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FROM THE EDITOR

Dear Colleagues,

The *Journal of Theoretical Educational Science* is happy to publish the second issue of 2023! In this issue, you will find ten research articles by 20 authors and one book review by one author. We are glad that these articles represent the different disciplines of education.

We should also express our sincere thanks to the Editorial Board, reviewers, and authors for their invaluable contributions. We look forward to receiving submissions from different parts of the world for the following issues!

Kindest regards,

Fatih GÜNGÖR, PhD
Afyon Kocatepe University
Faculty of Education

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Attribution Retraining Effect on Language Learners' Adaptive Attributions and Ideal L2 Self

Nedensel Yükleme Eğitiminin Dil Öğrenenlerin Uyarlanabilir Yüklemelerine ve İdeal Dil Benliklerine Etkisi*

Sibel ÖZDEMİR ÇAĞATAY**

Received: 6 May 2022 **Research Article** **Accepted:** 29 December 2022

ABSTRACT: This paper reports on the findings of a quasi-experimental study of English as a Foreign Language (EFL) learners at the tertiary level in Turkey. The study aims to disclose the extent to which EFL learners' adaptive attributions can be endorsed through Attribution Retraining (AR) abridged with strategy and vision training. A variety of data collection instruments, including attribution, causal dimension, and future self-guide scales as quantitative measures, pre-study and post- open-ended questions and semi-structured interviews as the qualitative data were employed. The findings showed that AR contributed to the development of adaptive attributions and a clearer self-image of the language learners. More specifically, the participants used more effective strategies, acquired regular study habits, and made more effort while downplaying overdependence on the teacher or task difficulty. The present research points out the necessity of integrating AR into the school curriculum to help language learners get more motivated and also take the adaptive attributions into action, such as employing effective language learning strategies.

Keywords: Attribution retraining, causal attributions, ideal L2 self, vision training, L2 learning motivation.

ÖZ: Bu çalışma Türkiye'de yükseköğretim seviyesinde İngilizce'yi yabancı dil olarak öğrenenler üzerinde yapılmıştır. Araştırmanın amacı hiçbir motivasyonel müdahale almayan kontrol grubu ile strateji ve vizyon eğitimi ile ilişkilendirilmiş Yükleme Eğitimi (YE) alan İngilizce öğrenenlerin uyumlanabilir başarı yüklemelerinin ne kadar değiştiğini ortaya çıkarmaktır. Çalışmada hem ön hem de son test olarak toplanan birçok veri aracı kullanılmıştır. Yükleme, Nedensel Boyut ve Gelecek Benlik Ölçekleri nicel, açık uçlu sorular ve yarı yapılandırılmış mülakatlar ise nitel verileri oluşturmuştur. Nicel veriler SPSS 21 ve nitel veriler Atlas.ti 7 versiyonu ile analiz edilmiştir. Bulgular göstermiştir ki verilen yükleme eğitimi dil öğrenenlerin uyarlanabilir yüklemeler ve daha net ideal ikinci dil benlikleri geliştirmesine katkıda bulunmuştur. Ayrıca, bu eğitim öğrenenlerin etkili dil öğrenme stratejileri kullanma, düzenli çalışma alışkanlıkları edinme ve dil öğrenirken daha çok emek sarfetme gibi kendi değiştirebilecekleri sebeplere inanışlarını artırırken katılımcıların öğretmen ve görev/dil zorluğu gibi kendi kontrolleri dışındaki sebeplere gereğinden fazla takılmadan uyumlu davranışlar edinmesini sağlamıştır. Bu çalışma yükleme eğitimlerimin okul müfredatına entegre edilerek öğrenenlerin daha sonraki öğrenme deneyimlerinde motivasyon açısından daha fazla harekete geçeceklerini işaret etmektedir.

Anahtar kelimeler: Yükleme eğitimi, nedensel yüklemeler, ideal ikinci dil benliği, vizyon eğitimi, ikinci dil motivasyonu.

* This study is based on the dissertation "The Effectiveness of Attribution Retraining on Language Learners' Attributions, Future Self-Guides and Motivated Behaviour, Effort", submitted to Hacettepe University, Turkey by Dr. Sibel ÇAĞATAY in July 2018.

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Language learning beliefs and motivational orientations of language learners play a pivotal role in shaping students' future actions and academic performance (Castro & Andrade-Arechiga, 2017; Kalaja et al., 2018; Oxford, 2017). One of the prominent motivational explanations is Attribution Theory, which has started to receive attention in applied linguistics in recent decades (Williams et al., 2015).

According to Attribution Theory (Weiner, 2000, 2018), people tend to explain the causes of their task or test performance with a reason they can have control over or with one that they cannot change, which restructures their subsequent decisions, actions, and success. To illustrate, when a person links their exam failure to the lack of enough studying (e.g., "I failed because I did not study enough for the exam"), s/he possibly puts more effort into learning the language in the future as s/he thinks the poor performance can be taken under control (causal dimension of controllability) and could change in the future (causal dimension of instability). Conversely, if that learner thinks that being unsuccessful results from the exam difficulty or the unfair grading of the teacher, s/he may not have control over the experience and could give up trying hard in the future. According to Weiner (1985, 2000), these perceived reasons are categorized into three main groups or causal dimensions, called internal, controllable, or stable, and they can imply learners' future actions and motivational patterns. That is, whether the attributed cause of the performance is within the control of the learner's actions (internal dimension), whether it is under their control (controllability) or whether the cause can change in the future (stability) shape the future motivation of the learner. Referring to external, uncontrollable, and unstable causes or attributions might degrade one's motivation. These ill-formed, past-rooted, and perception-based beliefs, such as referring to the *"bad teacher"* only for failure, could be transformed into more prospective and positive attributions with the help of AR (Erten, 2015). Therefore, we can define AR as a classroom-based motivation-enhancement treatment, which allows teachers to convince students that their self-explanations for previous performances may not reflect reality, and they can take more control over these causes for their future achievement (Erten, 2015; Haynes et al., 2009). According to Weiner (1985, 2018), the pioneer of the Attribution Theory, causal attributions mostly result from the learners' past experiences, which could inevitably project positive future experiences, and the teachers or researchers could change the fixed mindset of the learners with the help of AR implementations. In essence, past experiences could overshadow present beliefs and future endeavors, and this could be altered through AR implementations. The implementations used in AR could include reflection activities, certain videos aiming at convincing students to put more effort into learning or inviting senior students to share their experiences to motivate the learners.

The past, current, and future motivational process is also seen in another motivational construct, the ideal L2 self (Dörnyei, 2005), according to which learners may create an image of themselves as effective users of the target language based on the current self-image. Ideal L2 self is comprised of the attributes that a language learner wishes to possess, including but not limited to their hopes, aspirations, and desires in relation to their future language learning experiences (Csizér & Dörnyei, 2005). To illustrate, a learner might want to be a presenter in a meeting by speaking English fluently and effectively, which might be the ideal L2 self of the person in the future. Such hope or aspiration for the future is shaped by present beliefs based on past

experiences, and this could be done through vision training in motivational treatments (Chan, 2014; Magid, 2011). In vision training, the learners are led to their future image and motivated to remember their short-term and long-term goals to visualize their self-concept in the future.

The present study is significant in that it will be one of the rare studies on AR in EFL, and also it is the first study that will reveal the impact of AR integrated with the ideal L2 self as Attribution Theory presents us with a training path through which we can transform their past-rooted unhealthy beliefs into clearer ideal L2 self of the L2 learners (Martinović & Burić, 2021; Smith et al., 2020). It is also the first in the field to administer a valid attribution scale, developed by the researchers (Erten & Çağatay, 2020), in addition to a comprehensive set of data collection tools. In fact, in the language learning field, very few studies (Mahmoodi & Doosti, 2018; Matteucci, 2012; Semiz, 2011) were done on Attribution Retraining, and they offered some findings on the effect of AR on learners' causal dimensions; however, they (Mahmoodi & Doosti, 2018; Matteucci, 2012) focused only on the dimensions of the attributions, not the causal attributions themselves. These rare studies also explored the AR impact through questionnaires but not with psychometrically-validated scales, which stands as the most important methodological problem of the AR studies in EFL. Also, these studies did not triangulate their data through different measures. Different models of AR embedded with strategy training (Höl, 2016) or goal orientation training (Matteucci, 2012) have been applied in the field. However, considering the congruence between the past, present, and future relationship between beliefs and motivational patterns of the language learners (Çağatay & Erten, 2020a; Martinović & Burić, 2021; Smith et al., 2020; Zarrinabadi et al., 2021), to the best knowledge of the researcher, no study to date has looked into the integration of ideal L2 self with AR to reflect the prospective motivational paths of language learners. This research will address the gap in the literature by collecting data through a set of data collection tools. It will also test/develop a new model of motivational theory by combining the constructs of the ideal L2 self and AR.

In this vein, the present study attempts to devise an AR model incorporating elements of healthy attributions and ideal L2 self for language learners.

Literature Review

Attribution Theory

According to the pioneer of the Attribution Theory, Weiner (2000, 2018), attributions might be construed as perceived reasons and explanations accounting for students' performances in a task, test, or an activity. Attribution Theory proposes a three-dimensional structure of causal relations between task/test performance and reasons for these achievements. These dimensions are called *locus*, *stability*, and *controllability*, categorized into two opposite points as *internal* vs. *external*, *controllable* or *uncontrollable*, and *stable* and *unstable*. Drawing upon this categorization, the perceived causes of events, outcomes, or performances, such as perceived reasons for an exam result, can shape learners' possible long-term action and achievement. As to the meaning of the causal dimensions, *locus of causality* describes whether a cause is within personal control (*internal* vs. *external*), *stability* refers to

whether a reason can change or remain fixed, and *controllability* means whether the perceived cause is dependent on a personal choice or shaped by an external cause (Weiner, 1985, 2018).

Depending on their individual factors or contextual differences, many different causal attributions can be reported by learners for their language learning performances, including but not limited to *strategy, interest, mood, other people, or experiences* (Vispoel & Austin, 1995). However, which could facilitate and impede future actions depend on the causal dimensions of the attribution, as illustrated in the table below. Attributions may be deemed adaptive if classified as controllable and unstable or maladaptive if uncontrollable and stable (Chodkiewicz & Boyle, 2014; Erten, 2015). To exemplify, employing regular and effective *study habits* for one's test success might be regarded as adaptive as the learner could exert control over their effort, and the amount of effort to be made on the task changes from one performance to another. On the other hand, blaming the *teacher* for exam failure is considered a maladaptive attributional style as the instructor is an external, stable, and uncontrollable factor over which learners do not have any control to change it. Therefore, causal dimensions (controllability, stability, or locus of causality: internal/external) affect the future learning motivation, action, and performances of the learners (Weiner, 2018).

Table 1

Most Common Achievement Attributions and Their Causal Dimensions

	Locus of Control	Stability	Controllability
Ability (MAL)	internal	stable	uncontrollable
Effort (AD)	internal	unstable	controllable
Luck (MAL)	external	unstable	uncontrollable
Task difficulty (MAL)	external	stable	uncontrollable
Strategy (AD)	internal	unstable	controllable
Interest (AD)	internal	unstable	controllable
Family (MAL)	external	stable	uncontrollable
Teacher (MA)	external	stable	uncontrollable
School System (MAL)	external	stable	uncontrollable
Classroom Environment (MAL)	external	stable	uncontrollable
Health (MAL)	external	unstable	uncontrollable
Study Habits (AD)	internal	unstable	controllable

Note. AD stands for adaptive and MAL stands for maladaptive attributions (Çağatay & Erten, 2020b)

Attribution Retraining (AR) and Empirical Studies on AR

To reframe learners' maladaptive causal attributions into being adaptive and to help them to adopt less fixed accounts for their performance, Attribution Retraining (AR), as a motivation-enhancing treatment, is recommended for the school context

(Haynes et al., 2009; Perry et al., 2010). AR is defined as motivational treatment in which learners with the belief of low control or the ones with maladaptive attributional styles are offered some input of positive thinking of their future performances so that they give up their maladaptive or unhealthy attributions resulting from their previous experiences (Perry et al., 2010; Ruthig, et al., 2004; Weiner, 2018). As Haynes et al. (2009) posit, low-control students derive less benefit from effective instruction compared to the other students in the classroom. Thus, AR is well-suited to serve students with low self-control over their academic performance. Different AR models have been proposed, integrating various tenets of motivational underpinnings, such as goal orientation, positive thinking, and strategy instruction. However, the most commonly used one is the Haynes et al. (2009) model in the field of psychology and many other social sciences, as it incorporates systematic phases of retraining deeply rooted past beliefs. In their model used mainly in the field of psychology, the researchers aim to identify "motivationally and academically at-risk" students (Haynes et al., 2009, p. 253; Semiz, 2011), and the convener of the sessions could be psychologists, counselors, or a researcher who could lead the treatment. In the present study, after the data screening on 1006 students to identify the students with maladaptive attributions, the researcher conducted the AR sessions after regular class hours. As to the procedures of the AR, in the first phase, Pre-AR Diagnostic Assessment, and then in the Causal Search Activation step, students are asked to think retrospectively to express their perceived reasons for their past performances. After determining their causal attributions, in the AR induction stage, regarded as rehabilitation of maladaptive attributions, learners are encouraged to reconsider the perceived factors that prevent them from taking action. This way, they are redirected to focus more on the controllable reasons, aiming to reform them into more investment in the learning process. This facet of the treatment is important as the convener of the AR session attempts to convince the participants to adhere to their misconceptions and misbeliefs. The convener could help the students to think more positively and apply some practical ideas through videos or discussions or by inviting former students having previously experienced similar problems. To illustrate, the convener of the AR sessions could offer some role models for the students who endorse hard work (effort: controllable, unstable causal attribution) for the achievements rather than their luck (uncontrollable and stable attribution) on the exam date. The present study aims to embed AR into L2 learning classes with two goals: to convince L2 learners to transform their maladaptive attributions and to teach them how to make more effort. To achieve these goals, strategy-based activities for all language skills will be employed.

Although the present model of AR seems similar to the previous ones conducted in psychology in terms of goal orientation, or strategy training, the ideal L2 self, as a key component of language learning motivation, has not been included in the previous AR models. As promoting the ideal L2 self for their future goals could help learners to feel more distant from their previous maladaptive attributions, integrating it into the AR sessions might contribute to giving up the uncontrollable and stable reasons for their performances and could help the learners to focus on their future image and motivation.

Although Attribution Theory dates to the earlier 1980s in psychology, its use in SLA has been projected in research studies in the last decade. Höl (2016), Mahmoodi and Doosti (2018), Matteucci (2012), and Semiz (2011) implemented AR

treatment on language learners and measured the potential change from maladaptive to adaptive attributional styles. Mahmoodi and Doosti (2018), Matteucci (2012), and Semiz (2011) implemented Causal Dimension Scale II (McAuley et al., 1992) to measure the dimensions and they found an increase in the locus of causality, controllability, and decrease in stability, and except Semiz (2011), the studies yielded findings on the decrease in external control. Mahmoodi and Doosti (2018) and Höl (2016) also used an attribution questionnaire to examine whether their AR program makes any changes in learners' attributions. Mahmoodi and Doosti (2018) did not make inferential statistics to present the pre and posttest findings but rather revealed the mean scores in pre and the posttest. Höl (2016) showed that attribution to effort, ability, background, and luck could change after the AR treatment. However, the study employed a questionnaire instead of a scale, which might cast doubt on using inferential statistics. Semiz (2011), who also used a questionnaire to measure attributions, found that attributing to effort could increase after the AR treatment, similar to Mahmoodi and Doosti (2018) and Höl (2016). All these recent studies attempted to shed light on the potential effect of AR on language learners; however, one attribution was measured on one item only, and the questionnaires used were not considered to make inferential statistics (Pallant, 2011). The present study used both the attribution scale and the causal dimension scale to make inferential statistics rather than a questionnaire, which needs methodological validation in terms of the findings in this research.

L2 Motivational Self-System Theory

Another prominent and recent motivational theory is the L2 motivational self-system -L2MSS- (Pawlak, 2016), which incorporates the relationship between the past, present, and future beliefs (Dörnyei, 2005). The theory comprises three important facets: the ideal L2 self, the ought to self, and the L2 learning experience. Ideal L2 self is defined as a "representation of all the attributes that a person would like to possess" in the future in relation to the second language (Csizér & Dörnyei, 2005, p. 616), which is the central component of this motivational framework. To exemplify, if a learner imagines himself/herself as a fluent and effective user of English in social or academic life, that person is likely to attain that image and endeavor to lessen "the discrepancy between the current self and the future self" (Dörnyei, 2005, p. 217). Having a clear ideal L2 self, a learner could be more motivated to have a better command of English. The second one is the ought to self, referring to external reasons, duties, or responsibilities that drive one to take action, such as learning a language because the learner has to finish a university with an English medium instruction. Representing the future self of a learner, the ideal L2 self proved more influential in predicting future success as it has an intricate bond with a learner's aspirations, hopes, and dreams which trigger positive images in one's mind. Rather than a force that requires one to learn a language, this future imagination or ideal L2 self enables him/her to take immediate action to attain it (Chan, 2014; Dörnyei, 2005). The last component of L2MSS is the language learning experience, "which is concerned with attitudes and evaluations of the present learning environment" (Al Hoori, 2018, p.725). Despite the possible existence of a future self of a learner, it may not suffice to take proactive actions on the part of the learner. In fact, learners with clearer and more detailed imagination of themselves in the future have a tendency to be more mentally active and take steps to achieve that future self. Thus, to foster a clearer and more vivid ideal L2 self of the learners in their

imagination for a long time and to assist learners in reflecting this in their actions, vision training is recommended in the literature (Chan, 2014; Dörnyei, 2005; Magid, 2011). Vision training is described as a motivational program designed to develop an ideal L2 self by creating a language learning vision with the help of imagery enhancement (Dörnyei & Chan, 2013; Hadfield & Dörnyei, 2013). According to Dörnyei and Chan (2013), ideal L2 self-activities are designed to ease future identity formation and to empower students' future self-images. This re-conceptualization of self through future reference is similar to the AR impact, which derives from past experiences, and sets a basis for the AR treatment in this study.

