the research findings obtained as a result of the analyses carried out to solve the sub-problems are presented.

Do faculty members' perceptions of resilience differ according to their academic positions?

One-way analysis of variance (ANOVA) was conducted to examine whether faculty members' perceptions of resilience differ according to their academic positions. The results are presented in Table 2.

Table 2**.** ANOVA results on participants' perceptions of resilience according to academic position

Dimensions	Academic Position	N	Mean	Sd.	df.	F	P
1. Self-Confidence-Personal Competence	Lecturer	341	4.04	.47	3-386	1.94	.12
	Head of department	29	4.18	.40			
	Vice-dean	9	4.00	.41			
	Dean	11	4.29	.42			
2. Positivity-Empathy	Lecturer	341	4.04	.41	3-386	1.62	.16
	Head of department	29	4.11	.33			
	Vice-dean	9	3.93	.41			
	Dean	11	4.28	.41			
3. Proactivity	Lecturer	341	4.10	.51	3-386	1.00	.38
	Head of department	29	4.25	.38			
	Vice-dean	9	4.13	.38			
	Dean	11	4.11	.65			
4. Interpersonal Interaction	Lecturer	341	3.95	.56	3-386	.46	.70
	Head of department	29	4.05	.45			
	Vice-dean	9	4.02	.44			

	Dean	11	4.09	.55			
5.Acceptance	Lecturer	341	3.98	.48	3-386	1.64	.17
	Head of department	29	4.06	.36			
	Vice-dean	9	3.66	.68			
	Dean	11	3.90	.63			
6. Internal discipline	Lecturer	341	2.87	.58	3-386	3.36	.01*
	Head of department	29	2.94	.52			
	Vice-dean	9	2.77	.40			
	Dean	11	3.42	.55			
7. Development	Lecturer	341	4.02	.57	3-386	1.65	.17
	Head of department	29	4.21	.45			
	Vice-dean	9	3.88	.47			
	Dean	11	4.21	.56			
Total	Lecturer	341	3.93	.35	3-386	2.17	.09
	Head of department	29	4.04	.29			
	Vice-dean	9	3.85	.33			
	Dean	11	4.13	.41			

*p < .05

As shown in Table 2, the participants' perceptions of resilience in terms of Internal Discipline demonstrate statistically significant difference according to their academic positions [$F_{3\text{-}386}$ = 3.36, p< .05]. Tukey, one of the multiple comparison tests, was used to determine which academic position groups were different. When the mean Internal Discipline scores of the participants were examined, it was observed that the internal discipline of the Deans ($\bar{X}$ = 3.42) was higher than the Internal Discipline of the faculty members ($\bar{X}$ = 2.87). Participants' views on Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance and Development subscales do not show a statistically significant difference according to their academic positions [$F_{3\text{-}386}$ Self-Confidence-Personal Competence = 1. 94, p> .05; $F_{3\text{-}386}$ Positivity-Empathy = 1.62, p> .05; $F_{3\text{-}386}$ Proactivity = 1.00, p> .05; $F_{3\text{-}386}$ Interpersonal Interaction = .46, p> .05; $F_{3\text{-}386}$ Acceptance = 1.64, p> .05; $F_{3\text{-}386}$ Development = 1.65, p> .05]. Similarly, the participants' views on the Resilience scale do not indicate a statistically significant difference according to their academic positions [$F_{3\text{-}386}$ Total Scale = 2.17]. According to this result, deans, vice deans, department heads and faculty members have similar views on the Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance, and Development dimensions of resilience perceptions.

Do faculty members' perceptions of leadership differ according to their academic positions?

One-way analysis of variance (ANOVA) was conducted to examine whether faculty members' perceptions of leadership differ according to their academic positions. The results are presented in Table 3.

Table 3. ANOVA results regarding participants' leadership perceptions according to academic position

	Academic position	*N*	*Ort.*	*Ss.*	*Sd.*	*F*	*P*
1. Contingent Revard	Lecturer	341	3.32	.99	3-386	2.37	.07
	Head of department	29	3.56	.88			
	Vice-dean	9	3.69	1.02			
	Dean	11	3.97	.84			
2.Inspirational Motivation	Lecturer	341	3.44	.98	3-386	2.75	.04*
	Head of department	29	3.76	.76			
	Vice-dean	9	3.97	.81			
	Dean	11	4.00	.93			
3.Idealized Influence	Lecturer	341	3.37	.89	3-386	1.94	.12
	Head of department	29	3.53	.79			
	Vice-dean	9	3.70	.71			
	Dean	11	3.92	.93			
4.Intellectual Stimulation	Lecturer	341	3.18	.97	3-386	1.61	.18
	Head of department	29	3.49	.80			
	Vice-dean	9	3.55	.95			
	Dean	11	3.50	.93			
5.Individualized Consideration	Lecturer	341	2.98	1.05	3-386	1.68	.16
	Head of department	29	3.41	.93			
	Vice-dean	9	3.00	.98			
	Dean	11	3.27	1.00			
6.Management-by-Exception (Active)	Lecturer	341	2.94	.79	3-386	1.14	.33
	Head of department	29	3.18	.68			
	Vice-dean	9	2.88	.71			
	Dean	11	3.18	.96			
7.Management-by-Exception (Passive)	Lecturer	341	3.24	.62	3-386	.32	.81
	Head of department	29	3.32	.63			
	Vice-dean	9	3.36	.53			
	Dean	11	3.15	.67			
8.Laissez-faire	Lecturer	341	2.94	.37	3-386	.26	.84
	Head of department	29	2.96	.35			
	Vice-dean	9	2.86	.25			
	Dean	11	2.88	.39			
Total	Lecturer	341	3.20	.62	3-386	2.27	.08
	Head of department	29	2.42	.59			
	Vice-dean	9	2.41	.55			
	Dean	11	3.53	.59			

*p < .05

As can be seen in Table 3, the participants' views on the participants' perceptions of leadership in terms of Inspirational Motivation show a statistically significant difference according to their academic positions [$F_{3\text{-}386}$ = 2.75, p< .05]. Tukey, one of the multiple comparison tests, was used to determine which academic position groups were different. When the mean scores of the participants' Inspirational Motivation were examined, it was observed that the Inspirational Motivation of Deans ($\bar{X}$ = 4.00) was higher than the Inspirational Motivation of department heads ($\bar{X}$ = 3.76). Participants' views on Contingent Reward, Idealized Influence, Intellectual Stimulation, Individual Consideration, Management by Exception (Active), Management by Exception (Passive), and Laissez-faire subscales do not show a statistically significant difference according to their academic positions [$F_{3\text{-}386}$ Contingent Rewarding = 2. 37,

p> .05; $F_{3\text{-}386}$ Idealized Influence = 1.94, p> .05; $F_{3\text{-}386}$ Intellectual Stimulation = 1.61, p> .05; $F_{3\text{-}386}$ Individual Consideration = 1.68, p> .05; $F_{3\text{-}386}$ Management by Exception (Active) = 1.14, p> .05; $F_{3\text{-}386}$ Management by Exception (Passive); = .32, $F_{3\text{-}386}$ Laissez-faire = .26, p> .05]. Similarly, the participants' views on the Leadership scale do not show a statistically significant difference according to their academic positions [$F_{3\text{-}386}$ Total Scale = 2.27]. According to this result, the dean, vice dean, department head and faculty members' have similar views on the perceptions of resilience on Contingent Rewarding, Idealized Influence, Intellectual Stimulation, Individual Consideration, Management by Exception (Active), Management by Exception (Passive) and Laissez-faire.

Are faculty members' perceptions of resilience a significant predictor of their leadership behaviors?

Pearson correlation coefficient values between the research variables were calculated before proceeding to the regression analysis of faculty members' perceptions of Resilience (Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance, Internal Discipline, and Development) as predictors of their Leadership behaviors. The results are presented in Table 4.

Table 4. Correlations among variables

Variable	R	R1	R2	R3	R4	R5	R6	R7	L	L1	L2	L3	L4	L5	L6	L7	L8
Resilience																	
R1.Self-Confidence-Personal Competence	.85*																
R2. Positivity- Empathy	.79*	.53*															
R3. Proactivity	.74*	.57*	.51*														
R4. Interpersonal Interaction	.73*	.57*	.54*	.47*													
R5.Acceptance	.63*	.45*	.49*	.39*	.33*												
R6. Internal Discipline	.36*	.25*	.18*	.20*	.11*	.06*											
R7. Development	.74*	.59*	.57*	.42*	.56*	.44*	.17*										
Leadership	.22*	.14*	.25*	.18*	.19*	.13*	-.03*	.17*									
L1. Contingent Revard	.20*	.14*	.22*	.16*	.16*	.13*	-.02*	.15*	.93*								
L2. Inspirational Motivation	.18*	.12*	.22*	.15*	.18*	.12*	-.07*	.14*	.90*	.86*							
L3. Idealized Influence	.18*	.09*	.23*	.15*	.17*	.11*	-.03*	.16*	.95*	.88*	.89*						
L4. Intellectual Stimulation	.21*	.14*	.23*	.17*	.19*	.15*	-.04*	.17*	.92*	.88*	.85*	.87*					
L5. Individualized Consideration	.23*	.16*	.24*	.19*	.20*	.13*	.02*	.17*	.90*	.85*	.78*	.84*	.86*				
L6.Management-by-Exception (Active)	.07*	.09*	.06*	.10*	.04*	.03*	-.06*	.04*	.09*	-.05*	-.09*	-.03*	-.04*	-.02*			
L7.Management-by-Exception (Passive)	.07*	.05*	.08*	.13*	.06*	.05*	.04*	-.00*	.21*	.11*	.08*	.09*	.10*	.14*	.06*		
L8.Laissez-faire	-.08*	-.10*	-.06*	-.02*	-.04*	-.08*	-.04*	-.05*	.18*	.17*	.14*	.14*	.16*	.12*	-.03*	-.24*	

As can be seen in Table 4, all Pearson correlation coefficient values between the research variables are statistically significant. There is a low level and positive relationship between the participants' perception of resilience and transformational leadership behavior ($r = .22$, $p < .001$). However, when the participants' responses to the sub-dimensions of their perceptions of Resilience are evaluated in general, it is seen that there are significant, positive, and moderate relationships between each sub-dimension. Similarly, when the participants' responses to the sub-dimensions of Leadership behavior are evaluated in general, it is observed that there are significant, positive and high-level relationships between each sub-dimension and low-level negative relationships.

Multiple regression analysis was used to determine the extent to which faculty members' perceptions of resilience (Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance, Internal Discipline and Development) explain the variance in their understanding of leadership. The results of the multiple regression analysis are presented in Table 5.

Table 5. Multiple Regression Analysis Results for Predicting Leadership Behaviour

Variable	***B***	***Standart Error$_B$***	***β***	***t***	***P***
Constant	1.681	.354		4.753	.000
1.Self-Confidence–Personal Competence	-.038	.097	-.028	-.391	.690
2. Positivity-Empathy	.297	.105	.196	2.835	.005*
3. Proactivity	.107	.079	.086	1.352	.177
4. Interpersonal Interaction	.073	.075	.065	.980	.328
5. Acceptance	- .002	.076	-.001	-.023	.982
6. Internal Discipline	-.103	.055	-.096	-1.871	.062
7. Development	.019	.076	.017	.251	.802
$R = .284$ $R^2 = .064$ $F_{(7\text{-}382)} = 4.79$ $p = .000$					

As can be seen in Table 5, faculty members' perceptions of resilience are a significant predictor of leadership behaviours ($R = 284$, $p< .01$). All dimensions of resilience perception explain approximately 6% of leadership understanding ($R^2 = .064$; $p< .01$). According to the standardized regression coefficients (β), the order of importance of the predictor variables in explaining leadership understanding is as follows: Positivity-Empathy, Internal Discipline, Proactivity, Interpersonal Interaction, Self-Confidence-Personal Competence, Development and Acceptance. When the t-test results regarding the significance of the regression coefficients are examined, it is seen that the dimensions of Positivity-Empathy are statistically significant predictors of leadership understanding, while the sub-dimensions of Self-Confidence-Personal Competence, Proactivity, Interpersonal Interaction, Acceptance, Internal Discipline, and Development are not statistically significant predictors of leadership understanding.

Conclusion and Discussion

In this study, it was aimed to determine the perceptions of resilience of faculty members working in state universities established before 2000 in Ankara Province and to reveal its relationship with transformational leadership.

When it was examined whether faculty members' perceptions of resilience varied according to their academic positions, it was observed that while faculty members' perceptions of resilience regarding Internal Discipline showed a statistically significant difference according to their academic positions, when the mean scores of Internal Discipline were considered, it was observed that Deans had higher internal discipline than faculty members. It is possible to explain this difference in terms of leadership experience, trainings received depending on the position, the pressure created by exhibiting a good managerial performance, and the enthusiasm and excitement brought by the task (Low, 2010). Considering the environment of constant change in higher education, the resilience and flexibility of higher education leaders are important for them to fulfill their duties effectively in the face of change (Montez, Wolverton, Gmelch, 2003; Bright & Richards, 2001; Lucas, 2000).

The participants' views on both the Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance, and Development subscales and their perceptions of resilience did not show a statistically significant difference according to their academic positions. According to this result, it was revealed that deans, vice deans, department heads, and faculty members had similar views on the Self-Confidence-Personal Competence, Positivity-Empathy, Proactivity, Interpersonal Interaction, Acceptance, and Development dimensions of resilience perceptions.

In the study conducted by Budak and Sürgevil (2005) on university faculty members, it was determined that the group with the least burnout in each dimension was associate professors and professors, and it was revealed that research assistants, lecturers, assistant professors, and doctoral lecturers had more burnout. Therefore, this result reveals that burnout may be a risk factor affecting resilience.

Addedly the views of faculty members on the leadership scale did not show a statistically significant difference according to their academic positions; the dean, vice dean, department head and faculty members had similar views on the leadership perceptions of Contingent Rewarding, Idealized Influence, Mental Influence, Individual Support, Management by Exception (Active), Management by Exception (Passive) and Freeing Leadership dimensions.

Berg and Jarbur (2014) argue that expectations for leaders are increasing across society and that in academic circles, students and employees expect more active forms of leadership such as coaching and mentoring within their institutions. They emphasize that this situation requires a different level of leadership that is less hierarchical and more team-oriented than traditional leadership and that the academic leader should be competent in his/her field of expertise and be a role model as one of the challenges faced by academic leaders. Therefore, this research finding can be considered to be appropriate for a less hierarchical and more team-oriented leadership level.

It was found that there is a low level and positive relationship between faculty members' perception of resilience and leadership behaviors, however, when the participants' responses to the sub-dimensions of their perception of resilience are evaluated in general, it is concluded that there are significant, positive and moderate relationships between each sub-dimension. Similarly,

when the responses of the faculty members to the sub-dimensions of leadership behaviors were evaluated in general, it was concluded that there were significant, positive, and high-level relationships between each sub-dimension and low-level relationships with negative direction.

In the study, it was concluded that faculty members' perceptions of resilience were a significant predictor of their perceptions of leadership. Considering that resilience is a characteristic of transformational leadership, it can be said that this result is expected. Research on the relationship between leadership and resilience reveals that the leader's leadership style affects employee or organizational resilience (Bono & Judge, 2004; Conner, 1993). For example, Nguyen, Kuntz, Naswall & Malinen (2016) found that the leader's empowering leadership style and behaviors including proactive personality and optimism have a significant relationship with employees' resilience behaviors. On the other hand, the finding is in line with the idea that resilience prepares individuals for higher levels of achievement (Bono & Judge, 2004; Conner, 1993). Therefore, it can be confirmed that resilience is a key element of leadership.

Similar to this finding, Wasden (2014) revealed that there is a relationship between leadership and resilience in his study. In a similar study, Wescott (2018) found a statistically positive relationship between transformational leadership behaviors and resilience in his study titled "the role of resilience in transformational leadership of managers". In Offutt's (2011) study, no relationship was found between the dimensions of resilience and leadership.

Suggestions and Limitations

Examining the relationship between transformational leadership and academics' resilience may lead to the development of strategies and interventions that will contribute to increasing the resilience of academics, leading to increased academic performance, job satisfaction, and well-being. Since faculty members with lower seniority in their positions have lower levels of resilience than others, measures can be taken by university senior administrations to establish an academic culture based on collegial solidarity and cooperation in order to increase the level of resilience of these faculty members. On the other hand, in this study, resilience was found to be a predictor of leadership. Based on this result, faculty members can be ensured to participate in leadership development programs that include social support programs within the university. Finally, considering the effect of protective factors in the context of leadership and employee resilience, social support systems can be put into action to establish colleague solidarity and trust-based relationships at the university.

In future studies, different models can be tried by taking into account contextual factors such as organizational culture or external stressors that may affect the relationship between resilience and transformational leadership. Additionally, since a cross-sectional design was used in the study, it can be said that relationships between resilience and transformational leadership can only be established at a certain point in time, which limits the ability to draw causal conclusions. Therefore, this limitation of the study can be eliminated with different methodological designs.

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The Relationships between Teachers' Psychological Contract Violation, Job Alienation, and Counterproductive Work Behaviors*

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ABSTRACT

The main purpose of the study is to determine the relationship between teachers' psychological contract violation, work alienation, and counterproductive work behavior. This quantitative research included 476 teachers working in public and private secondary schools in the Turkish Republic of Northern Cyprus (TRNC). The research findings revealed that teachers' perceptions of psychological contract violation and job alienation levels were found to be low. Teachers' perceptions of psychological contract violation and their level of work alienation did not differ according to gender and educational status. There is a significant difference according to the school type, seniority, and working time at school. Teachers had low levels of counterproductive work behavior. The psychological contract had a significant and positive effect on work alienation but did not have a significant effect on counterproductive work behaviors. Lastly, school type was not found to be a significant mediator variable. Even low levels of psychological contract breach among teachers can be problematic if not fully addressed. School administrators should communicate openly with teachers and make realistic promises, particularly in private schools. Efforts should be made to strengthen teachers' psychological contracts and support their professional development.

Keywords: Psychological contract violation, work alienation, counterproductive behaviors, teachers

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Introduction

Extensive prior research has delved into the intricate relationship between counterproductive work behaviors (CWB) and a multitude of contributing factors, which encompass psychological contract violation (PCV) (e.g., Fettahlıoğlu, 2015), work alienation (WA) (e.g., Kanten & Ülker, 2014; Uysal, 2018), and the prevailing influence of organizational cynicism (Li & Chen, 2018). At the heart of this narrative, PCV emerges as a clandestine catalyst, crystallizing when employees firmly perceive that their organization is failing to fulfill its commitments, as eloquently expounded by Robinson and Rousseau in 1994.Empirical evidence substantiates the notion that this perception, triggered by perceived organizational shortcomings, acts as a potent catalyst for behaviors that jeopardize an organization's overall well-being, taking the form of CWB within the organizational context, as exemplified by Özdemir and Demircioğlu in 2015. Furthermore, PCV cultivates a pervasive sense of WA, a phenomenon aptly demonstrated by Demirkıran, Taşkaya, and Yorulmaz in 2016. Thus, PCV occupies a central role in this intricate web of interconnected variables, serving as both a precursor to CWB and a nurturer of WA. Collectively, these consequences cast a profound shadow over the organization itself, affecting its very essence and fabric. Despite extensive scholarly research on PCV, WA, and CWB, there is a noticeable gap in the literature regarding their complex interactions in the context of teachers' situational factors, especially concerning differences between private and public schools. This study aims to fill this gap by simultaneously examining these variables and their intricate relationships within a comprehensive model, including the mediating role of school type. Furthermore, it seeks to expand our understanding by delving deeper into teachers' perceptions and attitudes toward these crucial variables. This expansion involves examining these variables across various independent factors such as school type (public and private), gender, educational status, seniority, and length of service. PCV leaves an indelible mark on teachers' beliefs and commitments, corroding their dedication to educational institutions. These behaviors encompass chronic tardiness, absenteeism, neglect of work duties, and even deliberate harm to the institution's assets and infrastructure (Akbıyık, 2018; Demircioğlu & Özdemir, 2014; Kickul & Lester, 2001; Spector et al., 2006; Turnley & Feldman, 1999). Consequently, PCV poses a profound threat to the educational mission by undermining teacher commitment and fostering behaviors that are detrimental to the institution's success.

The primary objective of this study is to examine the complex interplay among PCV, WA, and CWB of public and private secondary school teachers in Turkish Republic of Northern Cyprus (TRNC). To achieve this overarching goal, the study addresses key research questions:

1. What are the levels of PCV, WA, and CWB of teachers working in public and private secondary education schools and what are the relationships between these variables?

2. Do PCV, WA, and CWB of teachers working in public and private secondary education institutions differ significantly according to a) school type (public and private), b) gender, c) education level, d) seniority, and e) working time in the school?

3. Are psychological contract violation levels a significant predictor of alienation and counterproductive work behaviors?

4. Does school type have significant direct effects on PCV, WA, and CWB of teachers working in public and private secondary schools?

Literature

Under this heading, the basic variables of the research are explained.

Psychological Contract Violation

The psychological contract is portrayed as an unspoken, implicit, and perceptual agreement (Rousseau, 1998), a set of expectations grounded in prior experiences and observations regarding what employees anticipate in their roles (Robinson, 1996), and a conceptual framework facilitating the comprehension of the employment relationship (Coyle-Shapiro & Parzefall, 2008). However, violations in this contract, termed as Psychological Contract Violation (PCV), occur when one party believes the other has not fulfilled obligations. PCV often arises from failures like inadequate training support, disparities in promised and actual rewards, inaccurate job information, and neglecting employee input during organizational changes (Morrison & Robinson, 1997; Robinson & Rousseau, 1994). In a study on PCV among private school teachers, Onarıcı (2021) found that PCV worsened due to competitive managerial practices and unmet material expectations. Bal et al. (2008) discovered that older employees were less affected by PCV. Past research established links between PCV in teachers and negative relationships with organizational justice (Oğul Selekler, 2007), job satisfaction, and engagement in organizational citizenship behaviors. Additionally, PCV was positively associated with turnover intentions (Yiğit, 2015). The influence of organizational factors on PCV is evident in research findings. Studies involving over 800 managers emphasized the role of contextual variables, such as employment conditions. PCV pays a special attention to job security, compensation, and career advancement (Turnley & Feldman, 1999).

Work Alienation

The concept of WA has wide-ranging consequences, affecting both individuals and organizations, impairing their continuity and effectiveness (Elma, 2003). Seeman (1959) provides a socio-psychological perspective, outlining five sub-dimensions of alienation. "Powerlessness" pertains to an individual's sense of being unable to influence or manage their life circumstances (Şimşek et al., 2001). “Meaninglessness” refers to individuals’ struggle to comprehend events, leading to indecision and unresolved situations. "Isolation” expresses that individuals see themselves as undesirable, potentially withdrawing from social interactions and society. "Self-alienation" refers to reduced motivation, enthusiasm for work, and a diminished sense of the value of one's labor while “isolation” refers to individuals’ withdrawal tendency from social interactions and society (Seeman, 1959). Teachers experience alienation through a perception of their work as lacking meaning, shaped by the conditions in schools and the broader societal context (Ak, 2019; Elma, 2003; Kasapoğlu, 2015). This sense of meaninglessness is coupled with feelings of inadequacy and powerlessness, leading to a negative outlook on both their school and profession. JA also results in teachers distancing themselves from the school environment, indicating disengagement from the educational community. These factors collectively highlight the multifaceted nature of job alienation among teachers

Counterproductive Work Behavior

CWB encompasses deliberate actions occurring within an organizational context, with the intent to inflict harm upon the organization itself or its constituents (Spector & Fox, 2002). This multifaceted phenomenon has been referred to using various terminologies in academic discourse, including 'deviant behaviors' (Hollinger, 1986), 'maladaptive behaviors' (Puffer, 1987), 'organizational negligence' (Hogan & Hogan, 1989), 'workplace deviance' (Robinson & Bennet,

1995), and 'antisocial behavior' (Giacalone & Greenberg, 1997), among others (Güllü, 2018; Gültaç & Erigüç, 2018). Robinson and Bennett (1995) have defined CWB as instances of workplace deviance wherein behaviors deliberately contravene organizational norms and pose a threat to the well-being of employees. In educational settings, CWB include actions like tardiness, theft, property damage, declining academic performance, and apathy towards school-related matters (Akkaya, 2019).

The Relationships between the Variables of the Study and School Type

A psychological contract emerges when individuals believe their contributions obligate the organization to reciprocate in some way. Reciprocity is a key element, where cognitive evaluations of promises versus actual outcomes contribute to perceptions of contract violation. In cases where the perception of a PCV persists or intensifies, teachers may respond to these perceptions through negative behaviors that run counter to the objectives of the organization. These behaviors, which can also be categorized as manifestations of CWB, encompass actions such as chronic tardiness, unexcused absences, neglect of job-related duties, and deliberate harm to organizational assets (Akbıyık, 2018; Demircioğlu & Özdemir, 2014; Kickul & Lester, 2001; Spector et al., 2006; Turnley & Feldman, 1999).

The primary rationale behind the comparative analysis of public and private secondary school teachers, as well as the examination of school type as a mediating variable in this research, stems from the assertion made by De Cuyper, Rigotti, Witte, and Mohr (2008) that employees' psychological contracts are influenced by the terms stipulated in their legal employment contracts. Accordingly, the duration specified in legal employment contracts affects the formation and shaping of the psychological contract. In TRNC education system, teachers working in public schools are employed in permanent status subject to the Issue 25/1985 Teachers Law, while private school teachers are employed according to the Issue 22/1992 Labor Law. Private school teachers have contractual agreements with schools for at least a year, subject to performance evaluations, while public school teachers have greater job security with permanent positions. This contrast results in a more competitive landscape for private school educators.

This study aims to use public school teachers as representatives of educators in secure, permanent positions and private school teachers as examples of those in more transient, competitive employment situations. The research expects that these differing work conditions will have varying impacts on the attitudes and behaviors of public and private school teachers. Previous evidence suggests differences in PCV between public and private sector employees in various occupational groups. The study hypothesizes that school type plays a mediating role in the relationship between PCV and variables like WA and CWB (Figure 1).

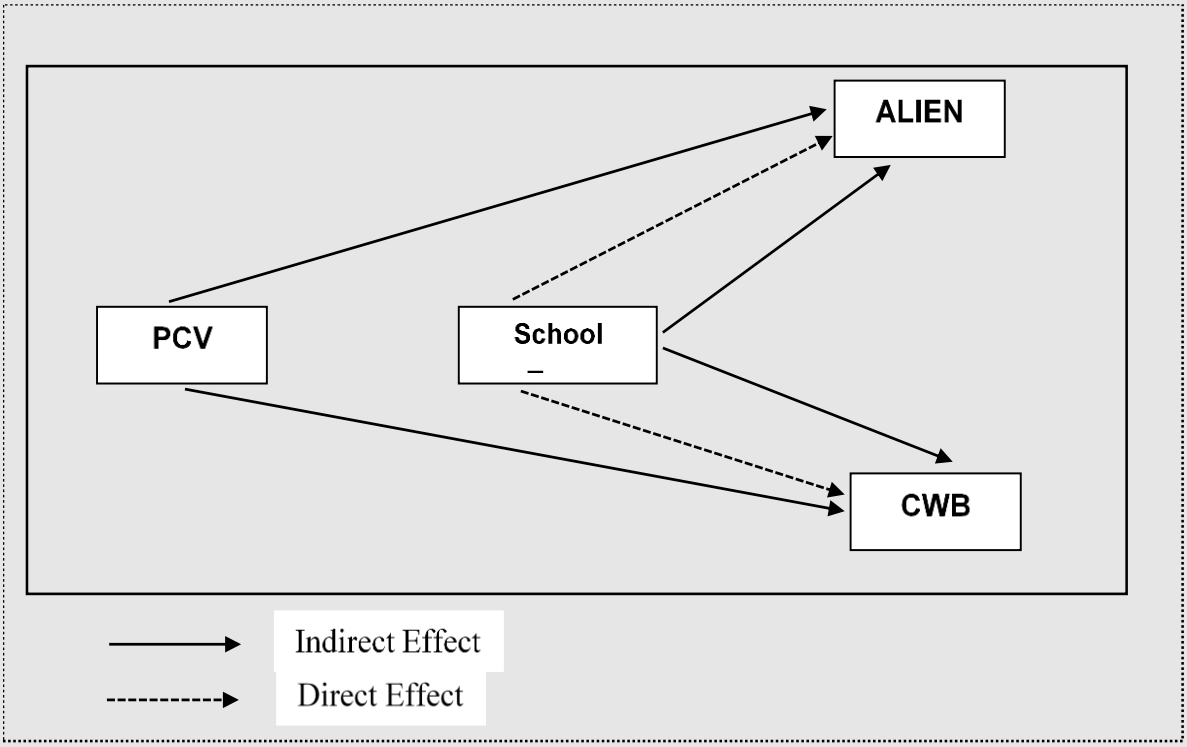

Figure 1. The Hypothesized Model

Method

This study employed a quantitative research approach to investigate the relationships among PCV, WA, and CWB of teachers in secondary schools within the districts of the TRNC through a correlational survey model. Meanwhile, the independent variables encompassed gender, years of professional experience, educational attainment, school type, and seniority within the educational institution.

Sample and Population

The population of this study consists of teachers working in public and private secondary schools in TRNC in the 2021-2022 academic year. Accordingly, the statistics of population and sample size in TRNC districts are given in Table 1 (TRNC Ministry of National Education and Culture statistics).