Significance of the Study

Considering the scarcity of AR studies in the second language learning field (Höl, 2016; Mahmoodi & Doosti, 2018; Matteucci, 2012; Semiz, 2011) and the relationship between the past beliefs, attributions, and the ideal L2 self for the future, the present study offers new insights to the field. At the local level, the findings of this study may help language instructors to understand the potential for increasing the motivational orientations of the students, developing an adaptive mindset, and promoting the language learners' ideal L2 self when using AR methods and may contribute to their language instruction practices and ultimately to the students' language achievement.

To test the effectiveness of the devised AR, the following research questions were formulated:

1. Can a program of AR improve language learners' maladaptive causal attributions?

a. Can the AR model contribute to more *locus of causality,* less *stability* and *less external control?*

b. Can the AR model improve adaptive attributions and lessen maladaptive causal attributions?

2. What is the effect of the AR model on fostering a clearer ideal L2 self of language learners?

Methodology

To examine the impact of AR intervention – if any – on the students' causal dimension, causal attributions, and ideal L2 self, the researcher piloted the AR implementation, and the data collection tools one semester before the main study. The pilot study was conducted at a state university in Turkey. The Department of Basic English (DBE) of this university offers students general and academic English courses. Prior to commencing this foundation year of their tertiary education, an in-house placement test is administered to newly registered students who are then placed in levels as Beginner (A1), Elementary (A1+), Pre-Intermediate (A2), Intermediate (A2+) and Upper-Intermediate (B1). For the pilot study, 767 students at the A2 level at DBE were given Causal Dimension Scale-II (McAuley et al., 1992), the Language Achievement Causal Attribution Scales (LACAS) (Erten & Çağatay, 2020), and the ideal L2 self scale (Taguchi et al., 2009) for the data screening; twelve students with maladaptive attributions were identified among 767 students, and they were informed about the

sessions and invited. Only eight students accepted and attended all the pilot AR sessions.

The AR sessions in the pilot study delivered were composed of only four sessions. The first one, Causal Activation phase, focused on searching for the causal attributions for the previous midterm exam by getting students to write their causes of the previous failure on a handout. In the second session, AR consolidation, participants were given a task where they were expected to write about their causes and then had them find out the adaptive versions of their attributions in pairs. The students were also shown a video o of former students talking about their reasons for their failure in the same school and how they changed their perspective. However, this video did not receive positive feedback from the participants because of the sound quality, and they wanted to see a live guest speaker with whom they could interact. In the third and fourth stage, the researcher helped the participants dream about their ideal L2 selves with some activities in Hadfield and Dörnyei (2013). After finishing this intervention, based on the feedback received, inviting guest speakers both for attribution and ideal L2 self promotion and using more specific strategy use in language learning emerged as the necessary components that could be added to the main study. In order to design an effective method of AR treatment, feedback and statistical data were collected and analyzed based on the pilot study, as presented in Çağatay and Erten (2020b). Therefore, a more detailed and extended version of the AR treatment was designed, and the details are explained in the following.

Participants and Data Collection Procedures

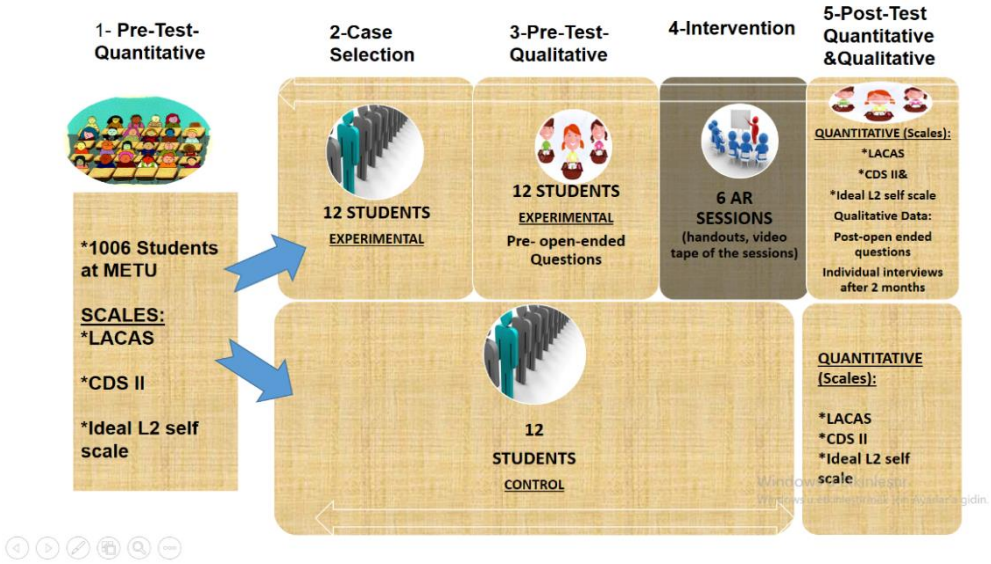
In the following academic year, the main study was conducted with different levels of students over a longer period. As Haynes et al. (2009) suggested, in order to identify the most suitable potential AR participants, data screening across a large group was needed. To ensure purposeful sampling, first, the researcher implemented a data screening process on 1006 first-year students at the *Beginner (A1), Elementary (A1+), and Pre-Intermediate (A2)* levels at the same institution to identify the students with maladaptive attributional styles after they took their first achievement exam or the midterm exam. Then, 1006 students were given hardcopies of CDS II, LACAS, and ideal L2 self scales. The low proficiency levels were purposefully included for the data screening as it was more probable for maladaptive students to exist at lower levels (Haynes et al., 2009; Perry et al., 2010). Eligibility criteria required individuals to have received low scores on the midterm exam as a measurement of achievement – high *external control* and *stability*, low *controllability* scores as indicators of maladaptive attributional style – and low scores on ideal L2 self scales as an indicator of a vague vision. Based on these criteria, 44 students were then selected based on these criteria and invited to the AR sessions. A random sample of participants from this selected group was divided into two as experimental and control groups (N = 22 for each).

As Chodkiewicz and Boyle (2014), Haynes et al. (2009), and McDowell (2009) suggest, AR interventions are typically conducted with small groups who feel less control over events and who have experienced a change in life, such as moving to a new place or starting school or university. Considering these criteria, the number and profile of the participants were well-suited for the purpose of the present study.

Data collection lasted eleven weeks, and it took the researchers to conduct the AR sessions six weeks in total. The sessions were conducted after the students' regular classes ended as students with maladaptive attributional styles were selected. The new AR model was devised based upon the proposed model of Haynes et al. (2009) in the field of psychology. However, some steps were phased out or combined as a result of the findings from the pilot study. The customized model of AR, hereby, is also different from the previous ones in the sense that it aims at transforming the unhealthy and past-related beliefs into more adaptive and positive mindsets by fostering the future selves of the language learners. The activities explained in the following parts were mainly focused on language learning motivational activities, such as discussing why fixed language ability cannot account for our previous performances.

Figure 1

The Research Design



The present study attempted to offer action-oriented or solution-focused sessions for the learners. Before starting the sessions, the data screening through the causal dimension scale, causal attribution scale, and ideal L2 self scale were performed in the first two weeks after the students took their first midterm exam. As a pre-test, 18 open-ended questions in the written format were also given to the experimental and control group participants to explore further their maladaptive style. These questions were prepared with an experienced scholar in attribution theory, and the questions were piloted in the pilot study. After selecting the participants and contacting them to ask for their voluntary participation, the researcher mainly conducted the program with the experimental group after their regular class hours, and the control group attended their regular classes without being exposed to any motivational treatment. The sessions were held after their English classes so that they did not affect any administrative or procedural issues in the school. In week 3, during the AR sessions, students were expected to watch videos which lasted around seven minutes, to be engaged in the program to reflect on their causal attributions for the midterm exam. In alignment with diagnosing the maladaptive attributions, the researcher elicited their causal ascriptions

for their poor performance and led them to more action-oriented beliefs by showing some motivational videos on YouTube channels (Motivating Success, 2012; Sayan Kileci, M. 2012), proposing or brainstorming practical solutions they could implement on the campus or raising their awareness of language study skills. These solutions included, but not limited to accessing the right resources in English in the learning center or learning more effective study habits in English learning through workshops offered by some other centers in the university. As for the AR consolidation component, in week 4, the students were given a handout on which they wrote the reasons for their performance and the possible solutions through discussion with their peers. To empower the adaptive attributions, a freshmen student, who was one of the participants of the AR sessions in the pilot study done in the previous semester, was invited to deliver a speech on how to cope with possible problems with exams or with poor achievement in the language learning process. Then, the students were tasked to reflect upon their attributions on a handout. Different from the previous studies (Höl, 2016; Mahmoodi & Doosti, 2018; Semiz, 2011), which focused more on general cases of attribution in learning, each specific unhealthy causal attribution, signaling the maladaptive style was addressed and discussed with students in the present study. To illustrate, when the students came up with the lack of ability as a reason for their poor exam performance, the researcher introduced the idea of a growth mindset which allows people to think that ability is not a stable asset but could be promoted through effective language learning strategies and study habits with the help of scientific research. This was also consolidated by having students watch videos -shot specifically for language learners. The video included a teacher sharing the experiences of his former students with adaptive and maladaptive learning styles. Also, two different students, having received the same language education in the same institution before explained how their reference to the fixed attributions, such as clinging to the lack of ability as an obstacle to learning English or poor exam performance, has changed into valuing more effort and effective strategy use. The researcher further helped them to engage more in language learning through an interactive presentation. In week 5, to further promote skill development, an English instructor was invited to give a presentation on how to study each skill, including grammar and vocabulary in English. The students were expected to complete a graphic organizer to take notes on the session. In week 6, participants were guided towards setting specific, measurable, achievable, realistic, and time-framed **(**SMART) short-term and long-term goals by having them watch about the definitions of such goals, discussing them with their peers, and writing them on a handout given. In week 7, the participants' future aims were set more clearly by some activities, and moreover a graduate of the same university was invited by the researchers to share her language learning process during her undergraduate years and the contribution of her language competencies to be accepted to a highly regarded university in an English-speaking country. She was chosen as she could be a good role model as a successful student and a businesswoman who had graduated from the same university. Drawing upon her experiences in her work life related to using English, she also attempted to foster her ideal L2 self in her professional life. In the following week, the researcher delivered a speech on her own language learning experiences, her maladaptive attributions, the wrong strategies she employed, and how she overcame these problems to present herself as a role model. All these steps in the AR model were designed specifically for language learners, which differentiates the present study from the former

ones. In the last two weeks, post-tests, including all the scales and open-ended questions, were given to both groups of students. However, the response rate was very low in the control group in terms of the qualitative data. To be able to see the longer effect of AR, if any, and not to give the same scales for the third time, individual semi-structured interviews were conducted with the experimental group students two months after the AR sessions.

Data Collection Instruments

Data were gathered from multiple quantitative and qualitative sources during the pre-and post-tests. As quantitative measures, Causal Dimension Scale II, Language Achievement Attribution Scale, and ideal L2 self scales were employed, while for qualitative measures, pre and post open-ended questions in written forms and semi-structured interviews at the end of the AR sessions were used. The first scale, CDS II (McAuley et al., 1992), includes *locus of causality* (three items, α = .69), *personal control* (three items, α = .74), *stability* (three items, α = .77) and *external control* (three items, α = .66) subscales in it with twelve questions. A sample question in the scale starts from point nine, referring to *the cause of my performance that reflects an aspect of yourself*, to point 1, meaning *an aspect that reflects of the situation*. This nine-item causal scale was used to ascertain the effectiveness of the attribution retraining with respect to improving *personal control* and *locus of causality* items while downplaying *stability* and *external control*.

The Language Achievement Causal Attribution Scale (LACAS) (Erten & Çağatay, 2020; 29 items, α = .87) addresses nine causal attributions: *ability* (α = .87), *effort* (α = .90), *luck* (α = .72), *task difficulty* (α = .68), *family* (α = .86), *teacher* (α = .80), *school system* (α = .79), *classroom environment* (α = .76) and *health* (α = .83), through 29 questions. The items include such statements as "I received the score because…" and the sentence is completed with one of the nine attributions measured in LACAS. The Ideal L2 self scale (Taguchi et al., 2009) has 10 questions with a Cronbach's alpha score of .90.

As for the qualitative part of the study, before and after the AR intervention, open-ended questions, and interviews to explore students' causal attributions, as well as their vision for the future, were given to both the experimental and the control group. The open-ended questions and the interview protocol were prepared in cooperation with another expert researcher in attribution studies. Although the initial aim was to collect qualitative data from both the experimental and the control group, most of the control group participants dropped out of the qualitative phase of the study. For this reason, only the responses from the experimental group (N=12) were included in the analyses. As interviews were conducted after two months to be able to see the long-term effect of the intervention, mostly the same questions with the open-ended questions were directed to the participants of the AR sessions (N=12).

Both in the open-ended questions and the interviews, the content covered such questions as the students' overall perception of their English proficiency level, their ideas on the previous midterm performance, the underlying reasons for this performance, and also whether these reasons are controllable or changeable. The researcher also tried to enable the participants to expand on their perception of themselves by asking whether they use any strategy to eliminate the unhealthy causes

for their performances. As to the "ideal L2 self" construct, the researcher addressed such questions as whether the participants have any dreams or goals about their education or job related to English use and whether they take any actions to realize these aims.

However, the control group did not respond to the qualitative measurement tools. Given the supplementary role of the qualitative strand of the study to enhance the quantitative part, the present study was designed as a quasi-experimental mixed-method design (Creswell & Clark, 2007). In this way, the researcher could embed a qualitative strand to scrutinize the intervention process or to account for the participants' responses (Creswell & Clark, 2007). Open-ended questions included questions on learners' perceived causes of the exam performance with the reasons and explanations, how they felt and what dreams they had in relation to the use of English. In the interview, more specific questions on their previously-reported attributions of each participant or on their ideal L2 self, which were prepared by the researchers, were asked by elaboration questions, or trying to reveal whether the changes –if any- were caused by the AR sessions. The individual interviews lasted a minimum of 45 minutes for each participant and took two weeks.

Causal dimension scale (CDS II), Language achievement attribution scale, and ideal L2 self-scale were given to 1006 students to identify the students who need the AR sessions during their regular class hours. After determining the students, open ended questions (pre-open ended questions) were given to 12 students in the experimental group and 12 students in the control group before the AR sessions started. After the treatment, these scales and the open-ended questions (post open-ended questions) were given to both the experimental and the control group to observe possible changes, if any. After two months, semi-structured interviews were conducted with all the participants in the experimental group on an individual basis.

Regarding the ethical procedures of the study, approval was granted by the Hacettepe University, Turkey, Research Ethics Committee (ref: 4332684). All participants provided written informed consent to participate voluntarily in the study.

Data Analysis

Being involved in attribution retraining affected the participants' causal dimensions, causal attributions, and ideal L2 self as opposed to the treatment being examined through a one-way analysis of covariance (ANCOVA) test on SPSS version 21.0. Moreover, the potential change from the pre-test to the post-test in the treatment group was examined using a non-parametric Wilcoxon Signed Ranks test, as the number of the participants was low. The alpha level was set at $p < .05$. The qualitative data of the open-ended papers and the interview transcriptions were analyzed using Atlas.ti 7 software. Before the analysis stage, the interview records were first closely auditioned and transcribed, and the participants' names were replaced with pseudo-names for confidentiality. The open-ended question papers were read with great care for the analysis and translated into English with two English instructors working at the tertiary level. Once the documents were uploaded onto the software, 10% of the open-ended questions (pre), 10% of the open-ended (post-) questions, and 10% of the interview transcripts were sent to another researcher specializing in attribution studies. Employing both a deductive approach based on the constructs existing in the scales

(e.g., effort, ability...) and an inductive approach allowing the researchers to find out the themes or codes which are non-existent in the scales (e.g., strategy, interest...), the researchers scrutinized the transcripts of each participant. The validity and inter-reliability of the qualitative parts of the study were ensured through Kappa scores, which were found to be .96, .95, and .91, respectively for the pre-open-ended questions, post-open-ended questions, and the interviews, conforming to the perfect range (Stemler, 2001, p. 4). Below are the codes and the themes found both in the pre and post open ended questions and also in the semi-structured interviews. The green-coded attributions are signs of adaptive attributions as they are controllable and unstable, and the participants of the intervention are guided towards these attributions during the AR sessions.