Table 1. Population and sample

Districts		Number of Schools	Number of Teachers	Number of Teachers Sampled
Lefkosia	Public	21	1275	160
	Private	5	268	138
Famagusta	Public	11	567	71
	Private	1	47	24
Kyrenia	Public	10	399	50
	Private	4	107	55
Guzelyurt	Public	4	196	25
	Private	0	0	0
Iskele	Public	6	275	35
	Private	0	0	0
Lefke	Public	2	117	15
	Private	0	0	0
Total	Public	54	2829	356
	Private	10	422	217

As Table 1 displays, public and private schools were treated as separate populations. The stratified sampling technique was used to ensure each element in the populations was adequately represented in the sample, enhancing proportionate and independent selection. Out of 2,829 teachers, a sample of 356 public teachers was determined as sufficient representation, considering a significance level (α) of 0.05 and a tolerance level of 5% (Balcı, 2005). For the second population of 422 teachers in private secondary schools, a sample of 217 teachers was posited. Almost all of the public school teachers (n=347) sampled within the scope of the research were reached. Among private school teachers, 59% (n=129) of the sampled teachers volunteered to participate. As a result, a total of 476 secondary school teachers volunteered to participate in the study.

Data Collection Tool

Psychological Contract Violation (PCV-S)

PCV-S developed by Robinson and Morrison (2000) and consisting of nine items were used to determine the perceptions of PCV. It includes items such as "I am disappointed with my employer's behavior towards me", "Everything promised to me has not been fulfilled", and "I feel great anger towards the organization". The participants are expected to respond to the 5-point Likert-type scale items on the scale of "1=Strongly Disagree, 2=Neutral, 3=Disagree, 4=Agree, 5=Strongly Agree". It was determined that the original psychological contract breach scale, consisting of nine items in total, formed a two-factor structure with seven items after the elimination of items 5 and 7. These two factors are "perceived breach towards management" and "perceived breach towards the organization". The internal consistency coefficient of the original scale was 0.92. The scale was adapted to Turkish culture by Oğul Selekler (2007). As a result of the reliability analysis, the internal consistency coefficient was determined as 0.94. These results showed that the scale is reliable. Considering the factor loadings of the Work Alienation scale in this study, the factor loadings in the powerlessness dimension range from 0.50 to 0.70, in the meaninglessness dimension from 0.43 to 0.70, in the isolation dimension from 0.52 to 0.70, and in the alienation from school dimension from 0.49 to 0.78.

WA Scale (WA-S)

WA-S consisting of 38 items developed by Elma (2003) was used. It is graded with a five-point Likert scale, consists of (5) always, (4) most of the time, (3) sometimes, (2) rarely, and (1) never. The item-total correlations of the scale consisting of four dimensions vary between .45 and .75 in the first factor, .41 and .69 in the second factor, .34 and .61 in the third factor, and .21 and .42 in the fourth factor. Cronbach Alpha coefficients of the scale were determined as .86, .84, .80, and .62 respectively. It is reported that the scale is a valid and reliable data collection tool. In the CFA analysis within this study, the factor loadings of the items in the first dimension, called powerlessness, range between 0.50 and 0.70. The factor loadings of the items in the meaninglessness dimension range between 0.43 and 0.70; the factor loadings of the items in the third dimension, or isolation, range between 0.52 and 0.70. Finally, the factor loadings of the items in the fourth dimension, referred to as alienation from school, vary between 0.49 and 0.78

CWB Scale (CWB-S)

Developed by Spector et al. (2006), the original version of the CWB-S is a five-point Likert-type scale consisting of 33 items. The scale was rated using a five-point Likert scale consisting of the options: (5) always, (4) most of the time, (3) sometimes, (2) rarely, (1) never. It consists of five dimensions: abuse (18 items), deviation from production (3 items), sabotage (3) items, stealing (5 items), and withdrawal (4) items. According to the factor analysis results in this study, the factor loadings of the items in the first factor range from 0.50 to 0.92, the factor loadings of the items in the second factor range from 0.77 to 0.82, and the factor loadings of the items in the withdrawal factor range from 0.52 to 0.91. Cronbach Alpha reliability values of the original scale were calculated as .81, .61, .42, .58, .63, and .87, respectively.

Data Collection

Researchers administered a data collection instrument comprising three scales to participating teachers. The surveys were distributed to teachers face-to-face and they were collected after the teachers filled them out. The data that support the findings of this study are available on request from the corresponding author. Before collecting data, approvals were obtained from the Ethical Board of Hacettepe University and the TRNC Ministry of National Education and Culture.

Data Analyses

JASP (Jeffreys's Amazing Statistics Program) was used to analyze the data. It is a free and open-source application used for statistical analysis, particularly for those already accustomed to working with SPSS.

The results of the Shapiro Wilk Normality Test, which was conducted to measure whether the data obtained from the scales had normal distribution, revealed that the scales or subtest scores did not show normal distribution (D values > 0.300 and all p values < .000). For this reason, the multivariate normality test analysis suggested by Burdenski (2000) was carried out, considering the possibility of conducting the analyzes to be used in the study in the context of multiple variances. The analysis used is based on the graphing of Mahanalobis distances and $\chi 2$ values generated from the dependent variables. Mahanalobis Distances and Chi-Square Values were calculated based on the scores of the data. The results revealed that the data did not show a multivariate normal distribution (Burdenski, 2000). Mann-Whitney U and Kruskall-Wallis tests were used to detect possible changes in main and subtest scores based on independent variables. In the Kruskall-Wallis tests, the Dwass-Steel-Critchlow-Flinger test was used when pairwise

comparisons were required (Hollander, Wolfe, & Chicken, 2014). Structural equation modeling (SEM) using JASP was performed to explore the relationship between variables

Cohen r ($r = z / \sqrt{n}$) and ε2 effect size values were used to see the explanatory power of each independent variable. Cohen (1988) interpreted values close to r = 0.2 as "small", values close to r= 0.3 as "moderate" and values close to or greater than r= 0.5 as "large" effect sizes. Cohen (1988) interpreted values close to d = 0.2 as "small", values close to d = 0.3 as "moderate" and values close to or greater than d = 0.5 as "large" effect sizes. Rea and Parker (1992) interpreted, $0.00 < \varepsilon\ 2 < 0.01$ as can be ignored; $0.01 < \varepsilon\ 2 < 0.04$ as weak; $0.04 < \varepsilon\ 2 < 0.016$ as intermediate; $0.16 < \varepsilon\ 2 < 0.36$ as partially strong; $0.36 < \varepsilon\ 2 < 0.64$ as strong and $0.64 < \varepsilon\ 2 < 1.00$ as very strong effect values. Accordingly, a .05 ($p<.05$) significance level was used in all analyses performed within the framework of the research.

EFA Results

EFA and CFA were tests were applied on different data sets. EFA was conducted on 476 participants and CFA on 377 participants. In Table 2, the factor values of the EFA analysis were given.

Table 2. EFA Results of The Scales

Test	***Measurement***	***Original Measurement Value***	***Changes***
			Items 5 and 7 were eliminated because they had overlapping factor loads.
PCV	KMO	0.76	0.70
	p	.000	.000
	Factor number	2	2
	Explained Variance	%47.1	%56.7
			Items 2, 4, 11, 12, 13, 31 and 32 were eliminated because they had low factor loadings, and items 21 and 22 were eliminated because they had overlapping factor loads.
WA	KMO	0.84	0.83
	p	.000	.000
	Factor number	4	4
	Explained Variance	%34.9	%39.0
			Items 1, 2, 19, 21, 22, and 23 were eliminated because they had low factor loads, items 3, 4, 5, 6, and 14 did not fit the theoretical model, and items 16 and 27 were eliminated because they had similar factor loads.
CWB	KMO	0.84	0.80
	p	.000	.000
	Factor number	3	3
	Explained Variance	%50.82	%63.6

As seen in Table 2, a two-factor structure explain 56.7% of the variance in the PCV test, a four-factor structure that explained 39% of the variance in the WA test, and a three-factor structure that explained 64% of the variance in the CWB test. However, items with close overlap and factor loadings below 0.40 were eliminated.

CFA Results

The fit indices of the models as a result of the analyzes are given in Table 3. All scales are suitable for the observed structure, based on the fact that all chi-square/degrees of freedom are less than 5. CFA goodness-of-fit results are shown in Table 3.

Table 3. CFA Fit Measures

Fit Indices	PCV Measurement Values	WA Measurement Values	CWB Measurement Values
χ^2	14.469	846.890	68.144
p	.272	<.001	.670
df	12	371	74
χ^2/df	1.21	2.27	0.92
RMSEA	0.023	0.056	0.000
CFI	1.000	0.968	1.000
NFI	0.999	0.965	1.000

As can be seen from Table 3, 0.90-0.95 is acceptable for goodness-of-fit indices. A value above 0.95 indicates a high level of agreement (Dickey, 1996). The fact that the CFI and NFI fit index values in Table 3 are greater than 0.95 indicates that all models are compatible with the data. As a result of the EFA and CFA, the α reliability coefficients of all the tests that took their final form are given in Table 4. Additionally, the Combined Reliability (CR) coefficient of each scale was calculated. CR is a less biased estimate of reliability than the Cronbach Alpha values. The CR value of 0.7 and above indicates that the reliability is sufficient (Fornell & Larcker, 1981).

Table 4. Cronbach Alpha and Combined Confidence Coefficients of Scales

Scale	Cronbach *Alpha*	*Combined Confidence*	Number of Items
PCV	0.50	0.60	7
WA	0.88	0.97	28
CWB	0.74	0.93	14

Table 4 shows that Cronbach's Alpha of the PCV was calculated as 0.60, and the combined reliability was calculated as 0.60. The Cronbach's Alpha of the WA was 0.88 and the combined reliability value was 0.97. The Cronbach's Alpha value of the third scale, CWB, was 0.74 and the combined reliability coefficient value was 0.93. Thus, the WA scale and the CWB have a high degree of reliability as a result of Cronbach's Alpha values (Tavşancıl, 2006, p.29). In the original PCV scale, the Cronbach Alpha value was.80. In the current study, it was calculated as .50. and the combined reliability value was .60.

Data Analysis

JASP (Jeffreys's Amazing Statistics Program) was used to analyze the data. , is a free, open-source application tailored for statistical analysis. It is a user-friendly experience, particularly for those already accustomed to working with SPSS. The results of the Shapiro Wilk Normality Test, revealed that the scales or subtest scores did not show normal distribution (D values > 0.300 and all p values < .000). For this reason, the multivariate normality test analysis suggested by Burdenski (2000) was carried out, considering the possibility of conducting the analyzes to be used in the study in the context of multiple variances. The analysis used is based on the graphing of Mahanalobis distances and □2 values generated from the dependent variables. Mahanalobis Distances and Chi-Square Values were calculated based on the scores of the data. The results revealed that the data did not show a multivariate normal distribution (Burdenski, 2000). Mann-Whitney U and Kruskall-Wallis tests were used to detect possible changes in main and subtest scores based on independent variables. In the Kruskall-Wallis tests, the Dwass-Steel-Critchlow-Flinger test was used when pairwise comparisons were required (Hollander, Wolfe, & Chicken, 2014). Structural Equation Modeling (SEM) using JASP was performed to explore the relationship between variables.

Cohen r ($r = z / \sqrt{n}$) and ε2 effect size values were used to see the explanatory power of each independent variable. Cohen (1988) interpreted values close to r = 0.2 as "small", values close to r= 0.3 as "moderate" and values close to or greater than r= 0.5 as "large" effect sizes. Rea and Parker (1992) interpreted, 0.00 < ε 2 < 0.01 as can be ignored; 0.01 <ε 2< 0.04 as weak; 0.04 <ε 2< 0.016 as intermediate; 0.16 <ε 2< 0.36 as partially strong; 0.36 <ε 2< 0.64 as strong and 0.64 <ε 2< 1.00 as very strong effect values. Accordingly, a .05 (p<.05) significance level was used in all analyses performed within the framework of the research.

Results

Descriptive Statistics and Correlations among Variables

To answer first question of the research (What is the level of PCV, WA, and CWB of teachers working in public and private secondary schools, and what are the relations between them?), the average scores calculated for these three variables and the descriptive statistics for the relationships between the variables are given in Table 5.

Table 5. Descriptive statistics and correlations among variables

Variables	School Type	Mean	SD	1	2	3
1. PCV	Public	2.46	.46	1		
	Private	2.68	.61	1		
2. WA	Public	1.95	.44	.317**	1	
	Private	2.14	.62	.464**	1	
3. CWB	Public	1.07	.23	.143**	.399**	1
	Private	1.04	.13	.166	.270**	1

** Correlation is significant at the 0.05 level (2-tailed).*
*** Correlation is significant at the 0.01 level (2-tailed).*

Table 5 shows that the mean scores of teachers for PCV (M=2.46; M=2.68) and WA (M=1.95, SD = .44; M=2.14, SD = .62) were found to be at low levels both for public and private school teachers. Besides, the CWB mean scores of both public (M=1.95; SD = .44) and private (M=2.14; SD = .62) school teachers' were the lowest (It corresponds to the "never" range in the Likert-type rating) among the three variables meaning that teachers are not exhibiting CWB. As PCV and WA perceptions of teachers were rare, CWB is also consistently negligible. When the scales used in the research are evaluated on a five-point Likert scale, the 4.20 - 5.00 point ranges are definitely agree/always; 3.40 – 4.19 score ranges agree/most of the time; 2.60 – 3.39 point ranges I am undecided/sometimes; 1.80 – 2.59 point ranges disagree/rarely; The 1.00 – 1.79 point ranges correspond to the strongly disagree/strongly disagree ratings. Accordingly, teachers' PCV and WA levels are relatively higher than their QWB levels. This suggests that although teachers experience low levels of PCV and WA, they do not respond to these experiences with CWB. The relatively highest significant relationship among the research variables is the moderately positive relationship between the PCV and WA perceptions of private school teachers. As the perception of WA of private school teachers increases, the perception of PCV increases and vice versa. In sum, teachers' PCV perceptions are relatively more dominant in school settings than in WA and CWB.

Table 5 shows the significant positive relationships between teachers' PCV, WA, and CWB using Spearman correlation coefficient ranging from .14 to .46. As predicted, WA and CWB were positively and significantly related to PCV with some differentiating levels and aspects in private and public schools. According to Cohen (1988, p. 115), a correlation of .50 is high, .30 is medium and .10 is low. While public school teachers' PCV has a medium correlation with WA ($r = .31$, $p < .01$), private school teachers' PCV has a higher level of correlation with WA. Besides, public school teachers' PCV has a weak relationship ($r = .14$, $p < .001$) with CWB but this is not the case for private school teachers ($r = .16$; $p > .01$). Both public ($r = .39$, $p < .001$) and private school teachers' WA ($r = .27$, $p < .01$) perception has a moderate relationship with CWB. The relatively

highest significant relationship among the research variables is the moderately positive relationship between the PCV and WA perceptions of private school teachers (r = .46). This means that as the perception of WA of teachers increases, the perception of PCV increases and vice versa. Overall, despite low rates, these results verify that WA and PCV have a connection with CWB in school settings.

Comparison of Independent Variables

The calculations related to the different tests for the second question of the study, "Do the PCV, WA, alienation levels and counterproductive work behaviors of teachers working in secondary education institutions differ significantly according to the variables of a) school type (public and private), b) gender, c) educational status, d) seniority, e) working time in the school?" are given in Table 6.

Table 6. Comparison of independent variables

	School Type		Gender		Education Level		Seniority		Working Time at School	
Variables	Mann-Whitney U	p*	Mann-Whitney U	p*	Kruskal-Wallis Test χ^{2a}	p*	Kruskal-Wallis Test χ^2	p*	Kruskal-Wallis Test χ^{2a}	p*
PCV	17103	0.000	23934	0.917	2.16	0.339	37.7	0.01	11.0	0.026
WA	19050	0.027	21412	0.084	0.66	0.717	11.6	0.020	8.62	0.071
CWB	18863	0.023	21351	0.664	1.28	0.527	5.09	0.279	8.15	0.086

Note: [a]df =2; df = 4, *p < .05

School type. As shown in Table 6, significant differences were found between private and public school teachers PCV (U =16.2, p=0.000), WA (U =17.8, p=0.017 and CWB (U =18863). Public school teachers felt higher levels of PCV and alienation than private school teachers (p<.001). The fact that the effect size (r) value is less than 0.3 (r = 0.205) shows that the difference between the PCV perceptions of teachers working in public and private schools is at a low level. Cohen's r effect size value (r = 0.133) showed that the difference between public and private secondary school teachers' perceptions of PCV was at a low level. Contrastly, public teachers' CWB scores are significantly higher than private school teachers. Public school teachers' higher level of CWB may be due to the fact that they have stronger job security than private sector teachers and therefore they are less likely to be harmed.

Gender. Teachers' PCV (U =16.2, p=0.91), WA (U =16.2, p=0.84), and CWB (U =16.2, p>0.66) scores do not differ significantly according to gender.

Education level. Public and private school teachers' perceptions of PCV (χ^2 =2.16, p>0.05), WA (χ^2 =2.16, p>0.05), and CWB (χ^2 =2.16, p>0.05) do not differ significantly according to educational status.

Seniority. While CWB (χ^2 =0.279, p>0.05) perceptions of public and private school teachers do not differ significantly according to seniority, PCV (χ^2 =2.16, p<0.05), WA (χ^2 =2.16, p<0.05) and CWB (χ^2 =2.16, p<0.05) perceptions differ significantly according to educational status. According to the Dwass-Steel-Critchlow-Flinger results calculated for pairwise

comparison, teachers with 1-5 years of seniority have a lower level of PCV perception than teachers with 6-10 years, 11-15 years, 16-20 years, and 20 years or more of seniority. Specifically, The PCV perceptions of teachers in the first years of the profession (1-5 years) are the lowest. In the later years of the profession, this perception increases slightly at a significant level. Among the two groups with only 1-5 years and 11-15 years of experience, those with 11-15 years of experience have higher WA scores (W=4.604; p= 0.010) and the effect size is low ($\varepsilon^2 = 0.025$).

Working time at school. While teachers' perceptions of WA (χ^2 =0.071, p>0.05) and CWB (χ^2 =0.086, p>0.05) do not differ significantly according to the length of time they work at the school, their perceptions of PCV (χ^2 =11.0, p<0.05) differ. Dwass-Steel-Critchlow test showed that the group with less than one year of working experience at a specific school has a lower PCV score than the group with more than 16 years of working experience at the same school. No significant difference was determined in other groups.

The Mediator Role of School Type in the Effect of Psychological Contract Breach on Work Alienation and Counterproductive Work Behaviors

To address the third and fourth research questions (To what extent do the levels of Psychological Contract Violation (PCV) in teachers working in public and private secondary schools serve as significant predictors of Work Alienation (WA) and Counterproductive Work Behaviors (CWB)?" and "Do the types of schools exert notable direct effects on PCV, WA, and CWB among teachers in both public and private secondary institutions?), the JASP statistical software package was used. This software was employed to assess hypotheses within the context of mediator analysis. Our analytical procedures involved conducting 5,000 bootstrap samples, following a bootstrapping methodology, while maintaining a confidence level of 95%. This bootstrapping technique is commonly utilized in statistical applications such as confidence interval estimation and non-parametric estimation problems (Efron, 1979). The comprehensive results are presented in Table 7.

Table 7. Findings of hypothesis tests on mediation analysis

					95% Confidence Interval	
Hypothesis	Effect	SH	*z*	*p*	LLI	ULCI
Direct Effect						
School Type → WA	0.085	0.041	2.040	0.041	-0.002	0.175
PCV → WA	0.115	0.011	10.685	< .001	0.084	0.147
WA → CWB	0.106	0.047	-2.272	0.023	-0.195	-0.032
PSİ → CWB	0.024	0.012	1.973	0.049	-0.003	0.057
PSİ → School Type	0.045	0.012	3.807	< .001	0.019	0.068
Testing the Intermediate Model						
Indirect Effect	Effect	SH	*z*	*p*	LLCI	ULCI
PCV → School Type → WA	0.004	0.002	1.798	0.072	0.0001	0.00
PCV → School Type → CWB	-0.005	0.002	-1.951	0.051	-0.010	-0.001
Total Effect	Effect	SH	*z*	*p*	LLCI	ULCI
PCV → WA	0.119	0.011	11.158	<.01	0.088	0.11

PCV → CWB	0.019	0.012	1.595		0.11	-0.068	0.01

As Table 7 displays the PCV exert a statistically significant and positively oriented influence on WA scores (β = 0.115, z = 10.685, p < .001). However, in the relationship between PCV and OCB, PCV did not have a significant and positive effect on OCB (β = 0.024, z = 1.973, p >.001). School type (public-private) has a significant and positive effect on OCB (β = -0.106, z = -2.272, p = 0.023). A comprehensive representation of SEM is presented in Figure 2.

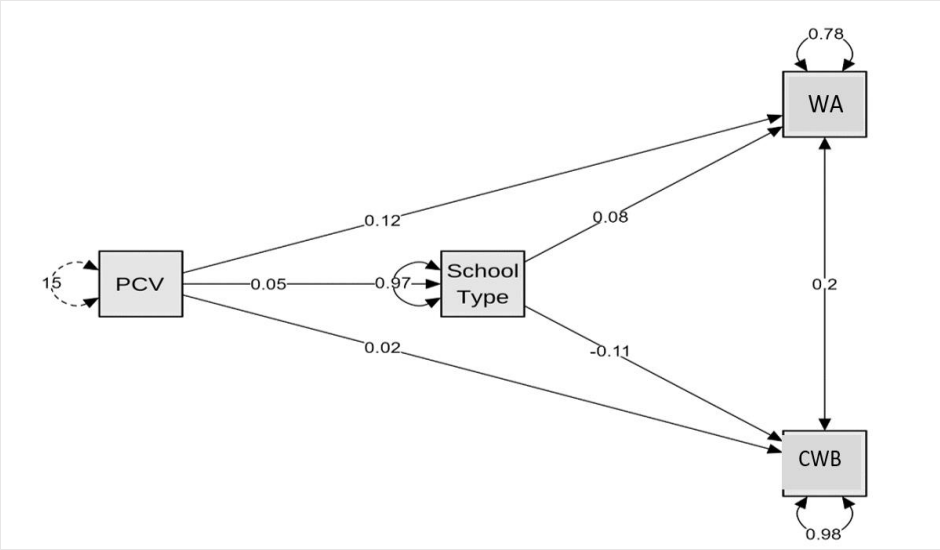

Figure 2. The SEM Results

Discussion, Conclusion and Suggestions

The first question of the study aimed to determine the level of PCV, WA and CWB of teachers working in public and private secondary schools in TRNC and the relationship between these variables. While teachers' perceptions of PCV, alienation, and CWB are low in two school types, PCV violation perceptions are relatively more dominant in school settings than are WA and CWB. Although these findings are consistent with some past research (e.g. Çalışır, 2006; Elma, 2003; Emir, 2012), there is also contrary evidence that teachers have high levels of WA (Erdem, 2014; Kurtulmuş & Karabıyık, 2016). As PCV and WA perceptions of teachers were rare, they are almost non-existent in CWB. This suggests that although teachers experience low levels of PCV and WA, they do not always respond to these experiences with CWB. The relatively highest significant relationship among the research variables is the moderately positive relationship between the psychological contract and alienation perceptions of private school teachers. This means that as the WA perceptions of private school teachers increase, PCV perceptions increase and vice versa. As predicted, WA and CWB were positively and significantly related to PCV with some differentiating levels and aspects in private and public schools. Overall, despite low rates, these results verify that WA and PCV have a connection with CWB in school settings.

For the second research question, it was tested whether PCV, WA, and CWB differ according to some variables. The fact that teachers working in private schools have higher perceptions of PCV than public teachers can be interpreted in two ways. The first reason may be due to the nature of the psychological contracts that private school teachers have formed with the school administration and the legal paradox in their working conditions. Private school teachers in TRNC work with a fixed-time contract according to the provisions of Teachers Law No. 25/1985

and they are in a fragile position when compared to public school teachers in terms of job security. A qualitative research reported that the problems of private school teachers (Cerev & Coşkun, 2020) are not valued enough due to the high number of alternatives in the job market. Also, administrators demand more work with less money (a participants' expression), which in turn, educational institutions act as market-like organizations. In another study (Onarıcı, 2021), it was reported that the facts that private school teachers' assignments outside the working hours, the uncertainty of raise in their salaries, and inequality in-class hours negatively affect their psychological contracts. The fact that private school teachers experience higher levels of PCV than public school teachers can be attributed to the uncertainties about the responsibilities and expectations that are not written in their formal contracts dependent on their working status. In summary, the competitive structure and job insecurity in private schools may have a great potential to lead PCV preceptions.

Gender and education level are not variables with a significant difference in teachers' perceptions of PCV, WA, and CWB. These results are in line with the PCV findings of Selekler (2007) and Mimaroğlu (2008), Elma (2003), Atay and Gerçek (2017). While the PCV perception of new teachers is lower than all other seniority groups, it is highest in WA. Robinson (1996) states that psychological contracts are formed in a process due to their nature and can change over time. So, it can be thought that the psychological contracts of teachers with low seniority have not yet encountered such a negative experience. Mimaroğlu (2008) reported an unsignificant difference in terms of PCV. The reason for these conflicting findings can be connected to the different country contexts between Turkey and TRNC.

A significant positive relationship between teachers' PCV and their WA found within the current research, aligning with previous studies (Demirkıran et al. 2016; Li and Chen, 2018; Shen et al. 2019). However, contrary to Özdemir and Demircioğlu (2015), who suggested that a part of the psychological contract can explain CWB, this study concluded that PCV does not directly lead to CWB; the relationship between them is indirect and weak. Nonetheless, according to Yavuzsan (2020), there is a moderate positive relationship between PCV perception and CWB, suggesting that increased PCV perception may contribute to individuals' CWB.

Lastly, school type (public or private) significantly effected teachers' perceptions of PCV and their WA. In a previous study, Yıldırım (2018) reported that the psychological contract had a positive relationship with WA. Additionally, teachers in public high schools were found to exhibit CWB. However, it is not clear if this negative perception among teachers will lead to CWB, and more research is needed with different variables to understand this in school settings. Similarly, Onarıcı (2021) found that teachers perceiving PCV might display negative behaviors at work and school, but the evidence is not strong that PCV will directly lead to CWB Therefore, further research is required to uncover the relationship between undesirable behaviors, PCV, and CWB in the school environment.

Implications and Suggestions

1. The PCV perceptions, WA, and CWB of teachers working in public and private secondary schools in TRNC districts are very low. Public teachers have a relatively higher perception of PCV than private school teachers. Teachers working in public secondary schools have a higher tendency toward CWB than teachers working in private secondary education institutions.
2. While teachers' PCV perceptions did not differ significantly according to the independent variables of gender, seniority, and educational status, it was revealed that the PCV

perception of new teachers was the lowest. Similarly, teachers who have worked in the same school for less than a year have the lowest PCV perception, which means that PCV is not an instantaneous reaction and develops over time. The difference between public and private school teachers' perceptions of PCV implies that contextual factors, such as employment conditions, may influence PCV. Addressing any disparities between public and private school teachers can help improve the working environment and job satisfaction, particularly in private schools.

3. Teachers' WA levels do not differ significantly according to gender and educational status. On the other hand, as the seniority of teachers increases, their level of WA also increases. The same applies to working time at school. New teachers and those with less than a year of experience have the lowest PCV perception suggests that PCV may develop gradually over time. School administrators and human resources departments should consider providing support and clear communication to new teachers to prevent PCV from developing early in their careers. Additionally, ongoing efforts to manage PCV perceptions are crucial for retaining experienced teachers.
4. Schools should focus on strategies to reduce WA, especially for experienced teachers. Creating a positive and engaging work environment can help mitigate the negative effects of WA.
5. Private school administrators and policymakers should be aware of these differences and consider implementing strategies to improve well-being where CWB levels are lower. This may include initiatives to reduce work-related stress and enhance teacher satisfaction.
6. School administrators and policymakers should consider tailoring interventions to address PCV and WA differently in public and private schools. Additionally, addressing factors beyond school type is essential for understanding and mitigating CWB among teachers.
7. Lastly, our findings offer insightful information for academics and practitioners in the TRNC, as well as perhaps in other settings. They highlight the importance of addressing PCV, WA, and well-being among teachers and offer guidance for developing targeted interventions to improve their working conditions and job satisfaction.

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Conflicts of Interest

The author conducted the study alone. There is no conflict of interest. If there is more than one author, please detail the information about this title.

Ethics committee approval process

The ethics application for the study was made on 08/04/2021 and the research was carried out with the approval of Hacettepe University Ethics Commission dated 20/09/2021 and numbered E-35853172-300-00001599543.

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Causes and effects of occupational fatigue among special education teachers*

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ABSTRACT

This study explores the multifaceted nature of occupational fatigue among special education teachers, highlighting its manifestation through low performance, lack of motivation, emotional exhaustion, and a sense of monotony. In the research, phenomenology design within qualitative methodology was utilised. The study group consists of a total of 10 special education teachers working in 7 different schools in the provincial centre of Düzce, who were determined by convenient sampling technique. In the study, data were collected face-to-face with a semi-structured interview form in the autumn term of the 2023-2024 academic year. Content analysis was used to analyse the data. As a result of the analysis, a total of three main themes were identified. These themes are "Definition and Symptoms of Occupational Fatigue", "Causes and Sources of Occupational Fatigue" and "Occupational and Personal Effects of Occupational Fatigue". According to the findings, special education teachers experience professional fatigue due to difficult conditions in schools, excessive workload, and low learning speed of students. Occupational fatigue has a negative impact on the physical and mental health of special education teachers. In order to overcome this kind of fatigue, strategies such as resting, engaging in various hobbies, and orienting towards professional development are preferred. The findings of the research show that this situation has the potential to lead to more negative results if the professional fatigue of special education teachers is not eliminated.