Figure 2

Codes and Themes of the Qualitative Analysis

Themes	Sub-Themes
Existing Themes in the Scale (Deductive Analysis)	
Effort	Not studying hard Not preparing for the exam
Ability	Lack of aptitude Poor memory skills
Task difficulty	Difficulty of the exam questions
Luck	Exam-specific problems such as outside noise The congruence between the studied points and the exam questions by chance
School system	Education system at METU Instructional problems Teaching systems
Classroom environment	Demotivating classroom climate/atmosphere No interaction in the classroom
Health problems	Sleeping disorders Health issues during the exam (e.g. headache, nausea...)
Family	Family problems Financial issues
Teacher	Unfair grading Ineffective teaching methods Personality clashes with the teacher

Emerged Themes (Inductive Analysis)	
Study habits	Studying on a regular basis Revision of the topics
Strategy	Wrong approach to learning English Lack of learning skills and strategies
Interest	Interest in learning English Interest in learning new content knowledge in English
Self-beliefs	Low self-efficacy Low self-perception
Lack of knowledge	Lack of background knowledge Lack of grammar knowledge Lack of vocabulary knowledge
Personality	Outgoing Introvert
Personal issues	Breaking up with a partner Problems with a flat mate
Motivation	Not valuing the language Dislike for English
Lack of guidance	Not having enough support in learning English
Anxiety	Writing anxiety Speaking anxiety
Concentration problems	Difficulty in focusing on something for a long time

Findings

The Effect of an AR program on Language Learners' Maladaptive Causal Attributions

In this section, the quantitative findings on whether the AR contributed to the causal attributions and dimensions will be presented along with the qualitative results of the treatment effectiveness.

The Effect of an AR program on Locus of Causality, Less Stability and Less External Control

A one-way ANCOVA was conducted to compare the effectiveness of the AR whilst controlling for the pre-treatment scores in causal dimensions. Preliminary analyses, including normality, homogeneity of variances, reliability of the covariate, and Levene's test of equity of error variances, were performed with no violation being identified. The treatment apparently causes some changes in *locus of causality*, *personal control*, and *stability*. The details of the findings are shown below.

Table 2

Most Common Achievement Attributions and Their Dimensions

Variable	Experimental	Control	*p*
Adjusted mean scores = Mean Scores			
LoC	7.13	5.97	.049
Personal Control	7.66	6.30	.020
Stability	2.08	3.27	.033
External Control	3.91	4.27	.458

Based on the findings in this table, the intervention group made significant gains over the comparison students in *locus of causality* (F (1,22) = 4.325, p = .049, η_p^2 = .164), *personal control* (F (1,22) = 6.236, p = .020, η_p^2 = .221) and *instability* of achievement attributions (F (1,22) = 5.169, p = 0.00, η_p^2 = 1.90) although the adjusted mean score in *external control* failed to achieve statistical significance, likely due to the small sample size of the participants. However, the treatment seems to have brought about a downward trend, yielding a promising implication for long-term AR implementations.

The Effect of an AR program on Attributions and Maladaptive Causal Attributions

After assuring the preliminary analysis, the researcher performed a one-way ANCOVA to assess whether the AR treatment exerted any impact on modifying the maladaptive attributions into adaptive attributions. Results indicated that the greatest change was observed in the attribution of *effort* only, as seen in Table 3.

Table 3

ANCOVA Results for the AR Treatment Based on LACAS

Variable	Experimental	Control	*p*
	Adjusted mean scores = Mean Scores		
Effort	1.76	2.76	.007
School System	3.47	3.37	.791
Teacher	3.47	4.04	.124
Family	3.83	3.83	.1
Luck	4.16	3.45	.082
Classroom Environment	3.33	4.04	.089
Task Difficulty	3.58	3	.087
Ability	3.29	2.67	.095
Health	4.38	3.47	.056

Except for *effort* (Experimental = 1.76; Control = 2.76; F (1,22) = 8.984, p = .007; η_p^2 = .290), the findings showed that the experimental group participants did not display any motivational orientations in terms of their causal attributions. No statistically significant change in the attribution to the *school system, teacher, family, luck, classroom environment, task difficulty, ability,* or *health* was observed in the experimental group based on the AR implementation, as illustrated in Table 3 (p > .05).

Within Group Comparison of The Effect of an AR program on Attributions and Maladaptive Causal Attributions

The causal attributions of the treatment groups were compared from the pre-AR to the post-intervention based on a Wilcoxon Signed Ranks Test. Table 2 shows that a

statistically significant difference was found in the participants' *effort* ($z = -1.973$, $p = .049$ with a large effect size of $r = .57$), *teacher* ($z = -2.308$, $p = .021$, with a large size effect ($r > 0.5$) and *luck* ($z = -2.316$, $p = .021$, $r = .66$) and *task difficulty* ($z = -2.053$, $p = .040$, $r = .59$).

Table 4

Differences from the Pre-test to the Post-test

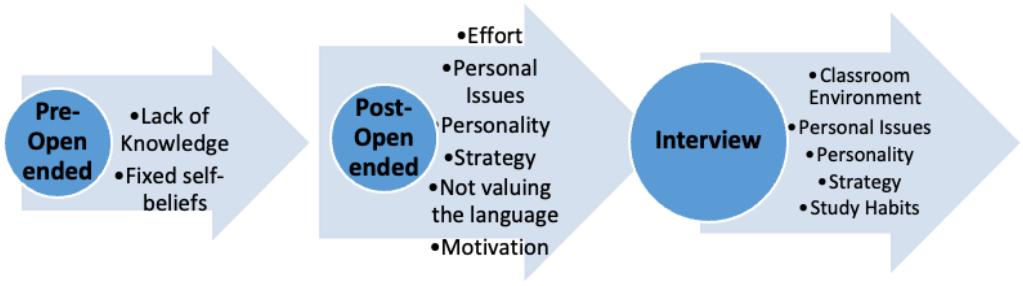
		N	Pre-test	Post Test	*p*	*r*	*Ties*
Effort	AR	12	2.10	1.80	.049	.57	4
	Control	12	2.10	2.40	.209		3
School System	AR	12	3.5	3.62	.445		0
	Control	12	3.87	3.37	.328		2
Teacher	AR	12	4.00	3.87	.021	.66	3
	Control	12	4.25	4.00	.170		3
Family	AR	12	3.75	4.00	.103		3
	Control	12	4.00	4.00	.071		6
Luck	AR	12	3.00	4.5	.021	.66	4
	Control	12	3.5	3.75	.714		3
Classroom Environment	AR	12	3.25	3.75	.361		3
	Control	12	4.00	4.00	.516		6
Task Difficulty	AR	12	3.5	3.33	.040	.59	4
	Control	12	3.33	3.33	.060		2
Ability	AR	12	3.00	3.25	.053		0
	Control	12	3.12	3	.482		3
Health	AR	12	4.5	4.83	.205		4
	Control	12	3.83	3.5	.798		2

Qualitative Findings of the Effect of an AR program on Attributions and Maladaptive Causal Attributions

The qualitative analysis is presented as a flow for individual students to display the possible change in the time-lapse. The students in the experimental group mentioned several causal attributions in addition to those measured in LACAS, enabling the researcher to explore the depth of the awareness of the participants and further the findings in the quantitative part. In all cases, students started to gain a deeper insight into their respective cases of failure, and they endorsed more adaptive causes compared to the beginning. For example, Bade initially only referred to *fixed self-beliefs* and *the lack of knowledge*. However, she turned her focus to more detailed *internal* and *controllable* reasons as *personality, the use of strategy* and *not valuing the language.* All these are intertwined with motivational issues and are malleable with some actions. She made more links to the lack *of study habits* at the end, which also provides some proof in her deeper awareness of her previous performance. Below is a figure illustrating her change.

Figure 3

Causal Attributions Throughout the AR Sessions: Bade's Case



Below are some sample expressions of her causal attributions:

Pre-intervention (open-ended questions):

I didn't have enough vocabulary knowledge. (*lack of knowledge*)

It would have been weird to get a high score for somebody who is previously stuck with the idea of getting a score of 60 out of 100 at most. (*fixed self-beliefs*)

It appears that AR has raised some awareness on Bade's part in embracing better *study habits* and referring more to the lack of *study habits* in the exam. She makes this change a positive experience:

Post-intervention (open-ended questions):
Before the AR sessions, I didn't know how to set up everything, how to study English and that studying might have fun sides in it. (strategy /motivation)

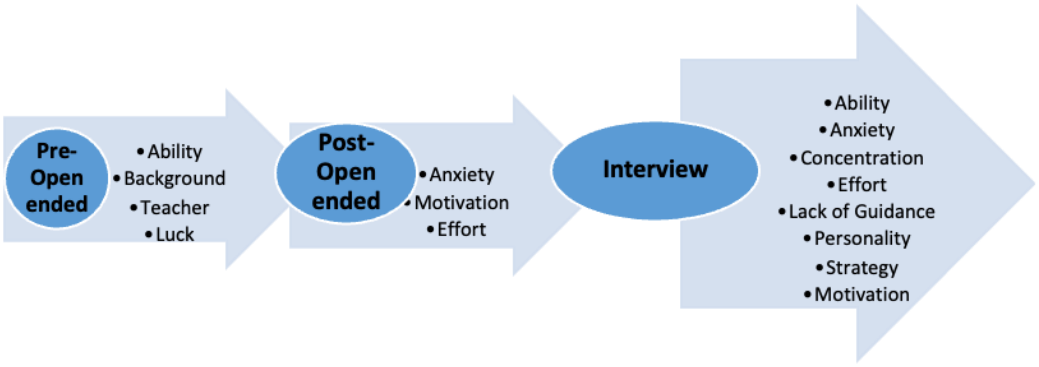
Post-intervention (interview):
Bade: Up to now, I haven't studied on a regular and daily basis. In such a case, it was ok in the other classes, I mean I could survive it even if I didn't study regularly, but in English, it didn't work. "Pomodoro technique" ...I set 25 minutes, and then the clock went off. I made it stop, and set it for 25 minutes, and took a five-minute break. Then I made it fully stop, I kept on studying. (study habits)

As seen above, Bade expressed that she had learnt to put the technique she learned in the AR sessions into her real-life practice. It is also apparent that she started to be aware of the lack of this habit before the AR sessions, so she seems to have become more adaptive concerning her attributions.

A similar change in terms of having a deeper and more objective understanding of the causes is seen in Emir's case. While he put the blame of his failure on the lack of *ability*, *background knowledge,* or the *teacher*, which are all uncontrollable attributions, he started to state more *personal, internal,* and *controllable* attributions after the AR. The details are seen below in Figure 4.

Figure 4

Causal Attributions throughout the AR Sessions: Emir's Case



Emir's sample quotations will be presented below:

Pre-intervention (open-ended questions):

My failure might have resulted from the lack of *ability* and *lack of poor memory skills* (*ability*)

.. Some of the reasons stem from my background experiences. In the past, I was successful in my lessons, but English was horrible. I wasn't lucky during my primary school and high school years in terms of my English teachers. I felt isolated from English learning. These teachers made me feel that English is a difficult language to learn (*background; teacher)*

It was all to do with *luck*…(*luck*)

Post-intervention (open-ended questions):

I did not study for the midterm, but now I try to listen to the lessons more attentively and trying to answer the instructors' questions. I reviewed the lessons we covered before. I keep a vocabulary journal and watch soap operas in English (lack of *effo*rt*; strategy*)

Post-intervention (interview):

Researcher: How did you study before the first midterm?

Emir: I wrote English-Turkish translation, vocabulary, I mean adjective /adverb forms, that is it (*strategy*) before the midterm exam. Now, I am making sentences, and I am writing depending on the specific meaning of the word (*strategy*).

In Emir's attributions, it is clear that he started to place more importance on the lack of *effort* or the lack of *strategy use* in his learning; but he still gave reference to the lack of ability. However, he started to be more aware, wanting to adapt to new techniques he learnt in the AR sessions through getting more guidance, adjusting to his learning style, getting effective *study habits,* and also putting more *effort* into the process. It is also important to highlight that giving up attributing to uncontrollable reasons such as *teacher* and *luck* after the AR sessions seem to consolidate the findings in the quantitative analysis in that these attributions became less worthy. In line with the quantitative findings, Emir started to endorse a lack of enough *effort* in his exam performance, similar to the other participants.

The Effect of AR Model on Adaptive Attributions and Maladaptive Causal Attributions

A one-way between-subjects analysis of covariance was carried out to assess the impact of exposure to Attribution Retraining embedded with vision training on the

treatment group. The between subjects factor comprised two groups: the AR group and a control group of students. The covariate comprised the pre-test scores of ideal L2 self. The findings are illustrated below:

Table 5

Effect of AR on the Ideal L2 Self

Variable	Experimental	Control	*p*
	Adjusted mean scores = Mean Scores		
Ideal L2 self	3.87	3.11	.025

Adjusting for this covariate resulted in a significant effect of the between-subjects factor group: F (1,22) = 5.769, p = .025, η_p^2 = .208. The adjusted mean ideal L2 self score for those exposed to the AR was 3.87 to 3.11 (control group).

Table 6

Differences from the Pre-test to the Post-test

Variable		N	Pre-test	Post-test	*p*	*r*	Ties
Ideal L2 Self	AR	12	3.4	4.05	.016	.6	0
	Control	12	2.65	3.10	.058		0

The Wilcoxon Signed Ranks test unveiled that the experimental group surpassed the control group with regard to the ideal L2 self score (z = −2.400, p = .016, r = .6) when compared with those who did not (z = 1.894, p = .058).

The effect of the AR sessions, if any, was further examined utilizing the pre- and post-open-ended questions and interview questions similar to the attributions. The majority of the students in the experimental group (N = 10) noted their dreams of using English, and the analysis revealed that the participants of the intervention began to have clearer, more expanded, and also more vivid imaginations of themselves as users of English in the future. Mustafa is a sample student who initially had an overall future self, but his unfocused ideal self appears to have been reframed into something more detailed and personalized after the intervention:

> Pre-intervention (open-ended questions)
>
> Finding a job has a role in my motivation, but I feel obliged to learn English on my way to the realization of my dreams.

The qualitative findings showed that Mustafa's vision, dreams, and aspirations for his future career became more elaborate and enriched, as seen below:

> Post-intervention (open-ended questions)
>
> I frequently have dreams about English. I speak at work with my colleagues in a foreign country or at an international company. I visualize myself as a senior boss.

Emir also has displayed a change in his ideal L2 self, as seen in the following sample excerpts:

Pre-intervention (open-ended questions)

I can't imagine myself, I wish I could. For example, I imagine myself making a presentation on a project on architecture.

Although Emir has a similar dream about the future in the post-test, he tried to implement some personal methods to realize his dream as expressed in the post-open-ended questions. He set more tangible goals at the end, as shown in the interview findings below:

Post-intervention (open-ended questions)

I imagine myself making a presentation on a project of architecture. I have started to watch some documentaries on architecture in English.

Post-intervention (interview)

Researcher: What is your future goal after graduation?

Emir: At first, I thought it might be abroad, in Japan. For my own sake, I can travel around the country. I don't know, I am not sure whether I will stay in the same place, but I can work in offices or offices related to architecture.

Discussion

The present study attempted to disclose the potential impact of an AR abridged with vision training to alleviate students' demotivation, impeding them from taking action and generating more constructive motivational patterns. The changes in causal dimensions based on CDS II (McAuley et al. 1992) provided solid proof of the positive effect of AR on causal dimensions (Haynes et al., 2009; Weiner, 2000, 2018). The first finding that reveals the positive contribution of AR is that the participants of the treatment started expressing certain features of adaptive attributional styles. The experimental group began to believe more that their performance was within their control than they were less dependent on external factors compared to the control group beliefs, which may help learners avoid self-protective beliefs. Haynes et al. (2009) posit that those who have a self-protective approach are less likely to persevere and succeed in the long run. Resonating with the studies of Semiz (2011) and Groves (2014), feeling more control over the event increases the possibility of inducing more persistence and future expectancy in return for achievement. Moreover, based on the causal dimension scale, most of the participants in the experimental group seem to believe that the causes of their previous performance started to be perceived as being unstable. The change in adaptive causal dimensions corroborates the previous studies (e.g., Haynes et al., 2009; Mahmoodi & Doosti, 2018; Matteucci, 2012; Morris, 2013) in the sense that the AR used in these studies were effective in promoting locus of causality and controllability whereas the intervention caused a decrease in stability and external control.

The desirable changes in causal dimensions after the AR treatment are also consolidated by the changes in the specific attributions. When compared with the control group attributions, a statistically significant increase in *effort* can be seen in terms of the AR participants' references to the previous performances. This means that the experimental group acknowledged their lack of sufficient *effort* in the process and are likely to undertake their responsibilities by investing more in their subsequent performance. The increase in *effort*, as well as a decrease in the attribution to the *teacher*, and *task difficulty*, which are external and stable causes, also support the effect of AR on the participants' positively changing mindsets and a display of more adaptive styles. Similar to the participants of Höl (2016) and Semiz (2011), *effort* was promoted

more by the students after the intervention, which is parallel with the findings above on causal dimensions. Based on the reliable and valid attribution scale, LACAS (Erten & Çağatay, 2020), this study presents the tendency to blame uncontrollable reasons, such as *task difficulty* and *teacher*, which further supports the devaluation of the maladaptive attributions after the AR treatment. Although members of collectivist cultures, such as Turkey, tend to relate their academic performance to teachers (Erten & Burden, 2014; Gobel & Mori, 2007), it was revealed that the present AR model could have transformed these demotivating beliefs in referring to uncontrollable and stable factors into more action-oriented reasons such as using *strategies* or making more *effort*.