Keywords: Occupational fatigue, special education, teacher burnout

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*This article derived from a first author's master project.

Introduction

Occupational fatigue of teachers is a multifaceted condition characterized by low performance, lack of motivation, inability to renew oneself and a sense of monotony in professional life (Argon & Koçak, 2019; Kalekin-Fihsman, 1986). This state of fatigue is not only a physical or mental exhaustion, but also includes emotional exhaustion, leading to decreased job satisfaction, increased emotional exhaustion, and reduced quality of teaching (Hagenest et al., 2023). The pressures and challenges of the teaching profession contribute significantly to this condition, affecting teachers' ability to engage effectively with their students and fulfil their educational role. To address and mitigate the effects of teacher fatigue, it's important to understand and implement strategies that focus on improving well-being, reducing stress and preventing burnout (Agyapong et al., 2023; Pyhältö et al., 2021). Research shows that teachers' well-being is directly related to their performance and the quality of education they provide (Hascher & Waber, 2021). Increased stress and decreased well-being can significantly affect academic staff's ability to function effectively, highlighting the need for supportive measures to improve their mental and emotional health (Günbayı, 2014).

Strategies to overcome professional fatigue include identifying and addressing the causes of monotony and lack of motivation. This includes taking proactive steps to diversify tasks, incorporate innovative teaching methods, and foster a supportive school culture that values and supports teachers' development and well-being (Caldwell et *al*., 2019). In addition, recognizing the symptoms of depression and anxiety, which are often associated with a lack of motivation, is essential for early intervention and support (Youngs, 1978). In addition, recognizing symptoms of depression and anxiety, which are often associated with a lack of motivation, is essential for early intervention and support (Youngs, 1978). Teachers working in special education are more likely to experience psychological stress than those working in mainstream education. This is due to the diverse disabilities of their students and the increased responsibility of meeting the needs and expectations of their families (Kocaman, 2018). Special education is a personalized educational practice designed to meet the unique differences, disabilities and special needs of students (Vaughn & Linan-Thompson, 2003). It is specifically aimed at individuals who, due to various disabilities or learning problems, face greater learning challenges than their peers (Kırmızıgül, 2022). The term “special educational needs” refers to children whose learning difficulties or disabilities make their learning process more challenging than that of most children of their age (Aktan, 2020). This approach to education ensures that students with special needs receive an education that is not only accessible but also equitable, enabling them to reach their full potential. Special education services may include individualised instruction, technological aids, therapy services, and adaptations of curriculum and teaching methods to meet the diverse learning styles and needs of students (Algozzine & Ysseldyke, 2006). Students receiving special education services have unique needs and expectations that must be met to ensure their academic and social success. Special education is designed to provide tailored instruction and interventions to meet the diverse learning needs of these students. Students with special needs often display challenging behaviours, emotional difficulties, and complex learning profiles, that requires specialized expertise and greater emotional effort on the part of teachers (Thakur, 2018). Special education schools and programmes often provide a range of services beyond academic support, including therapy, counselling and life skills training to help students cope and excel both in and out of school. These services are based on alternative learning strategies and individualized education plans (IEPs) that outline specific goals and accommodations for each student (Akçin, 2022).

Special education teachers often manage large caseloads, multiple disciplines, and diverse student needs, which can lead to increased stress and workload (Hogue, 2022). Special education teachers (SETs) are particularly vulnerable to job fatigue due to the unique challenges and stressors associated with their role. Unlike their general education counterparts, SETs often work with students who have diverse needs and require individualized attention and support. Furthermore, the relationship between organizational change fatigue and the levels of stress experienced by teachers in secondary education institutions suggests that environmental and systemic factors also contribute significantly to teacher fatigue (Yıldızoğlu & Cemaloğlu, 2023). Special education settings often require frequent adjustments and adaptations to meet the needs of students, placing additional stress on teachers. Special education teachers sometimes struggle with inadequate resources, such as materials, technology, and personnel, further exacerbating stress and burnout (Jeon et *al*., 2022; Thakur, 2018). Special Education Teachers (SETs) face a variety of stressors, including emotional exhaustion, depersonalization and a reduced sense of personal accomplishment. These stressors not only affect their well-being, but also their effectiveness in the classroom. A meta-analysis by Park (2020) highlights the critical dimensions of burnout experienced by SETs and emphasizes the need for a deeper understanding of its causes and consequences. In addition, Springer et *al*. (2023) identifies specific psychosocial stressors, such as work overload, time constraints and extended working hours, that contribute to professional burnout and chronic fatigue among academics, including those in special education.

To effectively address these challenges and support Special Education Teachers (SETs) in managing stress and preventing burnout, it is essential to implement targeted strategies that cater to their specific needs. Research suggests that stress management techniques, such as mindfulness and relaxation exercises, can significantly reduce emotional exhaustion and improve overall well-being (Sharma & Rush, 2014; Zollars et *al*., 2019). Additionally, fostering a supportive work environment that recognizes the hard work and dedication of SETs can help in mitigating feelings of depersonalization and enhancing personal accomplishment. Organizational interventions, such as providing adequate resources, reducing workload, and offering flexible work hours, are also crucial in addressing the root causes of burnout among SETs (Fore et *al*., 2002). Moreover, ensuring that SETs have access to professional development opportunities and training on coping mechanisms for stress and emotional exhaustion can empower them to navigate the challenges of their roles more effectively (Cancio et *al*., 2018).

Occupational fatigue can have a significant impact on special education teachers, resulting in increased levels of burnout and reduced job satisfaction. This highlights the need to provide special education teachers with support and resources to help them manage their workload and maintain their well-being (Billingsley et al., 2020).. Research has shown that special educators, particularly those working with children with intellectual disabilities, experience higher levels of job stress and burnout than those working with children with hearing and visual impairments (Akgül et al., 2023; Wisniewski & Gargiulo, 1997). Burnout, characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment, is a common outcome of occupational fatigue among special education teachers (Şen, 2023). Special education teachers often face heavy workloads and increased vulnerability to burnout due to the demanding nature of their work, which involves coping with the daily emotional, behavioral, and learning needs of special children. This can result in high turnover rates, low job performance, and strained relationships with colleagues. Therefore, it is crucial to address occupational fatigue and its impact on special education teachers to ensure their well-being and job satisfaction (Alexander, 2020). The research included the following sub-problems:

- According to special education teachers, what does occupational fatigue mean and what are its symptoms?
- What are the factors that cause professional fatigue in special education teachers?
- How does occupational fatigue affect the professional lives of special education teachers?
- How does occupational fatigue affect the private lives of special education teachers?

Method

In this part of the article, details are given about the model, the study group, the data collection tool and the process that was used in the research.

Research Model

This study was carried out using qualitative methodology. Specifically, the phenomenological design was used to explore phenomena that are not entirely unknown but cannot be fully understood. This research is within the phenomenological model, as it focuses on the meaning and implications of teachers experiencing professional fatigue in different ways. As Yıldırım and Şimşek (2016) explain, phenomenological research aims to uncover and interpret people's attitudes, perceptions or thoughts about a particular event or situation.

Study Group

The research study was conducted with a group of 10 special education teachers who were working in schools located in the central district of Düzce province during the 2023-2024 academic year. The study group was selected using a convenient sampling technique. This sampling technique was preferred in order to obtain data more quickly and easily. Table 1 presents the demographic information of the study group.

Table 1. Demographic information of study group

Code	Gender	Age	Seniority (Year)	Working Position	School Type	Students' Disability Type	Education Level
T1	Male	33	10	Tenured	Secondary S.	MMD*	Bachelor
T2	Female	36	15	Tenured	Primary S.	Autism	Bachelor
T3	Female	30	9	Tenured	Primary S	MMD	Bachelor
T4	Female	35	7	Not Tenured	Special Education Kindergarten	MOMD	Bachelor
T5	Female	42	12	Tenured	Secondary S.	MMD	Bachelor
T6	Male	26	4	Tenured	Special Ed. Application Sch.	MOMD**	Bachelor
T7	Male	24	2	Tenured	Special Education Kindergarten	Autism	Bachelor
T8	Female	24	2	Not Tenured	Secondary S.	MMD	Bachelor
T9	Female	37	12	Tenured	Primary S.	MMD	Bachelor
T10	Male	32	10	Tenured	Special Ed. Application Sch.	MOMD	Master

**MMD: Mild Mental Disability; **MOMD: Moderate Mental Disability*

Table 1 shows the demographic characteristics of the sample group, which consists of 2 non-tenured (paid) teachers and 8 tenured teachers working in special education. The participants have different years of service, ranging from 2 to 15 years. One participant has a Master's degree and 9 have a Bachelor's degree. The group consisted of 6 female and 4 male teachers. The age of the participants varied between 24 and 42 years. The types of disabilities of the students that the teachers teach were as follows: 5 teachers work with students with mild intellectual disability, 3 teachers work with students with moderate intellectual disability and 2 teachers work with autistic students. The teachers were distributed among different types of schools: 3 teachers work in primary schools, 3 teachers in secondary schools, 2 teachers in kindergartens and 2 teachers in special schools.

Data Collection Tools

In this study, a semi-structured interview form developed by the researchers was used to collect data. The interview questions were designed based on a theoretical framework derived from a literature review. To assess the form's applicability, a preliminary interview was conducted with two special education teachers. Following the preliminary interview, expert opinions were sought to address issues of comprehensibility. The interview form consisted of 8 questions. Sample questions included: 'What factors cause the most professional fatigue for you?' and 'How does professional fatigue affect your personal and professional life?'

Data Collection Process

In this research, the teachers to whom the semi-structured interview form would be applied were identified and these teachers were contacted. They were informed of the subject matter and asked to make an appointment for an interview. Before the interview form was used, the teachers' concerns about the confidentiality of their answers to the interview questions were allayed. In this study, face-to-face interviews were conducted with teachers of different levels who volunteered to participate in the research. The interviews were conducted in seven different schools in the central district of Düzce province during the 2023-2024 academic year. The study adhered to the ethical principles outlined in the Directive on the Ethics of Scientific Research and Publication in Higher Education.

Data Analyses

The real names of the participants were not used as it would not be appropriate in terms of the ethics and morality of the study; the names of the teachers were coded as T1, T2, ... T10 were coded as T1, T2 and T10. The answers given by the participants in the interview were analyzed using descriptive analysis and content analysis. The main purpose of using content analysis is to organize similar answers according to certain concepts in a way that the reader can understand. Content analysis is to ensure that the data is processed in detail and that concepts and themes emerge in a descriptive approach (Yıldırım & Şimşek, 2016). The interview questions were developed in collaboration with experts in special education. It was ensured that all questions were relevant to the topic and adequately covered the issue of professional fatigue among special education teachers. To ensure the reliability of the research and to confirm the accuracy of the findings, the data interpretation was discussed again with the participants.

Ethics committee approval process

The ethics application for the study was made on 23/11/2023 and the research was carried out with the approval of Düzce University Ethics Commission dated 23/11/2023 and numbered 2023/369.

Results

In this part of the article, the findings and results obtained from the analysis of the research data are given.

Theme 1: Definition and Symptoms of Occupational Fatigue

As a result of the interviews, the first theme of the research was determined as "Definition and Symptoms of Occupational Fatigue". In the emergence of this theme, the participants were asked the question "What do you think professional fatigue means for teachers in the special education branch and what kind of symptoms does it have?". The answers given to this question were coded and the theme emerged with categories based on the codes. The categories and codes belonging to this theme are shown in Table 2.

Table 2. Categories and codes related to the theme of defining and symptoms of occupational fatigue

Theme	*Sub-Categories*	*Codes*
Definition and Symptoms of Occupational Fatigue	Definition Occupational Fatigue	Job Dissatisfaction
		Workload
		Chronic Situation
		Feeling Inadequate
		Complacency
	Emotional Symptoms of Occupational Fatigue	Feelings of Burnout
		Lack of Motivation
		Emotional Fatigue
		Unhappiness
		Impatience
		Tension
	Physical Symptoms of Occupational Fatigue	Physical Fatigue
		Headache
		Stomach Problems
		Frequent Illness
	Mental Symptoms of Occupational Fatigue	Mental Fatigue
		Distraction

As seen in Table 2, 4 categories and 17 codes belonging to the theme of "Defining and Symptoms of Occupational Fatigue" emerged. The categories are "Defining Occupational Fatigue", "Emotional Symptoms of Occupational Fatigue", "Physical Symptoms of Occupational Fatigue" and "Mental Symptoms of Occupational Fatigue" respectively.

Defining Occupational Fatigue

Based on the analyzed data, "Defining Occupational Fatigue" was formed as the first category and there are 5 different codes under this category. These codes and their frequencies are shown in Figure 2.

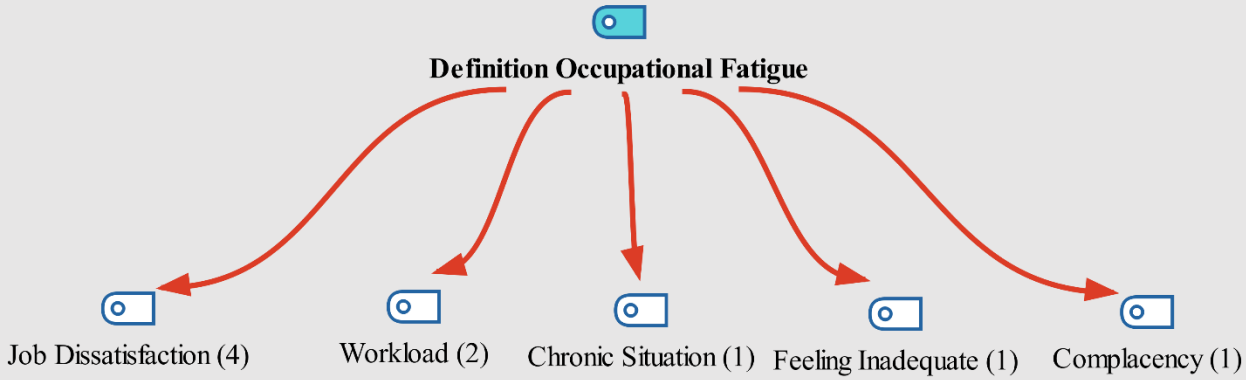

Figure 2. Codes and frequencies of the defining occupational fatigue category

The definition of occupational fatigue includes codes such as dissatisfaction with the profession, workload, continuity, feeling inadequate, and idleness. The most commonly used code to define occupational fatigue is dissatisfaction with the profession. Participants mostly defined occupational fatigue as a general dissatisfaction with their profession. Below are some of the teachers' opinions on this subject.

> *...if it becomes boring to do the same work all the time, if one cannot enjoy the work environment due to things that become routine, one can talk about occupational fatigue." [T1]*
> *"Not wanting to come to school, getting tired of the pressure of the administration, having difficulty in doing your profession and not having the old strength and idealism. [T10]*

Occupational fatigue can be defined using various codes, one of which is excessive workload. The concept of occupational fatigue was exemplified by the teachers' using workload. For instance, T6 stated that *"being not satisfied with their work due to the heavy workload"*. Other codes were also used by the participant teachers to define occupational fatigue with equal frequency. Regarding the code of continuity, one example of a teacher's statement coded as T1 is: "*I believe that occupational fatigue has more continuity than other types of fatigue*." Another descriptor of professional fatigue is teachers feeling professionally inadequate.

The wide range of disability groups and levels in the special education branch may contribute to this situation. As an example of this finding, T8 stated, *"I can experience emotional fatigue and feelings of inadequacy from time to time. Feeling inadequate in this job is a situation I often encounter*." It is possible to provide additional statements from T8 to support this definition of professional fatigue. Special education teachers may face various challenges both in and out of school while performing their duties. When faced with problems and situations that cannot be solved or progressed, coupled with the inherent challenges of working with disability groups, professionals in this field may experience professional fatigue and feel like giving up. This is a common issue that teachers may face. For example, T5 says: "*I can say that burnout is a more normalization of the fact that things are not solved at some times. It's like giving up or giving up. Because after a while, you realize that there is no point in pushing. But since you cannot stop expecting more professionally, this situation is felt as professional fatigue*."

Emotional Symptoms of Occupational Fatigue

Based on the analyzed data, the category of "Emotional Symptoms of Occupational Fatigue" was formed as the second category and there are 6 different codes under this category. These codes and their frequencies are shown in Figure 3.

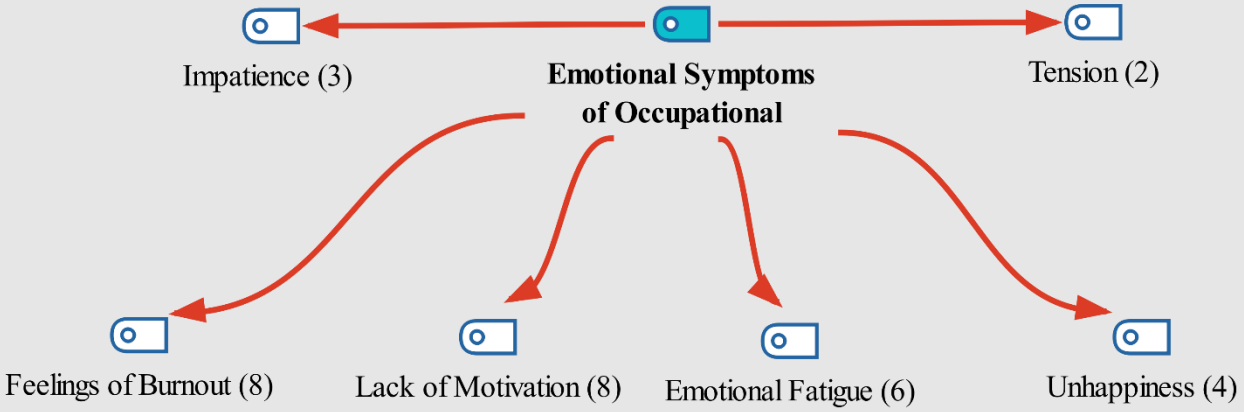

Figure 3: Codes and frequencies of the emotional symptoms of occupational fatigue category

It is widely acknowledged that individuals working in the service sector are more susceptible to occupational fatigue due to intensive face-to-face communication with others compared to other professions. Teaching is a profession that inherently requires face-to-face communication and interaction, particularly in special education where emotional sharing and interaction are more intense than in other teaching branches. In this context, occupational fatigue may manifest as emotional symptoms in teachers, particularly in special education teachers. The interviewed special education teachers most commonly reported experiencing emotional symptoms of occupational fatigue in the form of "burnout" and "lack of motivation". The following teachers' views provide evidence for the most frequently coded data in this category:

> *"From time to time, I feel burnout if I do not see any progress in the students even though I work on the same subject over and over again. I do not feel like planning different activities, I feel like a futile endeavor. This creates a vicious circle." [T1]*
> *"I get the feeling that I can't take it anymore or that I can't achieve anything. I don't want to think about the problems because when that happens, my motivation decreases even more." [T10]*

The other code that emerged in the emotional symptoms of occupational fatigue is emotional fatigue. A teacher's opinion about emotional fatigue, which is one of the types of fatigue, is given below:

> *"Not being able to progress when students are at a heavy level makes you feel emotionally tired. You feel like you cannot teach anything." [T2]*

When participant teachers feel professional fatigue, they may also feel unhappy. "I feel unhappy" statement of the teacher coded T5 or "*I feel unhappy, exhausted, reluctant*" statements of the teacher coded T9 can be presented as evidence about unhappiness, which is one of the codes

obtained from the research findings. Another emotional symptom of occupational fatigue is impatience and tension. Special education teachers may have to repeat a subject/objective/goal/gain for long periods of time depending on the characteristics of the disability group they work with. While structuring the education and training process in which individual characteristics are effective, teachers stated that they may sometimes find themselves impatient and feel nervous. T5's statement regarding these findings is: *"...I feel intolerance, I get angry more quickly.*"

Physical Symptoms of Occupational Fatigue

Based on the analyzed data, the category of "Physical Symptoms of Occupational Fatigue" was formed as the third category and there are 4 different codes under this category. These codes and their frequencies are shown in Figure 4.

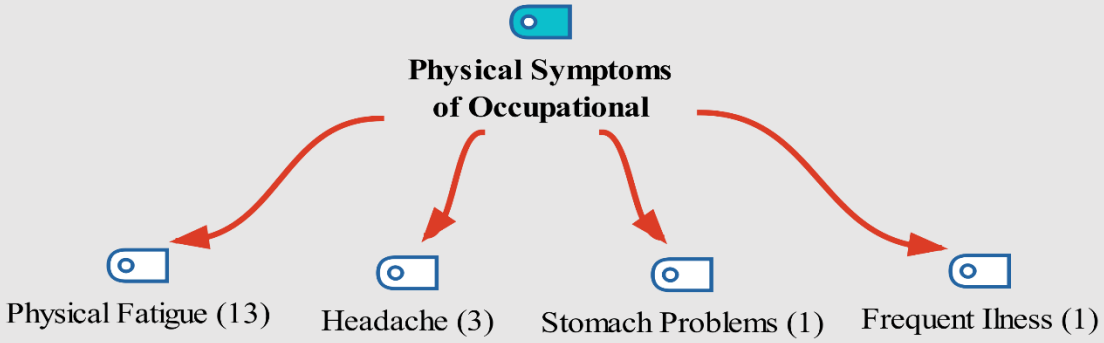

Figure 4. Codes and frequencies of the physical symptoms of occupational fatigue category

Figure 4 shows that the most frequently repeated code (f=13) in the physical symptoms of work fatigue is physical fatigue. Teachers expend physical energy while doing their job. Special education teachers can spend much more of this physical energy and feel physical fatigue depending on the characteristics of the group they work with. In this context, some teachers' views are mentioned below:

> *"I can define occupational fatigue as the reflection of fatigue on private life when the work done during the day is over, even outside working hours." [T3]*
>
> *"Professional fatigue occurs when I feel tired, sluggish and have no energy to do anything during the day." [T7]*

Another physical symptom is headache. In this regard, the statement of the teacher with the code name T5 "*I have headaches all the time*." can be given as an example. Other codes repeated with equal frequency (f=1) are stomach problems and frequent illnesses. For example, T4's statement on this subject is like this: "*I don't want to come to school. I feel physically very tired. I get sick very often*." [T4]

Mental Symptoms of Occupational Fatigue

Based on the analyzed data, the category of "Mental Symptoms of Occupational Fatigue" was formed as the last category and there are 2 different codes under this category. These codes and their frequencies are shown in Figure 5.

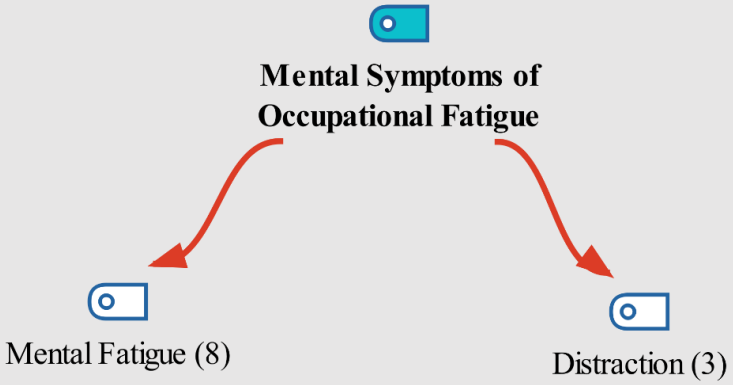

Figure 5. Codes and frequencies of the mental symptoms of occupational fatigue category

When Figure 5 is analyzed, the most frequently repeated code (f=8) is mental fatigue. It is normal for teachers working in the field of special education to experience mental fatigue due to the need for frequent and continuous repetition in the field of special education, the necessity to proceed in very detailed and small steps due to student needs and disabilities, and the necessity not to skip the slightest part when planning subjects such as skill teaching. Teacher opinions on this subject are given below:

> *"Momentarily during the day, I find myself asking myself if I am not enough. The thought of not being able to give enough overrides the physical tiredness. I want to learn and teach more, I want to try different ways, I keep wondering if I am making a mistake somewhere. This tires my mind." [T8]*

Another mental symptom of occupational fatigue is distraction. In this regard, the statement of the teacher coded T2 "*You feel like you cannot teach anything. Working in too much detail causes headache, distraction and impatience*." can be presented as evidence. Participant teachers generally responded by listing emotional, physical and mental symptoms of occupational fatigue together.

Theme 2: Causes and Sources of Occupational Fatigue

As a result of the interviews, the second theme of the research was determined as "Causes and Sources of Occupational Fatigue". For this theme, the interviewees were asked the question similar to "*What do you think are the factors that cause occupational fatigue?*". The categories and codes belonging to this theme are shown in Table 3.

Table 3. Causes and sources of occupational fatigue

Theme	*Sub Categories*	*Codes*
Causes and Sources of Occupational Fatigue	Occupational Field Based	Lack of Standards
		Inadequate Appreciation
		The Necessity of Patience
		Low Earnings
	Physical Conditions Based	Physical Structure of the School
		Small Classes
		Lack of Sources
	Administration Based	No Support
		Ignorance
		Excessive Workload
		Wrong Attitudes
	Parent Based	Excessive Expectations
		Lack of Support
		Deny
		Being Treated as a Carer
	Student Based	Slow Development
		Diversity of Obstacles and Problems
		Physical Intervention Risks
		Disease
		Negative Imitation

As seen in Table 3, five categories and twenty codes belonging to the theme of "Causes and Sources of Occupational Fatigue" emerged. The categories are "Occupational Field Based", "Physical Conditions Based", "Administration Based", "Parent Based" and "Student Based" respectively.

Occupational Field Based

From the statements of the interviewed teachers, 4 different codes were found in the category of occupational field in the sources of occupational fatigue. These codes and their frequencies are shown in Figure 6.

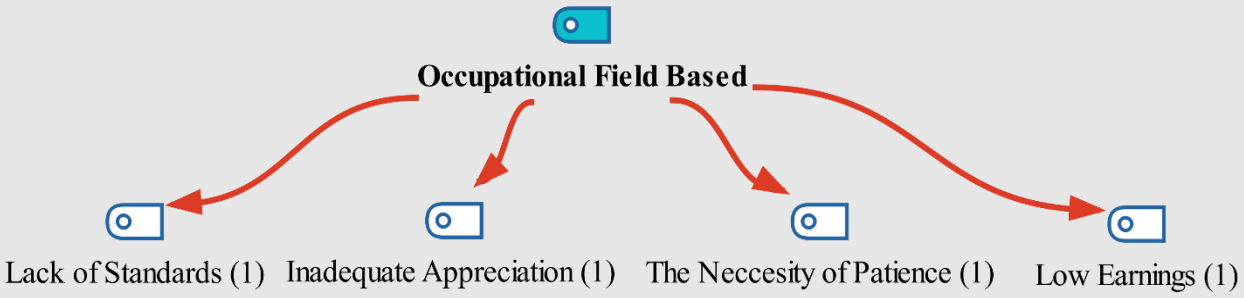

Figure 6: Codes and frequencies of the occupational field of based category

Figure 6 shows that all codes belonging to the category were coded with equal frequency (f=1). Teachers stated that they may experience professional fatigue due to the characteristics of special education teaching as a professional field or some deficiencies in the field. Lack of standards, which is one of these reasons, refers to the lack of common action or having common conditions in the field of practice of the profession. For example, T6's opinion on this subject is like this: "*Lack of cooperation that should be ensured in special education, lack of consistent behaviours, failure or incomplete performance of duties by institutions or individuals who are stakeholders of special education. In other words, lack of institutional integrity and implementation integrity*." Teachers stated that the teaching profession was generally less valued than in the past and that this loss of value was also effective in teachers' professional fatigue. The statements of the teacher with the code name T1 related to this issue can be given as an example: "*The fact that teachers are not valued enough compared to the past ... makes me think*." One of the reasons for professional fatigue is that teaching, especially special education teaching, requires a lot of patience. Working with students who learn late and with difficulty or who have special needs due to different disabilities requires patience and calmness not only from time to time but always. The statement of the teacher with the code name T8 related to this subject: "*Of course, the necessity to maintain one's calmness in every situation tires one out*." can be shown as evidence for this.

Physical Conditions Based

From the statements of the interviewed teachers, 3 different codes were found under the category of physical environment in the sources of occupational fatigue. These codes and their frequencies are shown in Figure 7.