The enhancement in causal dimensions and the attributions in the quantitative data resonate with the qualitative data in that participants of AR have promoted more adaptive attributions as *effort*.

The participants of AR seem to have formed more adaptive explanations for their previous performances, such as *study habits, use of strategy,* or more personal reasons upon which they can act. Given this flexibility in their beliefs (Kalaja et al., 2018) after the intervention, participants seem to have moved away from being constrained to maladaptive beliefs through AR activities. Based on the immediate post AR data and also the interviews conducted after some time, it is noteworthy that the learners have started to refer to the employment of strategies that they learned during the AR sessions. As Weiner (1985, 2000, 2018) postulates in his theory, the participants could sustain their motivation as well as *effort* for a long time to attain their academic goals, which may bolster their achievement.

In addition to the changes in adaptive attributions after the treatment, promising differences in the ideal L2 self were observed on both quantitative and qualitative measures. Learners demonstrated an increase in their clearer, more vivid, more detailed future selves. Suggestive of internal drive to put more *effort* into attaining the future image of a learner, the data also implies that learners could develop a flexible mindset with which they can exert control over their future processes by investing more *effort* and by employing strategies in language learning or by being more active in the use of language as exemplified in the qualitative data. The positive change in the ideal L2 self is in keeping with the findings of Chan (2014), Magid (2011), and Munezane (2015). Despite the short span of treatment of AR and vision training, it was found that beliefs about the past, attributions, and beliefs about the future and ideal L2 self also contribute together to the future image of the learner, promoting the effective use of *strategy* and regular *study habits* in return. In essence, the present study validates beliefs about the past, the present, and the future shaping the motivational changes of the learners together, as Williams et al. (2015) elucidated in detail.

Conclusion

This study aimed to substantiate the favorable effect of a newly-designed AR program embedded with vision training. Considering the paucity of research on AR in the language learning field, the present study provides insight into the possible integration of rehabilitation of unhealthy beliefs by relating to the past and future. Moreover, it has tracked the changes in the participants' motivational patterns through different measures of the quantitative and the qualitative flow of data.

One contribution of this study to second language learning is that by employing reliable and valid attribution scales along with causal dimension scales, the study presents more psychometrically-robust findings as the previous ones used surveys only for the analyses of attributions. Also, the previous studies based their findings solely on dimension scales such as controllability and stability; however, tracking the learners' motivational changes for a long span and with specific attributions, such as effort and luck, could provide a much clearer picture of the learners' maladaptive beliefs and this could pave the way for more effective actions to be done in AR. Another methodological advantage of the study is that the attributional as well as ideal L2 self-related changes were tracked through pre, and two different ways of post-qualitative data, which yielded a deeper understanding of the changes. Last but not least, the previous studies either followed exactly the same steps of AR, used in the field of psychology (Doosti, 2018; Matteucci, 2012; Semiz, 2011) or one study only focused on strategy training in their AR model (Höl, 2016). This study seems to be the first in piloting an AR model before the main study and also in customizing the steps of AR for contextual and language-specific motivation through vision training. In this sense, the study might bring a new perspective by proposing a more tailor-made model of AR for language learning, integrated with vision training to promote both the adaptive attributions and the ideal L2 self for the first time. Also, the embedded model devised and employed in the present study may yield some innovative and hands-on implementations in language learning contexts.

As to the limitations of the study, the present study administered the intervention to a small group of participants within a limited amount of time. Another limitation is that the study falls short of the qualitative data for the control group because of the drop-outs. If the study can be done for a longer span with more participants, including the control group, the findings could be more generalizable for language learners in different contexts. Also, the AR sessions were conducted after class hours, it could be more effective if it is embedded into the school curriculum and classroom activities.

Considering the changes in adaptive attributions as well as the ideal selves of the learners in the present study during a semester, a model of AR being embedded into the school curriculum over a longer period of time could reveal more in-depth changes in the learners' belief systems. By moving towards future goals and future images, as carried out in this study, learners can possibly take more responsibility so as to attain their prospective roles in life by acting upon their language skills (Dörnyei, 2005; 2019). Additionally, if teachers are trained in such motivational programs in pre- and in-service training, they could also handle learners' strong perceptions of the teachers' sole effect on student performance by underscoring more adaptive achievement attributions such as *effort*, employment of effective *strategy,* or *study habits*. Teachers could design activities to relate learners' academic goals in language learning to life-long goals in order to involve them more in classroom activities and foster greater autonomy, as indicated in the present study. Investigations into a variety of AR and future-self activities, along with their effect on students' language motivation and achievement within a longitudinal scope of a study, could generate a fresh perspective yielding different results in the future.

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An Examination of the Relationship Between Psychological Well-being, Social Media Usage, Self-Control, and Insomnia of Turkish University Students

Türkiye'de Üniversite Öğrencilerinde Psikolojik İyi Oluş ile Sosyal Medya Kullanımı, Öz-Kontrol ve Uykusuzluk Arasındaki İlişkinin İncelenmesi

Figen KASAPOĞLU*

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ABSTRACT: This study aims to examine the relationship students' social media use, insomnia, and self-control have with their psychological well-being. A total of 404 students (305 females and 99 males) participated in the research. The data have been collected using the Turkish versions of the Social Media Disorder Scale, Psychological Well-Being Scale, Brief Self-Control Scale, and Insomnia Severity Index. The relationship between variables were examined by Path Analysis. According to the results, the model shows that self-control significantly and directly increases psychological well-being, social media disorder increases insomnia, and insomnia decreases self-control. Social media disorder and insomnia significantly and indirectly predict psychological well-being through the mediation of self-control. The findings show psychological well-being to be affected by self-control, social media disorder, and insomnia.

Keywords: Psychological well-being, self-control, social media use, insomnia, university undergraduate students

ÖZ: Bu çalışmada üniversite öğrencilerinin psikolojik iyi oluşları ile sosyal medya kullanımları, uykusuzluk ve öz-kontrolleri arasındaki ilişkileri incelemek amaçlanmıştır. Araştırmaya 404 öğrenci katılmıştır (305 Kadın ve 99 erkek). Verilerin toplanmasında, Psikolojik İyi Oluş Ölçeği, Sosyal Medya Bozukluğu Ölçeği, Uykusuzluk Şiddeti İndeksi ve Kısa Öz-Kontrol Ölçeğinden yararlanılmıştır. Değişkenler arasındaki ilişkiler Yol Analizi ile incelenmiştir. Sonuçlara göre, oluşturulan model öz kontrolün psikolojik iyi oluşu anlamlı ölçüde ve doğrudan artırdığını, sosyal medya bozukluğunun uykusuzluğu artırdığını ve uykusuzluğun öz kontrolü azalttığını göstermiştir. Sosyal medya bozukluğu ve uykusuzluk psikolojik iyi oluşu öz kontrol aracılığı ile dolaylı ve anlamlı olarak yordamıştır. Bulgular, psikolojik iyi oluşun öz kontrol, sosyal medya bozukluğu ve uykusuzluktan etkilendiğini göstermiştir.

Anahtar kelimeler: Psikolojik iyi oluş, öz-kontrol**, s**osyal medya kullanımı, uykusuzluk, üniversite öğrencisi.

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University students' psychological well-being is an important area of research. A healthy lifestyle plays a protective role against risk behaviors in university students, whereas negative mental health may result in risk behaviors (Ma & Lai, 2018). The period in which university students find themselves is when they experience changes and new beginnings in social, personal, and academic areas. Psychological well-being is an important element in the process of dealing with the developmental and adaptation problems that occur in students' lives (Demirer & Erol, 2020).

A complicated concept, psychological well-being refers to the best possible psychological experience and functioning. It may be characterized as containing hedonic (enjoyment, pleasure) and eudaimonic (meaning, fulfillment) aspects as well as resilience (Gross & Muñoz, 1995; Ryan & Deci, 2001; Ryff, 1995). Ryff (1989) asserts that psychological well-being is composed of a number of different components. According to Ryff, who summarized the fundamental ideas linked to the positive side of human nature, the six dimensions of psychological well-being are autonomy, environmental mastery, personal advancement, positive interpersonal relationships, life aims, and self-acceptance. According to Keyes et al. (2002) each of these characteristics is connected to a range of issues that individuals may experience. For instance, a person who establishes trustworthy relationships, is aware of their abilities, potential, and limitations, accepts both their positive and negative qualities without judgment and possesses a clear understanding of what they are meant to do with their lives. The components of psychological well-being include a sense of balance regarding thoughts, emotions, and social interactions, which calls for the active participation of self-control mechanisms (Brown & Ryan, 2003; Feller et al., 2018).

People with high levels of psychological well-being have better physical and mental health as well as a higher quality of life (Keyes et al., 2010). Besides, people with high levels of well-being have greater immune systems, differentiate themselves more in the workplace, and build stronger bonds with others (Lyubomirsky et al., 2005). There are multiple factors associated with psychological well-being, including but not limited to social media disorder, insomnia, and self-control. These variables can have a significant impact on the relationship between them.

Young people and college students today use social media and play online games (Alonzo et al., 2021 Primack et al., 2017). Web-based platforms known as social media sites let users build public or private accounts, engage with other users, and establish connections within the network. (Boyd & Ellison, 2007). Social media has various benefits, including enhancing one's mood, engaging in social and political activities, alleviating feelings of loneliness, and more. However, overindulgence in these platforms can contribute to the development of social media disorders (Babacan, 2016). Empirical data show that obsessive social media use is an increasing mental health issue, especially among teenagers who use smartphones (Rooij & Schoenmakers, 2013).

While social media platforms have been shown to present opportunities for pleasant social contacts, some researchers have come to the conclusion that these platforms may be detrimental to those who are experiencing depressive symptoms (Bessière et al., 2010; Lin et al., 2016; Seabrook et al., 2016). According to research, youth who use social media frequently have greater rates of depression (Cunningham et

al., 2021; Demirci, 2019; Karadağ & Akçinar, 2019; Keles et al., 2020). When social media usage is unregulated or excessively frequent, it can result in the development of disorders or addiction (Baz, 2018; Caz & Bardakçı, 2019; Griffiths & Szabo, 2014; Kuss & Griffiths, 2011; Savcı & Aysan, 2017).

Social media disorder or addiction has no status in the latest version of the Diagnostic and Statistical Manual of Mental Disorders (Van den Eijnden et al., 2016). However, it is recognized as a behavioral addiction in the literature (Echeburúa & de Corral, 2010; Griffiths & Szabo, 2014; Van den Eijnden et al., 2016). It is postulated to cause symptoms similar to classical addictions. Individuals suffering from social media disorder may experience mood modification, salience, tolerance, withdrawal, and emotional symptoms (Van den Eijnden et al., 2016). Savcı et al. (2018) reported that social media addiction is also called social media disorder, excessive social media use, problematic social media use, and compulsive social media use.

The concept of self-control is defined as “the ability to override or alter one’s internal reactions, as well as to interrupt and avoid acting on undesirable behavioral tendencies (e.g., impulses)” (Tangney et al., 2004, p. 274). According to Rosenbaum (1993), there are three basic purposes for self-control behavior. The first is the restorative function, which aims to manage emotions like stress and anxiety that impair daily activities. Regeneration is the second purpose. Dieting makes it easier to adopt new, challenging behaviors like quitting smoking, along with behaviors like postponing gratification and resisting temptations. The third function is experiential self-control, which enables people to completely enjoy enjoyable activities.

Self-control is a crucial component of theoretical knowledge of the self and the ways in which it works (Baumeister et al., 2007). In the meantime, the practical applications of self-control have attracted study in many contexts. Various research findings have shown people to differ from one another in terms of their self-control abilities. Some people are far better at keeping their temper, keeping promises, holding back after a few drinks, saving money, persevering at work, and keeping secrets (i.e., managing their lives) compared to others. These differences also appear to have as much of an effect on their well-being and success in life (Bucak, 2021; Li et al., 2019; Tucaniou & Ebrahimabad, 2019). Research has demonstrated that people with strong self-control are psychologically compatible, self-accepting, and have high self-esteem. They are also effective in school, self-controlled and logical, and have positive interpersonal relationships. People with limited self-control tend to act without thinking, do what they want right away, struggle in school, act selfishly, prefer simple chores, engage in exciting and risky activities, act impulsively, and have a high risk of becoming addicted (Baumeister et al., 1994; Duyan et al., 2012; Kuzucu et al., 2015; Tangney et al., 2004; Vohs & Faber, 2007).

Another research concept is sleep, which has physiological, psychological, and social aspects that have a big impact on people's health and quality of life (Aktürk, 2013). Since sleep affects a person's quality of life and overall well-being, it is important for one's health (Aktürk, 2013; Aysan et al., 2014). The body heals and regenerates itself during sleep, stores energy, enhances memory, promotes somatic growth and development, boosts the immune system, and develops the brain (Nauts & Kroese, 2017; Pilcher et al., 2015; Sarı et al., 2015; Yavuz et al., 2019).

A sleep disorder known as insomnia is characterized by at least four weeks of daytime dysfunction, including trouble falling asleep, a propensity to wake up late, or the ability to fall asleep but an inability to maintain a sleep pattern (Cunnington et al., 2013). Although insomnia symptoms can appear at any point in life, they are more prevalent in early adulthood (American Psychiatric Association, 2013). In Turkey, 46% of university students had sleeplessness problems, according to Önal and Hisar (2018).

The Current Study

In order to successfully deal with the developmental and adaptation issues that arise in the lives of university students, psychological well-being is a crucial component. Therefore, one of the research interests has been to comprehend and identify the variables influencing students' psychological well-being. In order to give evidence for this claim, the current study examined how social media use, self-control, and insomnia are related to psychological well-being.

Social media disorder affects happiness and life satisfaction. Studies reveal that it is hazardous when used unconsciously because it can interfere with sleep, cause stress, and prevent someone from indulging in hobbies and exercise (Chen et al., 2020; Kross et al., 2013; Özdemir, 2019; Özgen, 2016; Yue et al., 2021). According to a study conducted with Turkish university students, four technological addictions, namely internet addiction, social media addiction, digital game addiction, and smartphone addiction, have a significant impact on social connectedness (Savcı & Aysan, 2017).

In terms of sleep issues, university students are at risk (Afandi et al., 2013; Aysan et al., 2014; Eyüboğlu et al., 2021; Orzech et al., 2011; Sarı et al., 2015). A successful functioning in terms of academic achievement, interpersonal interactions, and adjustment skills is also correlated with self-control and adequate sleep, according Pilcher et al. (2015). Consistent evidence suggests that having adequate sleep has a positive relationship with psychological well-being (Demirer & Erol, 2020; Zhai et al., 2018). Demirer and Erol's (2020) study discovered that university students with poorer psychological states frequently reported insomnia. Besides, the literature has suggested that self-control and sleep have a reciprocal relationship. People who lack self-control may find it difficult to regulate their sleep, while those who have insomnia may find it difficult to maintain self-control (Nauts & Kroese, 2017). On the other hand, there is growing evidence that self-control and psychological well-being are positively associated (Bowlin & Baer, 2012; Bucak, 2021). Besides, self-control and social media disorder (Ekşi et al., 2019; Kaşıkçı et al., 2021) or smartphone use (Kaymaz & Şakiroğlu, 2020) are related.

The goal of this study was to determine how social media use, self-control, and insomnia are related to students' psychological well-being. It is hypothesized that social media disorder will decrease the level of psychological well-being by increasing insomnia and decreasing self-control. In other words, self-control and insomnia may have a mediating role in the relationship between social media disorder and psychological well-being. The current research on this relationship pattern is intended to help create psycho-educational programs that will enhance students' psychological well-being.

Research Question: Does social media disorder directly or indirectly affect psychological well-being through the mediation of insomnia and self-control?

Method

Research Design

In this study, a correlational survey design was used to investigate the relationship between social media disorder, self-control, insomnia, and psychological well-being. The relationships were examined using path analysis. Path analysis is a multivariate statistical method that uses path diagrams to determine the direct and indirect effects of exogenous variables on endogenous variables (Gürbüz, 2019).

The most significant advantage of path analysis is the ability to measure the direct and indirect effects of one variable on another. The magnitudes of the direct and indirect effects can thus be compared, and the total effect can be calculated. This method is more useful for determining how much of the relationships are directly influenced by the indirect and tertiary variables (Oktay et al., 2012). Therefore, path analysis was chosen for this study.

Participants

The sample of this research consisted of 404 voluntary public and private university students in Istanbul, Turkey. Of the total, 305 (75.5%) were female, and 99 (24.5%) male students. The study group was reached by convenience sampling. Participants' ages ranged from 17 to 32, with their average age being 20.63 (SD = 2.27). Because public face-to-face interactions have been minimized during the COVID-19 outbreak, data were collected via Google Forms. The data were collected in November-December 2021. The demographic information of the participants is in Table 1.

Table 1

*Demographic Variables (*N = *404)*

Variable	Category	Frequency	Percent
Gender	Female	305	75.5%
	Male	99	24.5%
Age		*M* = 20.63	*SD* = 2.27
Faculty	Faculty of Letters	49	12.1%
	Faculty of Education	203	50.2%
	Faculty of Law	75	18.6%
	FEAS	23	5.7%
	Faculty of Theology	39	9.7%
	Faculty of Architecture	15	3.7%
Social Media Apps	Instagram	358	88.6%
	WhatsApp	272	67.3%
	Twitter	262	65%
	Snapchat	71	18.1%
	Pinterest	38	9.4%
	Facebook	30	7.4%
	TikTok	13	3.4%
	Other	129	32%
Social media Use Time (hours per day)	0-2	93	23%
	2-4	157	38.9%
	4-6	105	26%
	6-8	38	9.4%
	8-10	11	2.7%

Instruments

Psychological Well-Being Scale

Diener et al. (2010) developed the scale, and Telef (2013) adapted the scale to Turkish. The scale consists of eight items. 42% of the variance was explained in the scale with factor analysis. The factor loads of the scale items are between .54 and .76. Also, the goodness of fit values are at acceptable levels (RMSEA = .08, GFI = .96, NFI = .94, CFI = .95). For the reliability analysis, α = .80 and the test-retest result is r = .86 (Telef, 2013).

Social Media Disorder Scale

Van den Eijnden et al. (2016) developed the scale, and Savci et al. (2018) adapted it into Turkish. The scale consists of nine items and is one-dimensional. According to the factor analysis, 48% of the variance was explained. The scale has an internal consistency of α = .86 and an r = .83 for the criterion-related validity sample (Savci et al., 2018).

Brief Self-Control Scale

Tangney et al. (2004) developed the scale, and Nebioğlu et al. (2012) adapted it to Turkish. There are four normal and nine reverse-scored items on the scale. It is a two-factor scale, namely self-discipline and impulsivity. The internal consistency of the scale is α = .83. The internal consistency for the sub-dimensions is α = 0.81 for self-discipline and α = 0.87 for impulsivity (Nebioğlu et al., 2012).

Insomnia Severity Index

Bastien et al. (2001) developed the scale, and Boysan et al. (2010) performed the Turkish adaptation. The scale has seven questions. Items are scored between 0-4. The scale items respectively measure the features: difficulty transitioning to sleep, difficulty maintaining sleep, waking up very early, satisfaction with sleep patterns, impairments in daily functionality, awareness of sleep-related disturbances, and stress level caused by sleep problems (Boysan et al., 2010).

Data Analysis

In this study, descriptive statistics and structural equation modeling were used. The relationships between the variables were tested by path analysis. Path analysis was performed using structural equation modeling (SEM). First, multicollinearity and normality were examined to determine the suitability of the data for SEM analysis (Teo et al., 2013). Variance Inflation Factor values were below 10. This finding indicates that there is no multicollinearity in the data set (Kline, 2015). The normality of the data was calculated using skewness and kurtosis values. Skewness and kurtosis values ranging between +/- 2 are accepted for normal distribution (George & Mallery, 2009). The kurtosis values are between .88 and - 0.16 (social media disorder = .88, self-control = -0.16, insomnia = .43, psychological well-being = .22). The skewness values are between .95 and -0.08 (social media disorder = .95, self-control = -0.08, insomnia = .72, psychological well-being = -0.51). Thus, it was decided that the data were suitable for SEM analysis. The goodness of fit of the structural model was calculated with the $\chi 2/df$ ratio, RMSEA, SRMR, CFI, and NFI indices according to Kline's (2015)

recommendation. To support the significance of the direct and indirect effects of the variables in the structural model, a 95% confidence interval was chosen, and a Bootstrap analysis was performed through 50000 resamples (Preacher & Hayes, 2008). Data were analyzed via IBM SPSS and AMOS package program.

Ethical Procedures

The search was approved by the Ethics Committee of Istanbul 29 Mayıs University (Approval No: 2020/04-05).

Results

Descriptive Statistics and Correlation Analysis

The correlation coefficients between the variables and the findings of the descriptive statistics are in Table 2. The kurtosis values are between .88 and -0.16, and the skewness values are between .95 and -0.08. Cronbach's alpha values of the scales are above acceptable limits (α = .79, .80, .80 and .82). As can be seen from Table 2, all variables are significantly correlated; social media disorder and psychological well-being (r = -0.18, $p < .01$) and self-control (r = -0.38, p < .01) and with insomnia (r = .32, $p < .01$); self-control and psychological well-being (r = .45, $p < .01$) and insomnia (r = -0.30, $p < .01$); psychological well-being and insomnia (r = -0.21, $p < .01$).

Table 2

Descriptive Statistics and Correlation Matrix of the Variables

	Social Media Disorder (SMD)	Self-control	Insomnia	Psychological Well-Being (PWB)
Social Media Disorder	-	-0.38**	.32**	-0.18**
Self-control		-	-0.30**	.45**
Insomnia			-	-0.21**
M	18.73	43.64	9.65	42.11
SD	6.61	7.97	5.23	7.04
Skewness	.95	-0.08	.72	-0.51
Kurtosis	.88	-0.16	.43	.22
Cronbach Alpha	.82	.79	.80	.80

N = 404, **$p < .01$

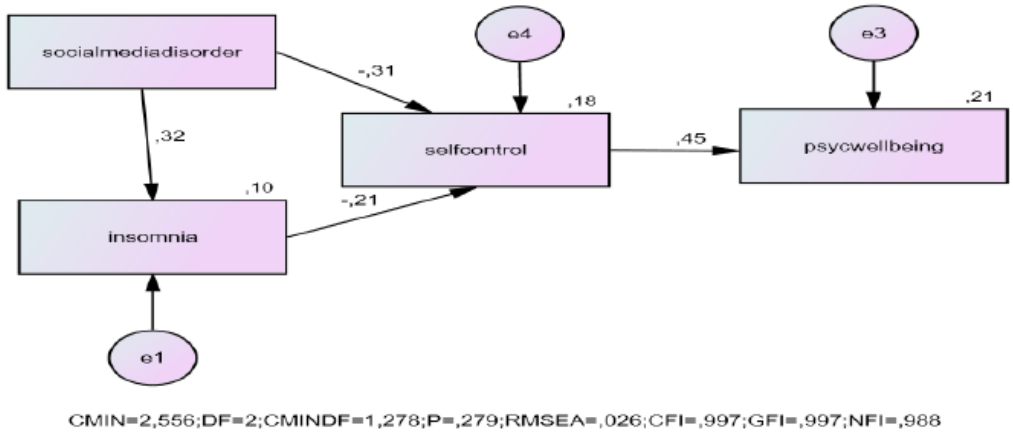
Path Analysis

According to Table 2, there are significant relationships between the variables. For this reason, a model was established to test the indirect and direct pathways from self-control, insomnia, and social media disorder variables to psychological well-being. In the first model, the partial mediating role of insomnia and self-control in the relationship between social media disorder and psychological well-being was tested. Direct and indirect path coefficients from social media disorder through insomnia and self-control to psychological well-being were examined. The tested model is not adequately fitted with the data, (χ^2 / df(2) = 18.2, $p = .00$), RMSEA = .20, CFI = .92, GFI = .97, NFI = .92. Additionally, there were no statistically significant direct path coefficient between social media disorder, insomnia and psychological well-being (respectively, β = .012, $p = .81$; β = -.077, $p = .10$). Therefore, a second model was established. Second, the modified model was tested using only indirect path coefficients

from social media disorder to psychological well-being via insomnia and self-control. The second model adequately fitted with the data, (χ^2 / df(2) = 1.29, p = .28), RMSEA = .026, CFI = .99, GFI = .99, AGFI = .98, NFI = .98, SRMR = .021 (Hu & Bentler, 1999; Kline, 2015; Şimşek, 2007). Therefore, the second model (the full mediating model) was preferred. These results generally showed that social media disorder indirectly predicted psychological well-being through insomnia and self-control. The standardized path coefficients of the established model are in Figure 1.

Figure 1

Standardized Path Coefficients for the Model



More than 5,000 resamples were used to test the significance of the coefficients showing the direct and indirect effects of the variables of self-control, insomnia, and social media disorder on psychological well-being. According to this analysis, social media disorder directly and significantly predicts insomnia (β = .32, p < .001, 95% CI [.165, .329]), and insomnia directly and significantly predicts self-control (β = -0.21, p < .001, 95% CI [-0.456, -0.163]. Social media disorder predicts self-control both directly (β = -0.31, p < .001, 95% CI [-0.486, -0.264]) and indirectly through the mediation of insomnia (β = -0.07, p < .001, 95% CI [-0.109, -0.032]). Self-control directly and significantly predicts psychological well-being (β = .45, p < .001, 95% CI = [.329, .473]). Social media disorder (β = -0.17, p < .001, 95% CI [-0.223, -0.123]) and insomnia (β = -0.09, p < .001, 95% CI [-0.143, -0.046]) indirectly and significantly predict psychological well-being through the mediation of self-control. These three variables explain 21% (R^2 = .21) of the variance of psychological well-being in the model. The findings regarding the standardized path coefficients are in Table 3.

Table 3

Estimated Parameters and 95%CIs for the SEM Paths

Direct Link			Estimate	95% CI [Lower, Upper]	*p*
Insomnia	<---	SMD	.315	.165, .329	.000
Self-Control	<---	Insomnia	-0.205	-0.456, -0.163	.000
Self-Control	<---	SMD	-0.312	-.486, -.264	.000
PWB	<---	Self-control	.454	.329, .473	.000
Indirect Link					

Self-Control	<---	Insomnia	<---	SMD	-0.065	-.109, -.032	.000
PWB	<---	Self-control	<---	SMD	-.171	-.223, -.123	.000
PWB	<---	Self-control	<---	Insomnia	-.093	-.143, -.046	.000

Discussion

In this study, the effect of social media disorder on the psychological well-being of university students was examined through insomnia and self-control variables. When observing the direct effects of the variables in the research, self-control predicts psychological well-being positively; social media disorder predicts insomnia positively, and self-control negatively. Insomnia also negatively predicts self-control. When examining the indirect effects of the variables in the research, social media disorder and insomnia negatively affected psychological well-being through self-control. In addition, it was found that social media disorder negatively affects self-control through insomnia.

The Relationships Between Social Media Usage, Insomnia, and Self-Control

Social media disorder predicted insomnia positively and self-control negatively and significantly. Insomnia predicted self-control negatively and significantly. These findings support the studies in the literature. The findings that social media disorder negatively predicted one's capacity for self-control are consistent with other studies (Ekşi et al., 2019; Kaşıkçı et al., 2021; Selçuk, 2019). Griffiths (2013) suggested that addiction can both influence and be influenced by self-control. Diker and Taşdelen (2017) discovered that spending more time than anticipated on social media causes obligations to be neglected and urgent tasks to be postponed. Indeed, Duyan et al. (2012) discovered that people with poor self-control are unable to postpone gratification and can, as a result, give in to a variety of addictions. Firat (2017) observed that Facebook use is typically higher in individuals with poor self-control.

It is only reasonable that the intense usage of social media would result in physical and emotional tiredness in people, affecting their ability to exercise self-control (Omay & Gür Omay, 2022). In fact, those who use social media excessively need to make more effort to manage their conduct, but they are less likely to do so; they frequently engage in thrilling and risky activities and may behave more impulsively.

Researchers have revealed a relationship for the excessive and uncontrolled use of social media with many sleep disorders (Afandi et al., 2013; Alonzo et al., 2021 Fossum et al., 2014 Scott & Woods, 2019; Wong et al., 2020). Afandi et al. (2013) determined the factors affecting university students' sleep quality and evaluated the effect of low-quality sleep on students' daily activities. According to the result, those who did not use social networks had better sleep quality than users. Lin et al.'s (2020) study on young people in Iran found that problematic social media use affects the presence of insomnia. Constant use of social media can activate the central and autonomic nervous systems, which can therefore lengthen the period between waking and falling asleep (Higuchi et al., 2005). The quality of sleep can be impacted by physical conditions like muscle soreness and headaches since prolonged social media use keeps a person inactive (Fossum et al., 2014). Therefore, using social media more frequently can result in insomnia.

The results are in line with those of earlier studies, which showed that insomnia negatively correlated with one's ability to exercise self-control (Christian & Ellis, 2011; Meldrum et al., 2015; Partin et al., 2022; Thacher, 2008; Zohar et al., 2005). A study

carried out by Thacher (2008) with college students found that insufficient sleep can lead to problems with self-control. Medical students who were sleep deprived in the study by Zohar et al. (2005) reported being unable to muster the mental energy required for self-control. Since sleep is a vital component of a complex physiological process that repairs the nervous system and promotes long-term health and well-being, it may assist in restoring the internal resources for self-control (Pilcher et al., 2015). However, lack of sleep can impair self-control and decrease one's capacity, leading one, for instance, to select easier activities (Engle-Friedman & Riela, 2004).

Insomnia and self-control have an intricate, reciprocal relationship. Lack of sleep impacts people's capacity to exercise self-control in a variety of ways, such as making it harder for them to give up smoking or eat unhealthy snacks. It is highly likely that individuals need to utilize compensatory regulation to maintain behavioral control since lack of sleep makes people physically more exhausted. Self-control depletion is not the same as being sleepy or physically exhausted; rather, it resembles mental exhaustion. Individuals' motivation to work harder is reduced by both mental exhaustion and a loss of self-control. As a result, they favor tasks that tend to require little planning and effort (Nauts & Kroese, 2017).

The Mediating Role of Self-Control

Social media disorder and insomnia indirectly predict psychological well-being through self-control. In other words, social media disorder and insomnia reduce Turkish students' psychological well-being by reducing their self-control. Psychological well-being was positively predicted by self-control. This conclusion is supported by studies (Bowlin & Baer, 2012; Bucak, 2021). According to the results from Bucak's (2021) research, self-control significantly and positively predicts university students' psychological well-being. Bowlin and Baer (2012) revealed mindfulness and self-control to positively predict well-being and negatively predict general distress in university students. Li et al.'s (2019) study with adolescents revealed a statistically significant positive relationship between self-control and the presence of meaning in life. The eudaimonic model of psychological well-being is known to also include meaning in life (Ryff, 1989). In addition, Tucaniou and Ebrahimabad's (2019) study conducted with soldiers found self-control to positively predict psychological well-being.

University students undergo a period of social, personal, and academic change and new beginnings. Psychological well-being is an important element in the process of students struggling with developmental and adaptation problems that occur in their lives. Students with high levels of self-control can regulate their thoughts, feelings, and actions in order to act in a way that is consistent with their goals and needs rather than with their impulses (Baumeister et al., 2006), and this was concluded to increase students' psychological well-being. Youths with high self-control are more successful academically (Tangney et al., 2004) and psychosocially (Finkenauer et al., 2005). Psychosocial and academic achievement can help young people improve their psychological well-being.

Self-control is a quality that can be improved and increased, which offers a significant chance to improve students' lives and psychological well-being. The development of self-control in young people is crucial. Making decisions, accepting

responsibility, starting or stopping a behavior, creating action plans, and carrying them out are some of the situations that call for self-control at this phase, which can be seen as a turning point in a person's life (Doğan, 2022). At this point, the present study's key finding is remarkable. It was discovered that problematic social media use and insomnia had a poor impact on self-control and that a lower level of self-control had a negative impact on students' psychological well-being. What does low psychological well-being mean? The sub-dimensions of psychological well-being can be used to provide an answer to this query. Ryff (1995) lists six qualities in this context, including self-acceptance, positive relationships with others, personal growth, life purpose, environmental dominance, and autonomy. As a result, when a person's psychological well-being is compromised, he or she is not satisfied with being himself, finds it difficult to build meaningful relationships, becomes bored with life, and adopts a pessimistic outlook. They may also lose faith in something that would otherwise give their lives purpose, has trouble managing daily problems, and finds it difficult to make a significant decision.

Limitations and Future Research

Several limitations should be considered in the current study. All the variables in the study (i.e., psychological well-being, social media disorder, insomnia, and self-control) have been assessed using self-report tools. Despite the tools used here having good psychometric support, self-report measures may be subject to bias. The study's methods involve correlational and cross-sectional methods. Experimental and longitudinal works would ensure further insight into the relationships between social media disorder, insomnia, self-control, and psychological well-being.

Studies on a wider range of variables are needed to clarify the possible links between insomnia, social media disorder, and self-control with the psychological well-being of university students. Exploring the complex dynamics between the structures underlying sleep and social media use and self-control can provide a valuable foundation for understanding how teens can improve their psychological well-being.

Implications

The research's findings may prove useful to professionals working in university counseling and guidance departments. To ensure psychological well-being, developmental interventions like development groups and psycho-educational programs can be incorporated. Self-control training exercises can be used in educational courses. Workshops can be organized to educate individuals on the appropriate and healthy use of social media. Experts in the field can again arrange lectures on the advantages of sound sleep. These educational studies may be distributed throughout secondary and high schools as well as university departments.

The study's findings are expected to be useful to other scholars who are interested in the topic. The new researchers might have more success identifying the cause-effect relationship between social media use, insomnia, self-control, and psychological well-being by basing their research on the experimental approach. By limiting students' use of harmful media, improving their sleep, and boosting their levels of self-control, it is anticipated that these regulations will have a favorable impact on their psychological well-being.

Author Biography

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The Mediating Role of Psychological Resilience in the Relationship between Quality of School Life and School Burnout

Okul Yaşam Kalitesi ile Okul Tükenmişliği Arasındaki İlişkide Psikolojik Sağlamlığın Aracı Rolü

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ABSTRACT: School burnout is a common problem in students. Therefore, it is a situation that negatively affects students. This study aimed to investigate the mediating role of psychological resilience (PR) in the relationship between quality of school life (QSL) and school burnout (SB). The data of the study were collected by using the "QSL Scale", "SB Scale" and "PR Scale". The study group of the current study is comprised of a total of 325 middle school students aged 10 to 15. Of these 325 students, 163 (50.2%) are females, and 162 (49.8%) are males. Correlation analysis, confirmatory factor analysis (CFA) and structural equation modelling (SEM) analysis were used in the analysis of the collected data. As a result of the SEM analysis, it was found that QSL has a positive effect on PR and a negative effect on SB. PR was found to have a negative effect on SB. Moreover, PR was found to have a partially mediator role in the relationship between QSL and SB. Overall, it can be argued that improving students' perception of QSL will positively affect their PR and their attempts to cope with SB.