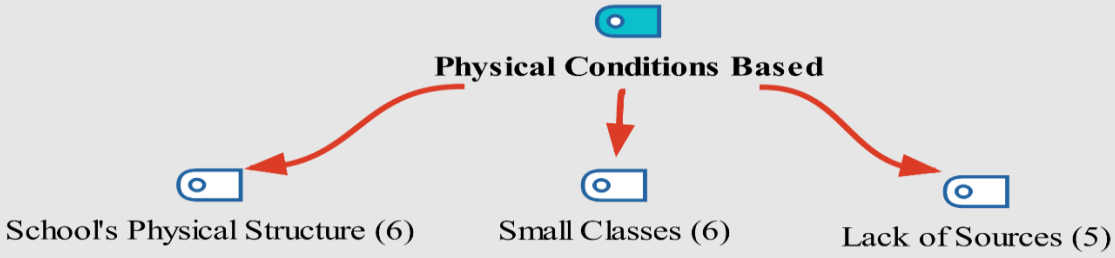

Figure 7: Codes and frequencies of the physical conditions-based category

When analyzing Figure 7, it can be seen that the codes for the physical structure of the school and small classrooms are the most common with the same frequency (f=6). Structural problems in the suitability of schools and classrooms for special needs education (small buildings or classrooms, classrooms without sufficient light and ventilation, lack of areas outside the classroom, lack of toilets for the disabled, etc.) are the main reasons for teachers' professional fatigue due to the physical environment. In cases where there is a lack of physically suitable and sufficient space, the educational process may be disrupted and teachers may feel professional fatigue more easily. Teachers' opinions on these issues are given below:

> *"...trying to provide special education services in buildings whose physical conditions are not planned makes me think while doing my profession. Toilets need to be renovated in terms of accessibility. Our teachers' room is not*

sufficient to meet the needs of all teachers. When I think about all these, I think that I would be happier if I were in better working conditions." [T1]
"...the small size of the school and the class, the lack of different environments where students can spend time outside the classroom (no extra environments such as sensory integration room or art room)." [T7]

Another reason for professional fatigue caused by the physical environment is the lack of resources. When working with individuals with special education needs, the importance of resources such as concrete materials, colorful and sound toys, textbooks, technological tools that can appeal to multiple senses at the same time, and materials that can practice daily life skills is obvious. The lack of such resources both reduces the efficiency and speed of the education and training process and can be a source of professional fatigue in teachers. The statements of the teacher coded T5, "*In general, there are many deficiencies such as textbooks, lack of materials, lack of equipment, internet, smart board in the classrooms, so this makes us teachers much more tired and difficult*." and the statements of the teacher coded T7, "*The class is small for the students, the material is not enough, the lack of these increases our fatigue*." can be presented as evidence for this.

Administration Based

From the statements of the interviewed teachers, 4 different codes were found in the category of administration in the sources of professional fatigue. These codes and their frequencies are shown in Figure 8.

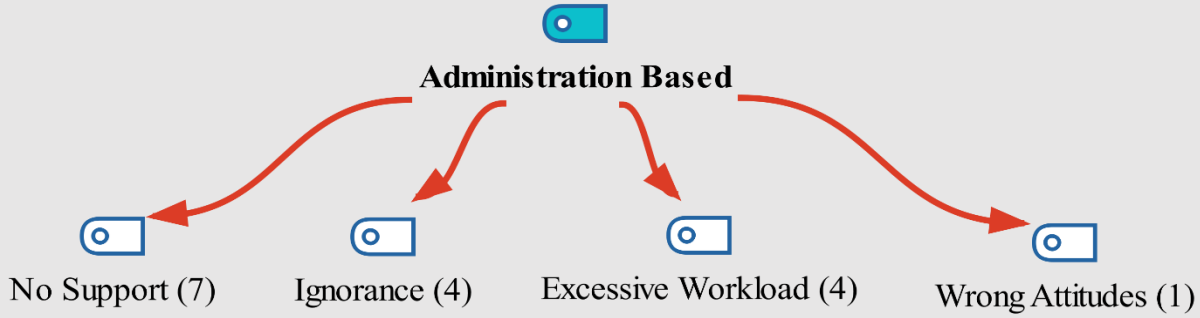

Figure 8: Codes and frequencies of the category administrative based category

Figure 8 shows that the code of being unsupported was repeated most frequently (f=7). According to the teachers' opinions, being unsupported is the most common cause of administration-related professional fatigue. Special education teachers mention administration-related problems especially when working in special education classes opened within the general level schools. A teacher's opinion on the subject is given below:

"I can say not being understood and being put in the background. I think this is a common problem especially for special education classes in regular schools. Rather than the difficulty of our work or the degree of effort, attention is paid to things such as the small number of students, two teachers in the class, and the simplicity of the course content. Our presence is ignored until a problem arises. If there is a problem, instead of solutions and support, we are questioned and treated badly." [T9]

Considering that the field of special education is a new and developing field, the fact that most of the school administrators do not have sufficient knowledge and equipment about this field and that they push teachers too much in terms of workload may increase the professional fatigue of special education teachers. Teacher opinions on these issues are given below:

> *"Unresolved. Especially the classrooms in normal schools are even more unsolvable. Because the administrators do not have any knowledge in this field. Unfortunately, special education teachers are very lonely here. Especially if the administration does not understand you and gives you difficulties and unnecessary workload, you feel worse because you cannot find anyone to support you like other classes." [T5]*

Another factor was the misperceptions and wrong attitudes created by the administration towards the parents. In this regard, the statement of the teacher with the code name T10: "*Parents are a little flattered to make them feel good emotionally. This situation reflects negatively on us*." statements can be shown as evidence.

Parent Based

From the statements of the interviewed teachers, 4 different codes were found in the category of parent in the sources of professional fatigue. These codes and their frequencies are shown in Figure 9.

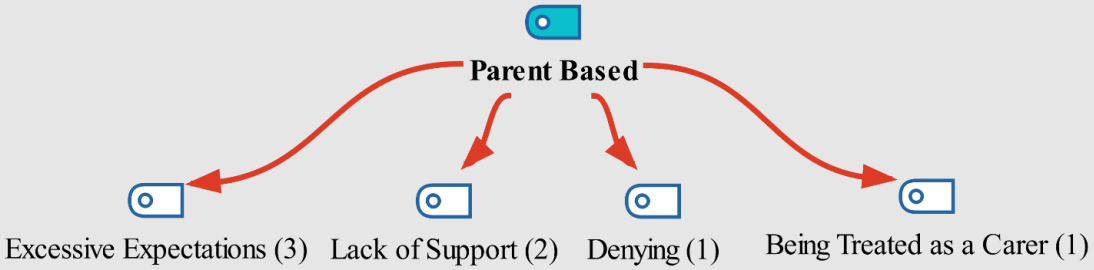

Figure 9. Codes and frequencies of the parent-based category

Figure 9 shows that the code of excessive expectations was repeated most frequently (f=3). According to teachers' opinions, excessive expectations of parents are the main cause of professional fatigue caused by parents. Families with children with special needs may have different expectations when their children start school life. It is often difficult for families to see and understand the disability in a professional sense, and they are likely to have demands and expectations that include an emotional perspective. In this context, special education teachers who are trapped between unmet parental expectations and the real situation may experience professional fatigue. Some teacher views on this issue are given below:

"The main reason is that the children progress very slowly in the practice school, there is no feedback and yet the parents and the administration have excessive expectations. It is as if they are living in a dream world or in a chain of promises. There is a situation where dreams or wishes are one thing but reality is another." [T10]

"The lack of a standard in practice leads to utopian requests and behaviours by unqualified administrators or uninformed parents who do not know where the boundaries begin and end." [T6]

Achieving permanent and relatively rapid progress and development in special education is possible with the support of parents and families, as is the case in all levels of education and training and for all students. The other reasons for professional fatigue caused by parents that emerged as a result of the findings were denial and being treated as a career. In this regard, the statement of the teacher with the code name T5 "*In general, I have experienced a lot of negativities because parents never accept and deny the existing inadequacies of their children, and sometimes they try to treat the teacher as a career. This made me very tired*." can be given as an example.

Student Based

From the statements of the interviewed teachers, 5 different codes emerged in the category of students in the sources of professional fatigue. These codes and their frequencies are shown in Figure 10.

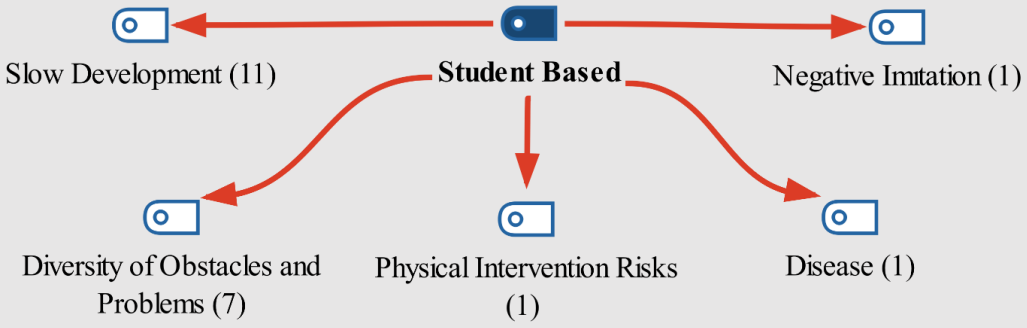

Figure 10: Codes and frequencies of the student-based category

Figure 10 shows that the slow progress code was repeated most frequently (f=11), followed by the obstacle and problem diversity code (f=7) and the remaining three codes were coded with equal frequency (f=1). According to teachers' opinions, slow progress of students is one of the most common difficulties encountered in the classroom. Special education covers a field that aims to contribute to individuals' learning processes more effectively. Students who can forget the gains in a short time due to their disabilities may need attention, multi-sensory stimuli, frequent repetition and visual aids. Slow progress in special education, where the principle of small steps is often used, is not a surprise. However, this situation may cause teachers to experience professional fatigue. Teacher views on this issue are given below:

"I think the fact that it is not easy for students to progress and that it requires constant repetitions for the same subject is a reason for professional fatigue." [T1]

"Not getting very far with the students. Always practising the same things and going back to the beginning. Students with autism like repetition and routines, they resist new things. This can naturally make even the simplest subject or skill very difficult." [T2]

One of the reasons for student-related professional fatigue is the diversity of disabilities and problems. Special education is a field that provides curricula and support services designed to meet the learning needs and abilities of individuals. The diversity of disabilities and problems refers to the wide range of difficulties encountered in special education. This diversity is related to individuals' different learning profiles, difficulties and disabilities.

Risks of physical intervention, illness and negative imitation are the other elements coded with equal frequency in the causes of student-related occupational fatigue. The risk of physical intervention by the teacher, parents/caregivers, students coming to school sick, learning and adopting each other's negative actions and behaviours by imitating each other's negative actions and behaviours, which are sometimes seen in some students with moderate and severe disabilities or with disabilities accompanied by very intense behavioural disorders, can be among the causes of professional fatigue of special education teachers. Teacher opinions on these issues are given below:

"I have seen physical intervention especially from students with different types of disabilities at some times, but since they were accepted as they are, the intervention I saw was always met with "may be" and remained unresolved." [T5]

"I can count the reasons such as students coming to school sick and tired and therefore not being ready for teaching, students who need individual teaching cannot adapt to the group environment, students imitating each other negatively." [T7]

Theme 3: Occupational and Personal Effects of Occupational Fatigue

As a result of the interviews, the third theme of the research was determined as "Professional and Personal Effects of Occupational Fatigue". For this theme, the interviewees were asked the question "What are the effects of occupational fatigue in your opinion?" and other similar questions. The categories and codes of this theme are shown in Table 4.

Table 4: Categories and codes related to the theme of professional and personal effects of occupational fatigue.

Theme	*Sub Categories*	*Codes*
Occupational and Personal Effects of Occupational Fatigue	Occupational Effects of Occupational Fatigue	Impatience
		Underperformance
		Communication Problems
		Irritability
		Does Not Effect
		Resignation
	Personal Effects of Occupational Fatigue	Family Problems
		Low Energy
		Restricting Social Relationships
		Unhappiness
		Postponing Hobbies
		Tense Mood
	Strategies to Reduce Occupational Fatigue	Rest/Sleep
		Not Thinking About Problems
		Being Alone
		Hobbies
		Providing Professional development
		Colleague Motivation
		Creating a Document Archive
		Socialising

As seen in Table 4, there are 3 different categories and 20 different codes belonging to the theme of "Professional and Personal Effects of Occupational Fatigue". The categories are; "Professional Effects of Occupational Fatigue", "Personal Effects of Occupational Fatigue", "Strategies to Reduce Occupational Fatigue".

Occupational Effects of Occupational Fatigue

Based on the analysed data, the first category was "Occupational Effects of Occupational Fatigue" and there are 6 different codes under this category. These codes and their frequencies are shown in Figure 11.

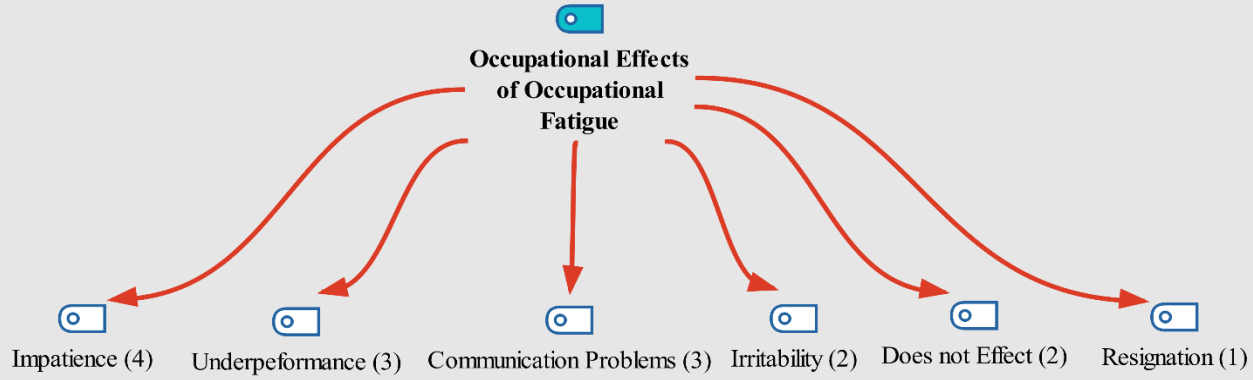

Figure 11: Codes and frequencies of the occupational effects of occupational fatigue category

Figure 11 shows that the impatience code was repeated most frequently (f=4). According to teachers' opinions, professional fatigue affects teachers negatively mostly in terms of showing patience. Teachers who experience impatience due to professional fatigue may reduce the number of activities during the day or may have to make more effort to show patience towards students' learning speed or problems. Teachers' views on this issue are given below:

> *"...it becomes difficult to communicate positively, the level of tolerance decreases. I have to make more effort than usual to behave more patient, calm and correct." [T6]*
>
> *"Patience is decreasing, so I want to spend the day with fewer activities." [T2]*

Another professional effect of professional fatigue was low performance. Teachers stated that when they felt professionally tired, their motivation and performance in classroom activities were negatively affected, and they experienced a decrease in their desire and energy to teach. The statements of the teacher coded T10, "This fatigue reduces the desire to come to school, so the efficiency decreases for sure." and the statement of the teacher coded T2, "*Since I feel tired, my idealism and performance are negatively affected*." can be presented as evidence. Communication problems are another factor that emerges as a result of professional fatigue. Due to the effect of professional fatigue, teachers may have difficulty in communicating with students and for this reason, they may want to reduce the frequency of communication. One teacher' view on this issue are given below:

> *"I have difficulties in communication. The fact that the cognitive level of the students as well as their physical age is small creates the necessity to repeat things more often. This challenges my patience while communicating." [T4]*

Another code that emerged from the teachers' statements is irritability. Since special education teachers spend extra effort for their students and generally have to focus more on the special needs of their students, this situation may be more evident than in other branches. Teachers experiencing professional fatigue may react in ways they would not normally react and may feel the need to constantly control themselves due to this situation. Some teacher views on this issue are given below:

> *"My reactions to my students can be angry and aggressive. In fact, I can get angry at things I would not get angry at because of professional fatigue." [T7]*

It was observed that some of the teachers who participated in the research did not think that professional fatigue affected them professionally. These teachers stated that they felt professional fatigue but tried not to reflect it to their students. The opinions of the teacher's subject to the findings are mentioned below:

> *"I try not to reflect this situation to my students. There is no situation that affects my relationship with them." [T1]*

The least repeated code (f=1) in the category of the professional effects of teachers' professional fatigue was the code of giving up. Some teachers may have difficulty in improving and developing their work as a result of the professional fatigue they experience due to the working conditions, the school, the administration, the problems experienced by the parents and the

difficulties of the student group, and they may continue their education by accepting what they have rather than expecting more. In this regard, the teacher coded T5 said "*It is negatively affected. Unfortunately, it ends with communication disconnection and giving up. I do not want to make more effort and I am content with what I have*." can be presented as an example.

Personal Effects of Occupational Fatigue

Based on the analyzed data, the second category "Personal Effects of Occupational Fatigue" was formed and there are 6 different codes under this category. These codes and their frequencies are shown in Figure 12.

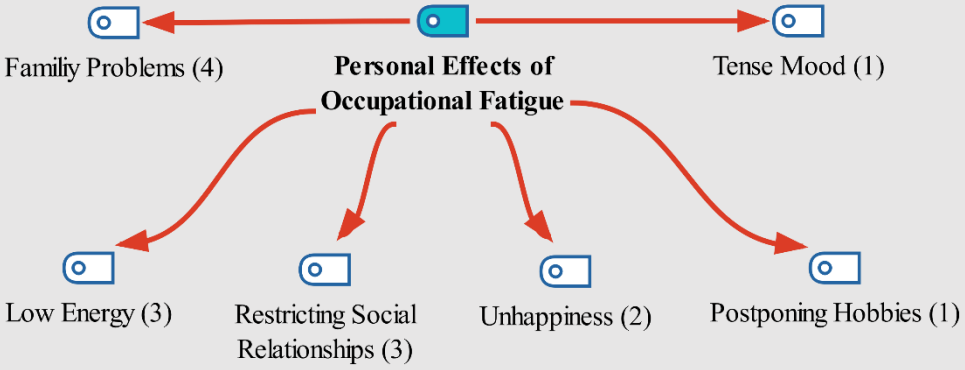

Figure 12: Codes and frequencies of the personal effects of occupational fatigue category

When Figure 12 is analysed, it is seen that the code of family problems is repeated most frequently (f=4) and the teachers who participated in the research are mostly united on the points of family problems, low energy and limiting social relations in the category of personal effects of occupational fatigue. Occupational fatigue can deplete an individual's emotional energy. This may reduce the capacity to connect emotionally with family members. An individual who is tired or irritable may have difficulty in establishing healthy communication with family members. This can lead to disagreements and communication problems within the family. Occupational fatigue can reduce an individual's energy levels, which can lead to difficulties in allocating time for the family. Some teachers' views on this issue are given below:

> *"I have no patience with my husband and child, which leads to conflicts at home. I cannot tolerate things that I would not normally get angry." [T2]*
> *"Since I am not happy at school and I cannot do my job with pleasure, I go home sad and this situation affects my spouse, children and everyone around me in some way." [T4]*

The other codes that were repeated with the same frequency (f=3) in the statements of the teachers participating in the research on the greatest professional effects of professional fatigue were low energy and restricting social relations. Teachers experience a general low energy due to the effects of occupational fatigue and state that their social relations are restricted. T5's view on these issues like this: "Of course, when you deal with these things all day, you don't have the energy to do anything. You don't feel like doing anything." [T5]

Feeling emotionally unhappy is another dimension of the occupational effects of occupational fatigue. The teachers who participated in the research stated that they could feel

unhappy due to the effects of occupational fatigue. The following teacher statements can be given as an example to this issue:

> *"It affects our personal life negatively. Mentally tired, emotionally unhappy, financially inadequate." [T6]*

Professional fatigue may also have different effects on teachers' personal lives, such as postponing some hobbies and activities enjoyed in social life, experiencing a decrease in the rate of participation in social life and having a tense mood. For example, the teacher coded as T1 said, "*I cannot say that I can spare too much time for my hobbies. I don't feel like doing anything most of the time because of professional fatigue. I don't do much except my routine housework with the tiredness of the day*." and the teacher coded T7 said, "*The tense and nervous state experienced in the classroom environment is reflected in the social environment. After school is over, I feel tired and do not want to do any extra activity*." can be given as examples.

Strategies to Reduce Occupational Fatigue

Based on the analysed data, "Strategies for Reducing Occupational Fatigue" was formed as the third category and there are 8 different codes under this category. These codes and their frequencies are shown in Figure 13.

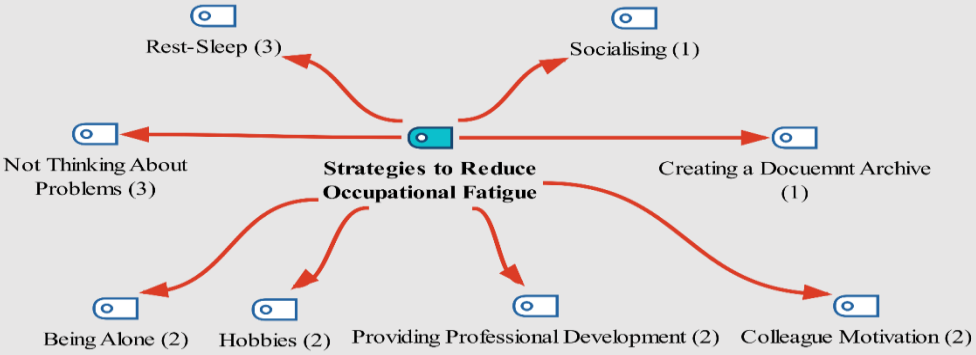

Figure 13. Codes and frequencies of the category of strategies to reduce occupational fatigue

When Figure 13 is analysed, it is seen that the most frequently repeated codes were resting/sleeping and not thinking about problems (f=3). The research findings reveal that teachers generally try individual strategies to reduce their occupational fatigue. It can be said that professional fatigue can be relieved especially by resting and sleeping physically. An opinion of T2's on this subject is given below:

> *"I often feel tense, tired and stressed, so the best thing for me is to rest. Sleeping or spending time in a quiet and calm way." [T2]*

When teachers are unable to solve existing problems related to school and students, they may stop thinking about problems in order to avoid further professional fatigue and to cope with situations. Stopping thinking about problems is a mental strategy used especially to cope with constant mental turmoil and anxiety. The opinion of a teacher who participated in the research and applied this strategy is given below:

"I try to reduce my professional fatigue by ignoring many of the things said, many demands of parents, and extra work requested by the administration. This way does not eliminate the problems, but at least it prevents me from getting more tired professionally." [T10]

One of the strategies of the teachers participating in the study to reduce their professional fatigue was to stay alone. At the end of intense student interaction and thought traffic throughout the day, special education teachers stated that they could reduce their fatigue by being alone. In this regard, the teacher with the code name T8 said: "*I stay with myself. Calmness helps me recover a little more. By doing things that I like and that are good for me on my own, I relatively reduce my fatigue during the day or week."* statements can be presented as evidence. Another strategy used by teachers is taking up hobbies. Having a hobby can be an effective way to cope with occupational fatigue. A hobby refers to an activity that a person can enjoy outside of work. These activities can strengthen mental health, reduce stress and alleviate the effects of occupational fatigue. In this regard, the statements of the teacher with the code name T5 such as "*... or attending some different hobby courses, going to theatre and drama courses are good for me*." can be given as an example.

Another element that we encounter in strategies to reduce occupational fatigue is colleague motivation. Colleague motivation is an important factor to increase teamwork in the school environment, to improve performance and to positively affect the working environment in general. Special education teachers can get support for finding solutions to their common or similar problems and increasing their motivation related to their profession, especially by communicating with other special education teachers. An opinion on this subject is given below:

"I try to find something to motivate myself. For example, I do this profession because I love children and teaching. No matter how difficult it is to teach in special education, when the student acquires the desired behaviour, his/her happiness is just as much. The conversations I have with my colleagues in the school environment can also be a source of motivation." [T1]

The last strategies obtained from the research findings related to the strategies to reduce professional fatigue were creating a document archive and socializing. In this regard, the statements of the teacher coded T3, "*I create an archive of documents requested regularly every year, such as minutes of parent meeting, etc. I try to prepare a file with activities, etc*." and the statement of the teacher coded T5, "*I try to do activities that distract my mind. Things like travelling, shopping, meeting with friends, watching films*..." can be given as examples.

Discussion, Conclusion and Suggestions

The purpose of this study was to investigate the reasons for and the professional consequences of special education teachers working in primary/secondary schools with special education classes, special education kindergartens and special education practice schools in the central district of Düzce.. In the context of special education, teachers often describe occupational fatigue as a multifaceted issue. Job dissatisfaction, stemming from inadequate resources and support, plays a significant role. The heavy workload they face only exacerbates this dissatisfaction, as the unique demands of special education require extensive time and effort. Furthermore, this situation is often chronic, not just a series of isolated incidents, which leads to persistent stress. Teachers also report feelings of inadequacy, questioning their ability to meet the diverse needs of their students, and complacency, which may arise as a defense mechanism against ongoing stress. Literature research suggests that professions involving intense face-to-face interaction with people, such as doctors, nurses, and teachers, are more likely to experience

occupational problems like fatigue, stress, and burnout (Hablemitoğlu & Özmete, 2012). Working with younger and underage individuals makes the teaching profession particularly challenging. Teachers may experience professional fatigue more frequently when working with younger students who have not yet developed a strong sense of responsibility. Burnout and professional fatigue are significant issues in the field of education, particularly in special education. Due to the unique needs of their students and the challenging work environment, special education teachers are at a higher risk of experiencing burnout. Aksoy's (2007) research on special education teachers found that they experienced a moderate level of burnout. In addition to the challenges arising from the inadequacy of the students, special education teachers also face the need to constantly educate themselves (Vızlı, 2005). Bozgeyikli (2016) states that working with individuals with special needs, particularly as a special education teacher, can lead to burnout and professional fatigue, which may result in depression, psychosomatic problems, and reduced work efficiency. The research findings indicate that all participating special education teachers experienced professional fatigue.

In this study, the opinions of teachers were prioritized to define professional exhaustion in the field of special education, using the definitions of job dissatisfaction and workload. Şahin and Şahin (2012) considered workload as one of the institutional variables examined in predicting burnout. Factors such as excessive workload, prolonged work experience, and complexity of work contribute to workload. Himmetoğlu et *al*. (2022) reported that special education can lead to stress and professional fatigue for teachers due to the high workload and heavy responsibilities associated with addressing students' behavioral problems and diverse needs. According to Işıkhan's (2017) research, students with special needs may lag behind their typically developing peers depending on the type and degree of disability. This can cause special education teachers to experience burnout and negative emotions related to their profession. These factors can lead to stress, burnout, and job stress for staff working in the field of special education. Bozgeyikli (2016) found that dissatisfaction with their job can cause boredom, monotony, distress, burnout, and emotional fatigue in teachers. This is supported by research showing that teachers who are dissatisfied with their profession experience higher levels of burnout and emotional fatigue than those who are satisfied.

This study shows that professional fatigue among special education teachers can result in emotional, physical, and mental symptoms. Emotional symptoms may include burnout, emotional fatigue, and lack of motivation. Physical symptoms may include fatigue, headaches, and stomach problems. Mental symptoms may include mental fatigue and distraction. Ardıç and Polatçı (2008) state that physical symptoms, such as weakness, headache, laziness, general body aches, and intestinal and stomach disorders, begin to appear in teachers experiencing burnout and professional fatigue. Kazu and Yıldırım (2021) also note that these symptoms include forgetfulness, family problems, difficulty concentrating, sudden irritation and outbursts of anger, frequent crying, wanting to be alone and being irritable. Sılığ (2003) found that emotional exhaustion can lead to physical exhaustion. Individuals experiencing emotional work fatigue may feel empty, tired, and lacking energy to start a new day. These findings support the present study. This study identifies various factors contributing to special education teachers' professional fatigue, including their professional field, physical environment, administration, and resources from parents and students. Teachers often face a range of challenges, including low income, inadequate physical structures in schools and classrooms, and insufficient support from administration. Additionally, parents may have unrealistic expectations or view teachers solely as caregivers, while students may make slow progress. These obstacles can lead to professional fatigue. It is important to address these issues in order to improve the quality of education. Himmetoğlu et al. (2022) highlight that special

education is a field that demands patience and understanding. This finding is supported by previous studies that emphasize the fundamental qualities and characteristics required to be a special education teacher (Bozgeyikli, 2016; Şahin and Şahin, 2012). Special education requires patience and dedication due to the slow and difficult learning of students and the resulting delay or lack of feedback. Material deficiencies and inappropriate school building design for students with disabilities were also noted. This research result has been cited in many studies regarding the fundamental issues experienced in special education (Başaran, 2001; Güleç-Aslan et al., 2014).

Special education teachers experience professional fatigue in various dimensions and develop strategies to reduce it. Professional fatigue is mainly reflected in teachers' professional lives as impatience and poor performance. Personal effects include family problems, low energy, and limited social relationships. In addition to this research study, professional burnout and fatigue can lead to negative organizational consequences such as reduced performance, decreased job satisfaction, and lower organizational commitment (Ardıç & Polatcı, 2008; Arı & Bal, 2008; Argon & Koçak, 2019). Professional fatigue can have negative effects on personal life, such as constant headaches, tension, and exhaustion. Teachers, for example, may carry the problems they encounter at school home, struggle to find time for their families and social activities, and experience fatigue and headaches (Argon & Koçak, 2019; Arslan, 2018).

According to the research findings, the following recommendations are provided to reduce or prevent the professional fatigue and effects of special education teachers:

- However, by conducting similar studies, it is possible to establish a connection between the general problems of special education teachers at the regional or national level and analyze to eliminate the problems encountered.
- Physical structures of special education classes can be reviewed and improved, corrections can be made in classrooms and schools that do not comply with standards regarding size and physical features, and more use of technology can be provided in classrooms.
- By renewing the classroom equipment such as desks and chairs and addressing material shortages, students can receive education in a more comfortable environment.
- The reflection of the occupational fatigue of special education teachers on school climate and culture can be addressed in various studies.

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Conflicts of Interest

There is no conflict of interest between authors.

Ethics

The ethics application for the study was made on 23/11/2023 and the research was carried out with the approval of Düzce University Ethics Commission dated 23/11/2023 and numbered 2023/369.

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