Keywords: Quality of school life, school burnout, psychological resilience, mediation model.

ÖZ: Okul tükenmişliği, öğrencilerde yaygın bir problemdir. Bu yüzden öğrencileri olumsuz etkileyen bir durumdur. Bu bağlamda, bu çalışma okul yaşam kalitesi ile okul tükenmişliği arasındaki ilişkide psikolojik sağlamlığın aracı rolünü araştırmayı amaçlamıştır. Araştırmanın verileri "Okul Yaşam Kalitesi Ölçeği", "Okul Tükenmişliği Ölçeği" ve "Psikolojik Sağlamlık Ölçeği" kullanılarak toplanmıştır. Bu çalışmanın çalışma grubunu, 10-15 yaşları arasındaki toplam 325 ortaokul öğrencisi oluşturmaktadır. Bu 325 öğrencinin 163'ü (%50.2) kız, 162'si (%49.8) erkektir. Toplanan verilerin analizinde korelasyon analizi, doğrulayıcı faktör analizi ve yapısal eşitlik modeli (YEM) analizi kullanılmıştır. YEM analizi sonucunda okul yaşam kalitesinin psikolojik sağlamlık üzerinde olumlu, okul tükenmişliği üzerinde ise olumsuz bir etkisi olduğu bulunmuştur. Psikolojik sağlamlığın okul tükenmişliği üzerinde olumsuz bir etkisi olduğu bulunmuştur. Ayrıca, psikolojik sağlamlığın okul yaşam kalitesi ile okul tükenmişliği arasındaki ilişkide kısmi aracı rolü olduğu bulunmuştur. Genel olarak, öğrencilerin okul yaşam kalitesi algısını iyileştirmenin, psikolojik sağlamlıkları ve okul tükenmişliğiyle başa çıkma çabaları üzerinde olumlu etkileri olacağı ifade edilebilir.

Anahtar kelimeler: Okul yaşam kalitesi, okul tükenmişliği, psikolojik sağlamlık, aracılık modeli.

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Many students experience chronic exhaustion during the educational process (Bask & Salmela-Aro, 2013; Tollit et al., 2018). Therefore, focusing on the school burnout (SB) concept is important. SB is a phenomenon that almost every student experiences in certain periods of their educational life (Schaufeli et al., 2002; Walburg, 2014). For this reason, SB has been investigated from different aspects. SB has been found to be correlated with school-related factors [e.g., school climate and school engagement] (Salmela-Aro & Upadyaya, 2020; Zucoloto et al., 2016). Moreover, it is suggested that there are individual factors that strengthen students against SB (Luo et al., 2016). One of these individual factors is considered to be PR. (Cheng et al., 2020). Accordingly, the relationships between PR, QSL, and SB were examined by structural equation modelling (SEM) analysis in the current study.

Literature Review

Quality of School Life (QSL)

QSL was inspired by the more general concept of quality of life [QL] (Cummins, 2005). QL is defined as perceived global satisfaction and contentment in many areas, emphasizing well-being in life (Hörnquist, 1990). It has been stated that QL is a comprehensive concept related to variables such as satisfaction in social relationships, stressful life events, and positive and negative situations (Phillips, 2006). The concept of QSL was first explained by Epstein and McPartland (1976). According to Epstein and McPartland (1976), QSL is a concept that includes students' general satisfaction with school, their engagement with school, and their opinion toward their teachers. According to another definition, QSL is the satisfaction level of students at school, which expresses the student's personal and experiential well-being at school (Mok & Flynn, 2002).

A high perception of QSL has positive reflections on students. Previous studies have concluded that QSL positively impacts students' well-being (Cenkseven-Onder & Sari, 2009; Kaya & Sezgin, 2017). It has been stated that students with a good perception of QSL have good relationships with their friends and teachers (Harvey et al., 2022). Furthermore, studies revealed that QSL has positive contributions to students' academic success (Mackner et al., 2012), active participation in school processes (Madani, 2019), and being a self-confident individual at school (Thien & Razak, 2013). Therefore, previous research indicates that QSL has a significant role in terms of both the individual and academic processes of students.

Psychological Resilience (PR)

PR is a concept that should be handled comprehensively to include the adaptation of the person to a change in his/her life. Accordingly, PR plays a protective role in the dynamic process that occurs as a result of the interaction of protective factors and risk factors when faced with a negative situation (Garmezy, 1993; Rutter, 1987). PR is defined as the competence to comply and improve in the face of an important risk situation (Masten & Coatsworth, 1998). Coutu (2002, p. 5) suggests that individuals with strong PR have three characteristics: "a robust belief that life is meaningful, acceptance of actuality, and the capability to improvise". PR enables individuals to produce an effective solution to problem situations faced in their daily lives (Richardson

et al., 1990). In addition, PR has a positive and supportive contribution to individuals' making useful choices for themselves (Collins, 2008).

PR is also important for students in school life to cope with negative situations in educational processes, to adapt to changes and to effectively solve problems in academic processes (Cassidy, 2015; Fullerton et al., 2021; Graber et al., 2015). In previous studies, it has been reported that PR improves students' problem-solving skills (Jun & Lee, 2017; Pinar et al., 2018; Wu et al., 2020). It has been found that PR has a positive effect on the well-being of individuals (Sagone & De Caroli, 2014; Souri & Hasanirad, 2011). Again, in previous studies, it has been reported that PR strengthens students against different problems they experience during educational processes. For example, in studies, PR has been found to strengthen students against problems such as academic stress (Song et al., 2019; Wilks, 2008), school dropout (Sorkkila et al., 2019), school refusal (Bitsika et al., 2022), academic failure (Allan et al., 2014) and SB (Rees et al., 2016; Ying et al., 2016). Consequently, PR is an important concept for students in educational processes.

School Burnout (SB)

The foundations of the concept of SB have been formed (Salmela-Aro et al., 2009a; Salmela-Aro et al., 2009b) on the basis of the concept of occupational burnout (Leiter & Maslach, 1988; Maslach et al., 2001). SB is defined as burnout resulting from the increased expectations of the school from students, students' developing a cynical belief against the school, and students' feeling of inadequacy regarding the school (Salmela-Aro et al., 2009a). In this context, it can be stated that the concept of SB is a phenomenon that emerges in the form of a negative emotional, physical and mental reaction against working in educational processes, leading to burnout, disappointment and low motivation and decreased competence at school.

SB is a difficulty that students experience more or less in certain periods of educational processes (Salmela-Aro, 2017). Therefore, it is essential to focus on the factors that strengthen individuals against SB and increase their coping mechanisms with this problem situation (Aypay, 2017; Walburg, 2014). In previous studies, it has been reported that there are individual and social protectors that strengthen students against SB. For example, studies have found that psychological resilience (Tang et al., 2021), self-regulation (Kljajic et al., 2017) and self-efficacy (Luo et al., 2016) are individual factors that protect and strengthen students against SB. Moreover, social support (Gungor, 2019; Kim et al., 2018), school-related conditions [e.g., school engagement, school climate] (Molinari & Grazia, 2021; Salmela-Aro & Upadyaya, 2020; Vasalampi et al., 2009) and parental attitudes (Love et al., 2020) have been found to be social/environmental factors that protect and strengthen students against school burnout. As a result, it is seen that SB is a common situation among students. Thus, it seems to be important to focus on QSL, one of the school-related factors and PR, one of the personal factors, to protect and strengthen students against SB.

Theoretical Background and Hypotheses

It was stated in the literature that positive situations in school processes reduce SB in students (Thien & Razak, 2013; Voelkl, 1995). In previous studies, school climate, one of the school-related concepts, was found to have a negative effect on SB

(Durmuş et al., 2017; Molinari & Grazia, 2021). Moreover, school commitment, another school-related concept, was found to have a negative effect on SB (Bilge et al., 2014; Salmela-Aro & Upadyaya, 2020; Vasalampi et al., 2009). QSL was also found to have a negative effect on SB (Gündogan & Özgen, 2020). Thus, the first hypothesis of the study is as follows:

H_1. QSL is a negative predictor of SB.

It was stated that high perception of QSL has a positive contribution to students' problem-solving skills and psychological resources (Barakat et al., 2014; Newmann, 1981). High perception of QSL was also found to have positive reflections on PR (Lawford & Eiser, 2001). In addition, in previous studies it was reported that school climate, which is a concept close to quality of school life in meaning, has a positive effect on PR (Aldridge et al., 2016, 2020; Hatzichristou, et al., 2017). The concept of school engagement, which is considered within the context of QSL, has a positive effect on PR (Turgut & Çapan, 2017). Thus, the second hypothesis of the current study is as follows:

H_2. QSL is a positive predictor of PR.

PR has an important role in individuals' dealing with a challenging situation (Rutter, 1987, 1993). PR was reported to have an important role for students in solving their problems in school processes (Murray-Nettles et al., 2000). Previous studies found that PR has a negative effect on SB (Cheng et al., 2020; Tang et al., 2021; Ying et al., 2016). Thus, the third hypothesis of the current study is as follows:

H_3. PR is a negative predictor of SB.

Individual and environmental factors are effective on SB (Walburg, 2014). Given that QSL is effective on SB (Gündogan & Özgen, 2020), QSL is effective on PR (Barakat et al., 2014), and PR is effective on SB (Tang et al., 2021), so PR may have a mediator role., It is reasonable to infer that PR plays a mediator role in the relationship between QSL and SB. In previous studies, the relationships between PR and SB or between school-related factors and SB have been examined. However, it is seen that the relationship between QSL, PR and SB have not been analyzed within the context of a holistic model. Therefore, holistic consideration of the relationships between these three variables and elicitation of both direct and indirect relationships will fill an important gap in the literature. Moreover, in the Bronfenbrenner ecological approach, the school is located in the microcosm (Bronfenbrenner, 1992, 2005). School processes have an impact on the individual's psychological resources (Bronfenbrenner, 1995). Thus, QSL can be considered to be effective on PR. In the Rutter (1987, 1993) resilience model, it is emphasized that PR also plays an important role in solving the problems of the individual in the education process. Accordingly, PR also has an effect on SB.The current study aims to examine the mediator role of PR in the relationship between QSL and SB. Thus, the fourth and main hypothesis of the current study is as follows:

H_4. PR has a mediator role in the relationship between QSL and SB.

Method

Participants

The study group of the current research is comprised of middle school students, one of the student groups in which SB is felt intensely (Gündogan & Özgen, 2020). The participants of this study are a total of 325 Turkish middle school students aged 10 to 15. 163 (50.2%) of these students are females, and 162 (49.8%) are males.

Scales

Quality of School Life Scale (QSLS)

The QSLS for Turkish culture was developed by Sarı (2012). The scale is a 35-item Likert-type measurement tool consisting of the following sub-dimensions: "Teachers", "Students", "Emotions towards school", "School administration," and "Status" (Sarı, 2012). The Cronbach Alpha internal consistency coefficients for these five sub-dimensions were found to be between .83 and .69. In this study, Cronbach Alpha internal consistency coefficients for these five sub-dimensions were found between .85 and .76. As a result of the confirmatory factor analysis (CFA), it was concluded that the scale good fit results (χ^2/sd=3.66, *RMSEA*=0.068, *NNFI* = 0.94, *CFI* = 0.95 and *GFI*=0.83). CFA was also conducted within the context of the current study (Table 2).

School Burnout Scale (SBS)

SBS was developed by Salmela-Aro et al. (2009a) to measure school burnout. SBS is a 9-item Likert-type measurement tool consisting of 3 sub-dimensions: depersonalization, emotional exhaustion, and inadequacy. The SBS was adapted to Turkish by Seçer et al. (2013). In the adaptation study, the Cronbach Alpha internal consistency value was calculated to be .75. In this study, the Cronbach Alpha internal consistency value was calculated to be .86. In addition, as a result of the adaptation, the goodness-of-fit values were also calculated to be good (X^2/sd=1.99, RMSEA=.042, RMR= .013, NFI=.98, NNFI= .98, CFI=.99, IFI=.99, RFI=.96, AGFI=.93, GFI=.97; Seçer et al., 2013). CFA was also conducted within the context of the current study (Table 2).

Psychological Resilience Scale (PRS)

PRS is a 12-item Likert-type measurement tool developed by Liebenberg et al. (2012). The PRS was adapted to Turkish by Arslan (2015). In the adaptation study, the item-total correlation values were calculated to be between .45 and .79, and the internal consistency coefficient was calculated as .91 (Arslan, 2015). Moreover, as a result of this adaptation, the goodness-of-fit values were found to satisfy the required criteria ($\chi 2/sd$=2.03, RMSEA=.06, GFI=.94, NFI=.94, CFI= .97, IFI=.97, SRMR= .03; Arslan, 2015). In this study, internal consistency coefficient was calculated as .78. CFA was also conducted within the context of the current study (Table 2).

Procedure and data analysis

Before the data were collected, school counselors and classroom counseling teachers were contacted, and students who were assumed to experience SB were determined. Afterward, students who stated that they experienced SB were determined in this group. Among these students, those who volunteered to participate and whose parents approved their participation were included in the study. While collecting the data, it was stated to the students that the study was on a voluntary basis and that they could stop participating in the study at any time. The analysis phase started with 325 students who filled out the scales completely.

Before proceeding to the data analysis, some preliminary assumptions were checked. It was concluded that there was no outlier in the data. In addition, the assumptions of linearity, covariance, and the absence of multicollinearity were also checked (Pallant, 2013). Structural equation modeling (SEM) analysis was used to test the hypotheses (Byrne, 2013). before testing the model, the CFA of the scales should be conducted, and the measurement model should be tested (Bayram, 2010; Byrne, 2013).Before the model was tested, the CFA of the scales was conducted, and the measurement model was tested. Model fit indices used in the current study include $\chi 2/sd$, RMSEA (Root Mean Square Error of Approximation), NFI (Normed Fit Index), GFI (Goodness of Fit Index), IFI (Incremental Fit Index), CFI (Comparative Fit Index) and SRMR (Standardized Root Mean Square Residual), which are frequently used in SEM analysis (Kline, 2015). In the fit indices, the following criteria were taken into consideration: < 5 for $\chi 2/sd$ (Bayram, 2010), $\geq .85$ for AGFI (Byrne, 2013), $\leq .08$ for RMSEA and SRMR (Kline, 2015), $\geq .90$ for GFI, NFI, CFI and IFI (Byrne, 2013; Kline, 2015).

Ethical Procedures

After obtaining the ethical approvals from the ethics committee, the data collection process was initiated. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethics committee approval was obtained before starting the current study (Niğde Ömer Halisdemir University with the ethical permission dated 30/03/2022 and numbered 2022/04-16). Informed consent and parent consent form were applied to the participants. The scales were applied to the participants who volunteered to participate in the study and whose parents were approved.

Results

Preliminary analysis

Table 1 presents the correlation result of the relationship between QS, PR, and SB. There is a positive correlation between QSL and PR ($r=.52$, $p<.01$) and a negative correlation between QSL and SB ($r=-.46$, $p<.01$), and a negative correlation between PR and SB ($r=-.60$, $p<.01$). It is also seen that the skewness and kurtosis values for the three variables range between -1 and +1. These values show that the data are normally

distributed (Hair et al., 2013). Moreover, as there is a correlation lower than .90 between the variables, there is no multicollinearity problem (Pallant, 2013).

Table 1

Correlations, Skewness, Kurtosis, and Reliability Coefficients

	1	2	3
1. QSL	1		
2. PR	.52**	1	
3. SB	-.46**	-.60**	1
Cronbach's alpha	.86	.78	.86
Min.	51	15	9
Max.	169	59	45
Mean	115.02	48.92	20.56
Standard deviation	20.21	7.71	8.30
Skewness	-.11	-.92	.62
Kurtosis	.27	.72	-.38

**p< .01

Model Testing

In this section, the CFA of the scales, the measurement model of the model to be tested, and the test result of the model are presented. First, the CFA and measurement model values of the scales were calculated. Secondly, the testing phase of the model started.

When Table-2 is examined, the goodness-of-fit values obtained from the CFA for QSLS, SBS, and PRS satisfy the required criteria. Moreover, the measurement model test of the model to be tested shows that the goodness-of-fit criteria are met. The CFA of the scales and the measurement model met the necessary criteria. Thus, the precondition is fulfilled, and the model is tested (Figure 1).

Table 3 shows that QSL is a negative and significant predictor of SB (β=-.28, p<.001). Thus, hypothesis 1 was supported. It was also found that QSL is a positive and significant predictor of PR. Thus, hypothesis 2 was also supported. In addition, PR was found to be a negative and significant predictor of SB. Thus, hypothesis 3 was supported. In Figure 1, the result of the mediator analysis performed to test hypothesis 4, which is the main hypothesis of the study, is presented. As a result of the mediator analysis, the model fit indices were found to be as follows: χ^2/df=3.63, AGFI=.89, GFI=.94, TLI=.90, CFI=.93, IFI=.93, RMSEA=.08, and SRMR=.05. These values meet the required criteria accepted (Bayram, 2010; Byrne, 2011; Kline, 2015). Thus, hypothesis 4 was supported. Therefore, it can be argued that PR has a partial mediator role in the correlation between QSL and SB (Kline, 2015).

Table 2

CFAs of Scales, Measuring and Structural Model

Fit Indices	CFAs of Scales			Measuring Model	Structural Model	Reference Value(s)
	SQLS	SBS	PRS			
χ^2	11.50	45.67	108.08	67.75	87.16	
p value	< .001	< .001	< .001	< .001	< .001	
df	5	16	53	23	24	
χ^2/df	2.30	2.85	2.03	2.41	3.63	< 5
AGFI	.95	.92	.92	.91	.89	≥ .85
GFI	.98	.96	.94	.95	.94	≥ .90
TLI	.94	.94	.90	.92	.90	≥ .90
CFI	.97	.96	.91	.95	.93	≥ .90
IFI	.97	.96	.91	.95	.93	≥ .90
RMSEA	.06	.07	.05	.05	.08	≤ .08
SRMR	.03	.03	.05	.04	.05	≤ .08

Table 3

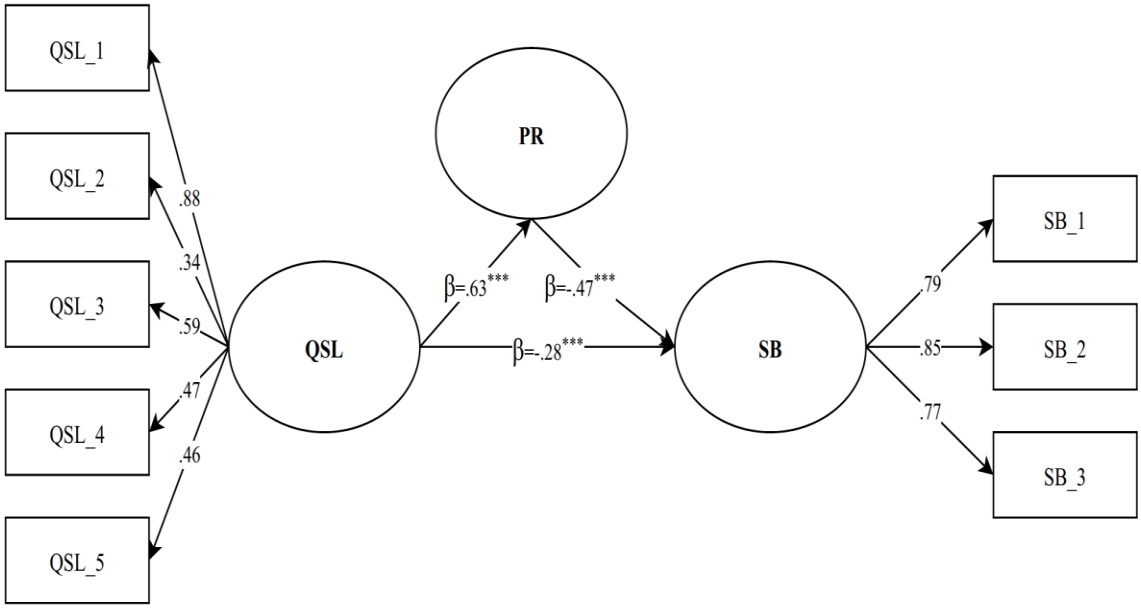
Hypotheses Testing

	β	B	SE	CR	*p*
QSL → SB	-.28	-.12	.03	10.01	.001
QSL → PR	.63	.70	.07	-3.86	***
PR → SB	-.47	-.19	.03	-6.99	***
QSL → PR→ SB	-.29	-.13			***

****p*<.001 (β= Standardized Estimate, B= Estimate, SE= Standard Error, CR= Critical Ratio)

Figure 1

SEM Result on the Mediating Model



Discussion

School processes, besides being instructive and contributing to the development of students in many areas, can sometimes be weary and tiring. Thus, many students experience SB during their school processes (Salmela-Aro, 2017). Accordingly, this study focused on examining the relationships between middle school students' SB, QSL, and PR. The main aim of the study was to examine whether PR has a mediator role in the relationship between QSL and SB.

The first hypothesis of the current study was that "QSL is a negative predictor of SB". A result supporting this hypothesis was obtained. In the study, it was concluded that QSL has a negative effect on SB. This result shows that students with a high perception of QSL experience less SB; in other words, the students with a high QSL can cope with SB more effectively. This finding of the study is supported by the findings reported in previous studies in the literature (Bilge et al., 2014; Durmuş et al., 2017; Gündogan & Özgen, 2020; Molinari & Grazia, 2021; Salmela-Aro & Upadyaya, 2020; Vasalampi et al., 2009). As a consequence, improving the perception of QSL is an essential factor for students to overcome problems in school processes.

The second hypothesis of the study was "QSL is a positive predictor of PR". This hypothesis was supported. In the study, it was concluded that QSL has a positive effect on PR. According to this result, the PR of the students who have a good perception of QSL will be strong. the student's feeling of well-being during the school process has a positive effect on their psychological resources (Barakat et al., 2014)., The finding of the present study also revealed this. This finding seems to concur with previous studies reported in the literature (Aldridge et al., 2016, 2020, Hatzichristou et al., 2017; Turgut & Çapan, 2017). The results of both the current and previous studies revealed that QSL has a role in increasing PR. The third hypothesis of the study was "PR is a negative predictor of SB". This hypothesis was confirmed. In the study, it was concluded that PR is negatively correlated with SB. This result shows that PR is a factor in empowering students to overcome school burnout. In the literature, it is suggested that PR has important effects on individuals' ability to cope with a problem situation

(Fullerton et al., 2021; Jun & Lee, 2017; Rutter, 1993). previous research findings are consistent with the finding of the current study (Cheng et al., 2020; Tang et al., 2021; Ying et al., 2016). In light of the results of both this study and previous studies, it can be argued that PR is effective in coping with the problems in school processes. Because PR enables students to confront the problem by increasing their coping skills (Garmezy, 1993). Thus, individuals choose the way of producing a solution for the school burnout problem. This situation has also been demonstrated in the current study.

The fourth and main hypothesis of the current study was "PR has a mediator role in the relationship between QSL and SB". This hypothesis was supported by the result of the performed SEM analysis. Thus, the mediation model was validated. In the study, it was concluded that QSL has a direct effect on SB, as well as an indirect effect through PR. According to the result, the perception of QSL affects PR positively, and PR negatively affects SB. In other words, the PR of individuals with a good perception of QSL is strengthened. As a result, students experience less SB. No research result directly supports this finding of the current study. However, in the previous literature, it has been suggested that the positive situations and positive factors experienced by students during school processes strengthen them psychologically (Lawford & Eiser, 2001; Newmann, 1981). As a result of this strengthening, students can cope more effectively with different problems they encounter throughout their education life(e.g., school burnout, academic stress) (Aldridge et al., 2020; Gündogan & Özgen, 2020), which is supported by the finding of the current study. In addition, in the ecological approach, it has been stated that the school is a microcosm and plays an important role in many situations for students (Bronfenbrenner, 1995). When considered from this perspective, the satisfaction to be obtained from school affects PR and SB. Accordingly, the perception of QSL can improve PR and reduce SB. In addition, - the authoritative school climate theory states that school climate has two dimensions: discipline and support for the student (Cornell & Huang, 2016). These two dimensions are also important in solving the problems (such as SB) that students experience during the school process (Jia et al., 2016). it can be argued that QSL has a positive effect on PR, and as a result, the negative effect of SB decreases. The result of the present study also reveals this.

Limitations and Future Research

Although the current study has important findings, it also has a few limitations. The first limitation of the current study is that it was conducted only on middle school students as an age group. This limitation can be eliminated by including high school or university students in future studies. Another limitation is that the study is cross-sectional. Therefore, the relationships between SB and QSL, and PR can also be examined longitudinally. Another limitation is that data were collected only with Likert-type scales based on the participants' self-report. Self-report scales are the scales in which the participant can give answers according to the situation they want to be in, not according to their real situation. The existing limitation can be eliminated in future studies by collecting data with different techniques (interviews or observation).

Conclusion and Suggestions

The current study showed that QSL has a positive effect on PR and a negative effect on SB. PR, on the other hand, has a negative direct effect on SB. In addition, QSL indirectly affects SB through PR. Moreover, the model constructed with these three variables was validated on middle school students in Turkish culture.

In the context of the results of the present study, some suggestions can be made. psycho-education or counselling activities to increase students' perception of QSL are essential. Such activities can have a positive impact on the PR of students. Moreover, good QSL can further reduce students' SB. Thus,it is important for educators and school counsellors to carry out different studies to increase the QSL of students. To this end, individual or group activities can be planned and implemented at schools. Thereby, students' perception of QSL can be strengthened. This may have positive effects on students' recovery and coping skills.

Author Biography

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Determining Tendency Levels and Opinions of Secondary School 12th Grade Students on Private Tutoring*

Ortaöğretim 12. Sınıf Öğrencilerinin Özel Derse Yönelik Eğilim Düzeyleri ve Görüşlerinin Tespit Edilmesi

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ABSTRACT: The purpose of this study is based on various variables (gender and state of taking private tutoring) to determine differentiation in private tutoring tendencies of 12th grade students and their opinions about private tutoring. Mixed method sequential explanatory design was used in this study. The quantitative study group consists of 717 students in 12th grade secondary school studying in different schools types in İstanbul. Quantitative data were collected through stratified sampling method. The qualitative study group consists of 11 students selected according to quantitative data. The maximum variation sampling method was preferred for collecting qualitative data. The "Private Tutoring Tendency Scale" was used for collecting quantitative data; the semi-structured interview form developed by the researchers was used for collecting qualitative data. According to the study results, it was observed that there is significant difference in private tutoring tendency levels of the participants with respect to the gender and private tutoring experience variables. When qualitative findings are considered, it is evident that opinions of the participants are mainly gathered under the themes. These themes are reason for private tutoring tendency, general opinions on private tutoring and methodological opinions on private tutoring. Depending on the findings obtained within the scope of the research, suggestions were made for the legal regulation and the examination of private tutoring from different perspectives.

Keywords: Private tutoring, 12th grade students, mixed method, private tutoring tendency.

ÖZ: Bu araştırmanın amacı, 12.sınıf öğrencilerinin çeşitli değişkenlere (cinsiyet ve özel ders alma durumu) göre özel ders eğilimlerinin farklılaşma durumu ve öğrencilerin özel derse yönelik görüşlerinin tespit edilmesidir. Araştırmada, nicel ve nitel yöntemler birlikte kullanıldığı için araştırma karma desende tasarlanmıştır. Nitel verilerin toplanması nicel verilere bağlı olarak gerçekleşmektedir. Bu bağlamda karma yöntemlerden açıklayıcı sıralı desen kullanılmıştır. Araştırmanın nicel çalışma grubunu İstanbul ilinde farklı okul türlerine devam eden 717 ortaöğretim 12. sınıf öğrencisi oluşturmuştur. Nicel veriler tabakalı örneklem yöntemi ile toplanmıştır. Nitel çalışma grubunu ise nicel verilere bağlı olarak seçilen 11 öğrenci oluşturmuştur. Nitel verilerin toplanmasında, maksimum çeşitlilik örnekleme yöntemi tercih edilmiştir. Nicel verilerin toplanmasında "Özel Ders Eğilim Ölçeği", nitel verilerin toplanmasında ise araştırmacılar tarafından geliştirilen yarı yapılandırılmış görüşme formu kullanılmıştır. Araştırma sonucunda katılımcıların özel ders eğilim düzeylerinde; cinsiyet, okul türü, ve özel ders alma durumu anlamlı farklılık tespit edilmiştir. Nitel bulgular incelendiğinde ise katılımcılar belirttikleri görüşlerin genel olarak; özel derse yönelim nedeni, özel derse yönelik genel görüşler, özel derse yönelik yöntemsel görüşler ve çözüm önerileri başlıkları altında toplandığı tespit edilmiştir. Araştırma kapsamında elde edilen bulgulara bağlı olarak yasal düzenleme ve farklı açılardan özel dersin incelenmesine yönelik önerilerde bulunulmuştur.

Anahtar kelimeler: Özel ders, 12.sınıf öğrencileri, karma yöntem gölge eğitim, ek öğrenme, özel ders eğilimi, açıklayıcı sıralı karma desen.

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It is normal for a competition environment to arise in countries in which passing between educational stages takes place through exams. In this competitive environment, students have become obliged to put more effort and spend more time on studying so as to be placed in a better institution. For this reason, the efforts of individuals to be successful in the exams have prevented their performance that they need to show in order to be successful at school. (Turkish Education Association, TED, 2010). Also, as a natural result of this competition environment, getting additional learning support has emerged. This increased the demand for private courses and training centers. Furthermore, additional learning support is offered through private tutoring.

Private tutoring is defined as lessons taken in addition to official school education parallel with school courses during school days before or after school or during official holidays and weekends (Bray, et al., 2015). Also, private tutoring is defined as additional services to their formal education that students buy through individual means (Demirer, 2011; Ireson, 2004). Bacanlı and Dombaycı (2013) state that when the education that students receive in public educational institutions is insufficient, private tutoring is closing this gap by employed, retired or self-employed teachers. Bacanlı and Dombaycı (2013) also define private tutoring as unorganized versions of training centers. Hong and Park (2012) define private tutoring as additional educational service given by a profit-making individual or private entrepreneurs to families or students so as to improve their course notes or exam successes.

Based on these definitions, a general definition of private tutoring is lessons given to students by qualified teachers or anyone in person in return of a certain amount of money so as to fulfill their gaps in specific courses or subjects (TDK, 2017), to increase their success in schools or exams (Bray, 2009), decrease their academic anxieties (Addi-Raccah & Dana, 2015), increase their motivation (Guill & Bos, 2014). According to the definition, it is obvious that private tutoring can have academic, affective, socio-economic and imperative dimensions.

With respect to the academic dimension, it is evident that taking private tutoring has effects on the school courses (Bray, 2007), academic success (Silova, 2009; Kuan, 2011) and mental processes (Bray, 2009; Bray & Lykins, 2012) of students. The affective dimension of private tutoring refers to states such as optimism, fear, anxiety (Davis, 2013), motivation (Bray, et al., 2013) and stress (Suante, 2017). The socio-economic dimension of private tutoring refer to states such as gaining status, inequality in education (Bray & Kwo, 2014; Ireson, 2011), family income and education (Bray, 1999; Kenayathulla, 2013; Tansel & Bircan, 2005) and disruption of the system (Suante, 2017). The imperative dimension of private tutoring refers to tendencies to private tutoring due to reasons such as competition (Saracaloğlu, et al., 2014; TED, 2010), gaining social status (Yıldızhan, 2015), increasing academic success (Silova, 2009) and enabling families to discharge from the responsibility (Rutz & Balkan, 2016).

When the dimensions of private tutoring are considered, it is evident that private tutoring gain place in individuals' lives even more every day. The Ted report (2010) underlines that taking private tutoring has decreased to year one grade in primary school. While the concept of private tutoring is mentioned in educational concepts to this extent, there are very few number of studies in Turkey dwelling on private tutoring (Altinyelken, 2013; Gündüz 2003, 2006; Koçak, 2022; Nagac & Guc, 2015; Tansel & Bircan, 2005, Bircan, 2008; Yıldız, et al., 2022). When these studies are considered, it is

evident that most of them refer to the term training centers as private tutoring. When the relevant literature is examined; It has been determined that the level of taking private tutoring has decreased to the level of the first grade of primary school, the tendency to private lessons has increased in many countries around the world, and there is not enough work in this field in Turkey. So the purpose of this study is, based on various variables, to determine differentiation in private tutoring tendencies of 12th grade students and their opinions about private tutoring.

Method

Research Design

Mixed method sequential explanatory design was used in this study. According to Green, et al. (2005), in the field of social sciences the mixed method approach refers to using more than one analysis methods or purposely collecting data through multiple methods. Creswell (2002) states joining qualitative and quantitative methods in other words blending them as a main characteristic of the mixed method. In this study, collecting qualitative data depends on quantitative data. According to Creswell and Clark (2014) explanatory sequential design refers to creating qualitative data groups according to quantitative results.

The quantitative dimension constitutes the first stage. This dimension was designed according to the descriptive screening model. At this stage the level of private tutoring tendencies of students and whether or not their private tutoring tendencies differ according to various variables were examined. The qualitative dimension constitutes the second stage. It was designed according to the phenomenological design and. the experiences of the participants about "private tutoring" are the focus of this study. (Creswell, 2016).

Participants

Quantitative Dimension: Participants:

The sample consists of 717 students studying in Industrial Vocational, Religious Vocational, Anatolian, Science and Private High Schools within İstanbul. The stratified sampling method was used in collecting the data. The participants were selected from İstanbul because it was assumed that this would better reflect the political, cultural and socio-economic differences in İstanbul society. Rutz and Balkan (2016) state that the cosmopolitan İstanbul is an advantageous city for making educational observations because competition and transitions between classes occur highly in this province.

Table 1

Participants School Category-Gender Distribution

		Gender		Total
		Female	Male	
School Category	Low Success X1	5	96	101
	Medium Success X2	94	55	149
	Medium Success X3	93	78	171
	High Success X4	31	23	54
	High Success X5	49	32	81
	Private School X6	64	84	148
Total		336	368	704

The participants include 717 people; 336 (46.8%) female, 368 (51.4%) male and 13 (1.8%) neuter students (Table 1). 101 (14.2%) participants are in a low success level school, 323 (45.0%) are in a medium success level school, 135 (18.8%) are in a high success level school and 154 (21.5%) are in a private school category. 4 (0.5%) students did not express the school category.

Qualitative Dimension: Participants

The maximum variation method was used in identifying the qualitative participants of the study. In order to ensure maximum variety, students with medium level of private tutoring tendency and those are one or two standard deviation over or under the average were selected for the quantitative dimension. Also, students studying in public schools-collage and who have taken-not taken private tutoring were selected.

Table 2

Qualitative Interview Distribution

Student	Gender	School Type	Private Tutoring Tendency	State of Taking Private Tutoring
S1	F	X2	Medium	Yes (Not present, taken before)
S2	M	X2	Medium	Yes (Not present, taken before)
S3	F	X3	High	Yes
S4	F	X3	Low	Yes
S5	F	X1	Medium	Yes
S6	M	X1	Low	Yes
S7	F	X1	Low	No
S8	F	X4	Low	No
S9	M	X5	High	Yes
S10	M	X6	High	Yes
S11	F	X6	Medium	Yes

According to Table 2, four of the participant students are male and seven are female. Three of the students have low success level (X1), four have medium success level (X2 and X3), two have high success level (X4 and X5) and two going on collage (X6). When private tutoring tendency levels considered, it is evident that four participant students have low, four have medium and three have high tendency levels. In addition, two participants did not take private tutoring, two are not taking private tutoring now but took in the past and seven are presently taking private tutoring. In Table 2, X1 refers to vocational high school, X2 and X3 refer to Anatolian high school, X4 and X5 refer to science high school and X6 refer to private school type. Participants selected from students studying in vocational high schools have low and medium level private tutoring tendencies, students studying in Anatolian high schools have low, medium and high private tutoring tendency levels, students studying in science high schools have low and high private tutoring tendency levels and students studying in private schools have medium and high private tutoring tendency levels.

Data Collection Instruments

The "Private Tutoring Tendency Scale" developed by Türkan and Çeliköz (2018) was used for collecting data for the quantitative dimension of the study. The scale consists of 4 factors and 33 items. Scale item load values range from .82 to .51. It is seen that the Cronbach Alpha value of the scale is .84 and the test-retest value is .71. The semi-structured interview form was used for collecting qualitative data of the study. In the creation of the interview form, a literature review was conducted, and opinions were received from five field experts. In addition, the opinions of one PCG field expert to determine the suitability of the questions for the student's level and two Turkish language teaching field experts were consulted for language clarity.

Data Collection Process

The scales were developed by the researchers to collect quantitative and qualitative data after obtaining necessary permissions from the Provincial Directorate of National Education. The scales were collected based on the voluntary principle. Filling in the scale items took almost 12 minutes. The students were identified by taking into consideration the private tutoring tendency levels collected from quantitative data required for collecting qualitative data. The students were contacted through the school guidance service and interviews were conducted at the school the students attend by determining the time that fits them. The settings where the students can express themselves freely and where the interviews can be conducted effectively were determined by the guidance service. Interviews were done in Turkish language. Interviews with the participants began by chatting about daily events so that the participants could give accurate information. In addition, interviews were conducted at the time and place stated by the participant so that they could express themselves freely. Ersoy (2016) states that qualitative interviews should take place in settings where the participants can communicate effectively. The interviews took almost between 33 minutes and 48 minutes. Collecting qualitative data took almost 28 days because the process was carried out according to the participants' demands.

Data Analysis

The SPSS 22.0 software was used in analyzing the quantitative data. Kolmogorov-Smirnov Test (p=0.20) was used to determine whether the data show normal distribution and it was found that it provided the assumption of normality. Descriptive Analyses, Independent Sampling t-test, One-Way Variance Analysis were conducted in quantitative analyses. Microsoft Excel and NVivo 8 software were used for qualitative data analysis. The content analysis was preferred for conducting qualitative data analysis. In this analysis method, similar concepts are gathered and transferred into themes, thus a whole is created so that the readers can comprehend them (Yıldırım & Şimşek, 2016). Content analysis is a systematic and repeatable technique where various words in a text are summarized under small content categories through codings that are based on specific rules.

Results

Private tutoring tendencies of 12th-grade secondary school students were examined. Tendency levels of the students are presented in Table 3 according to the dimensions. Interpretations are presented according to average scores, standard deviations and averages of the students.

Table 3

Private Tutoring Tendency Averages of Students according to Dimensions

Factor	*N*	$\bar{x}$	*SD*	Interpretation
Cognitive Tendency Dimension	692	3.47	.62	High
Affective Tendency Dimension	692	3.34	.65	Medium
Imperative Tendency Dimension	692	2.79	.72	Medium
Socio-economic Tendency Dimension	692	2.44	.96	Low
Total	692	3.09	.45	Medium

The interpretations for the tendency level scores obtained from the scale were expressed with statements “Very Low” for 1.00-1.80 score interval, “Low” for 1.81-2.60 score interval, “Medium” for 2.61-3.40 score interval, “High” for 3.41-4.20 score interval and “Very High” for 4.21-5.00 score interval. With this respect, it is evident on Table 3 that student averages for the “Cognitive Tendency Dimension” is 3.47 (High), “Affective Tendency Dimension” are 3.34 (Medium), “Imperative Tendency Dimension” is 2.79 (Medium) and “Socio-economic Tendency Dimension” is 2.44 (Low). According to the total score, the private tutoring tendency level average score is 3.09 (Medium). It is evident that private tutoring tendencies of students are generally at medium level, cognitively high and socio-economically low.

Differentiation states of secondary school 12th grade students according to gender are examined in Table 4. The Independent Samples t-test was conducted to identify the differentiation states of private tutoring tendencies of students according to gender.

Table 4

Distribution of Private Tutoring Tendencies of Students according to Gender

Factor	Gender	*N*	$\bar{x}$	*SD*	*SD*	*t*	*p*
Cognitive Tendency Dimension	Female	326	3.50	.63	678	1.11	.27
	Male	354	3.44	.62			
Affective Tendency Dimension	Female	326	3.43	.63	678	3.95	.00
	Male	354	3.24	.66			
Imperative Tendency Dimension	Female	326	2.85	.68	678	2.26	.02
	Male	354	2.73	.75			
Socio-economic Tendency Dimension	Female	326	2.53	1.01	678	2.52	.01
	Male	354	2.35	.91			
Total	Female	326	3.16	.44	678	3.93	.00
	Male	354	3.03	.43			

According to Table 4, it is evident that while average score of female students is 3.50, average score of male students is 3.44 based on the cognitive tendency dimension. The difference between score averages of female and male students was not statistically significant [t(678)=1.11, p>.05]. While average score of female students is 3.43 at the affective tendency dimension, the score average of male students is 3.24. While score average of female students is 2.85 at the imperative tendency dimension, the score average of male students is 2.73. While score average of female students is 2.53 at the socio-economic tendency dimension, score average of male students is 2.35. When private tutoring tendencies of the students are considered in general, average of female students is 3.16 and the average of male students is 3.03. The difference between the scores of female and male students was observed to be statistically significant in favor of female students at the affective [t(678)=3.95, p<.05], imperative [t(678)=2.26, p<.05], socio-economic [t(678)=2.52, p<.05] dimensions and total score [t(678)=3.93, p<.05]. In other words, female students have more tendency to take private tutoring.

Table 5 presents the differentiation states of secondary school 12th grade students with respect to the state of taking private tutoring according to the dimensions. An Independent Samples t-test was conducted so as to examine the differentiation states of private tutoring tendencies of the students with respect to the state of taking private tutoring.

Table 5

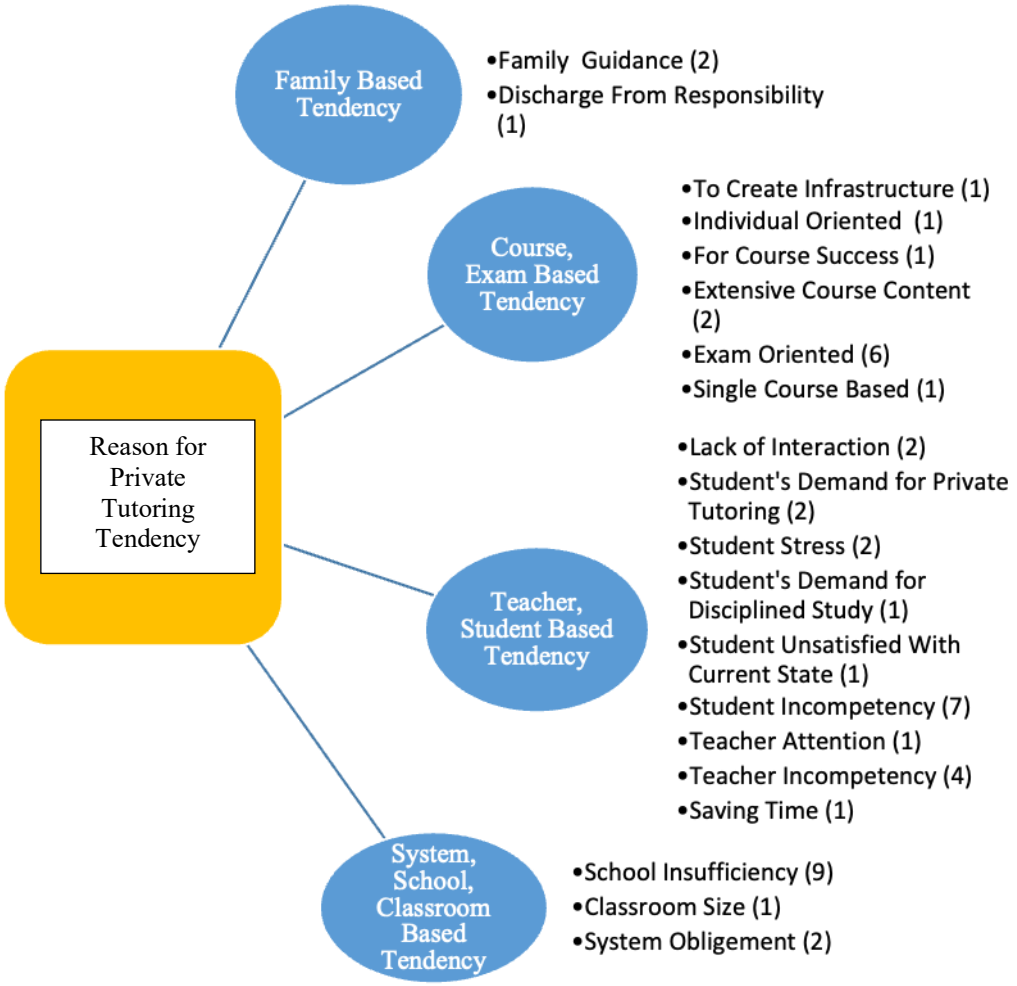
Distribution of Private Tutoring Tendencies of Students with Respect to State of Taking Private Tutoring

Dimension	State of Taking Private Tutoring	*N*	$\bar{x}$	*SD*	*SD*	*t*	*p*
Cognitive Tendency Dimension	Yes	267	3.63	.61	678	5.48	.00
	No	413	3.37	.62			
Affective Tendency Dimension	Yes	267	3.52	.66	678	5.50	.00
	No	413	3.22	.62			
Imperative Tendency Dimension	Yes	267	2.88	.76	678	2.76	.01
	No	413	2.73	.68			
Socio-economic Tendency Dimension	Yes	267	2.48	.99	678	.88	.37
	No	413	2.41	.95			
Total	Yes	267	3.22	.46	678	6.16	.00
	No	413	3.01	.42			

According to Table 5, while average scores of students who take private tutoring are 3.63 at the cognitive tendency dimension, average scores of students who do not take private tutoring are 3.37. While average scores of students who take private tutoring are 3.52 at the affective tendency dimension, average scores of students who do not take private tutoring are 3.22. While average scores of students who take private tutoring are 2.88 at the imperative tendency dimension, average scores of students who do not take private tutoring are 2.73. In addition, when private tutoring tendency total score averages are considered, average scores of students who take private tutoring are 3.22 and average scores of students who do not take private tutoring are 3.01. The difference between the scores of students who take and do not take private tutoring are statistically the cognitive [$t(678)=5.48$, $p<.05$], affective [$t(678)=5.50$, $p<.05$], imperative [$t(678)=2.76$, $p<.05$] dimensions and total score [$t(678)=6.16$, $p<.05$] in favor of students who take private tutoring. While average scores of students who take private tutoring are 2.48 at the socio-economic tendency dimension, average scores of students who do not take private tutoring are 2.41. The difference between student scores was not observed to be statistically significant [$t(678)=.88$, $p>.05$].

When the data collected from student interviews were analyzed, it was observed that the data were grouped under the “Reasons for Private Tutoring Tendency”, “General Opinions on Private Tutoring” and “Methodological Opinions” themes. The category and codes concerning private tutoring tendency reasons of the students are given in Figure 1.

Figure 1
Secondary School 12th Grade Students' Opinions on Private Tutoring Tendency Reasons



According to Figure 1, it is evident that the reasons why students tend to private tutoring are gathered under categories "Family Based Tendency", "Course, Exam Based Tendency", "System, School, Classroom Based Tendency" and "Teacher, Student Based Tendency". The students stated that they resort to private tutoring due to family guidance and the family's will to discharge from their responsibilities. There are also course and exam based reasons for students to prefer to private tutoring. That students take private tutoring for nation-wide conducted exams is among the main reasons in this category. Among other course and exam based tendency reasons for private tutoring tendency are the students wanting to lay the foundation for the courses, the courses having an extensive content and the students' will to be successful in these courses. That private tutoring are single-course and individual oriented are among the reasons for preference.

There are also teacher and student based reasons for private tutoring tendencies. Among these reasons are the fact that the students find the school teachers or themselves insufficient. Lack of student-teacher interaction during lessons, teachers

failing to show sufficient interest are among other factors for private tutoring tendency. It was observed that students tend to private tutoring due to student stress, the student demanding private tutoring with his or her own will and to save time. In addition, that students are not satisfied with their current state and wanting to study in a disciplined manner are among the other reasons. Tending to private tutoring is believed also to be system, school or classroom based. The reasons are considering schools as insufficient, extreme class size and the system obliging the student to take private tutoring. Various student opinions about private tutoring tendencies are given below:

> "For example, my mum always works. The reason why she sent me to a private school is that she thought she can't spare enough time for me, but they will there. After seeing that the school can't fulfill the needs, then she tended to private tutoring". (S10)

> "If we take into consideration the university entrance exam then I will definitely support taking private tutoring. Because we can only reach to a certain stage at school. After that you have to show your own effort. ... I can say I take private tutoring for almost all courses, Literature, Geography, Mathematics. But because I believe I am very weak at Mathematics I can say that I need private tutoring more for mathematics course. My mathematics skills can be lower when compared with the other courses". (S3)

> "It may be because I feel insufficient and no matter how much effort I put I realize that I won't be able to manage and need help from someone. ... I first try myself, once I realize I can't manage on my own I take private tutoring". (S4)

> "For example, none of my old mathematics teachers were good, that's why private tutoring was beneficial for me. While I scored zero, I increased my score to 10 and I can increase it more". (S11)

> "Honestly, I tended to private tutoring because I didn't want to take risk. Mean we talked with my family. This year is important, I am not planning to take a gap year. Not to risk this year... I am not thinking of taking a gap year. As I don't plan to take a gap year the only thing I want is to focus on my profession. I mean I am thinking about at least entering in my profession. That's why we decided with my family to fill my gaps with private tutoring so as not to take the risk. ... As I stated at the beginning, I don't want to risk my goals. That's why I would prefer private tutoring even if I was at a higher or lower level. ... I don't want to risk my goal. …I am above the average; I think I am very good especially in Mathematics. But I am self-confident in Physics. Maybe this is the effect of private tutoring. But as I said, Physics and Mathematics are courses I am good at in general. However, I don't want to put them under risk... Of course, I can have deficiencies, and I do. That's why I prefer private tutoring". (S9)

> "There is mass education in places like training centers and courses. Even if the teacher wants to deal with the student individually, he or she can't in a crowded setting. The teacher deals with a single person in private tutoring. The teacher can observe the student's state, the student's capacity and where the student can reach". (S8)

> "The main concern of all of us is exam success... The student may think it is insufficient at the school or maybe he or she find it deficient. ...For example, I took private tutoring from only one course, Mathematics, it is a main course, and we need to be good at it. If you are studying in this educational system, then Mathematics is the course that will accelerate you. Mathematics is the first course you need to complete, and I believe that it is not taught very well at school, I tended to private tutoring for reasons like for example my classroom is too noisy and I can't understand it. I need additional support like this. I tried on my own and I can't reach the speed at school". (S1)

> "The teacher teaches a group of 20 students in the classroom but in private tutoring there is only you and there is no chance of not learning. It is more beneficial when you are single. Teachers can't deal with everyone because the classrooms are crowded, thus private tutoring are inevitable". (S10)

> "The examination system changed recently. If I knew the system was going to change then I wouldn't have gone to the training center and fulfilled my gap by taking a few private tutoring. There is of course some effect of the system". (S6)

It is evident from the analysis of student opinions that the students underlined many points concerning private tutoring. These points were brought together in a framework and presented in Figure 2 under the "General Opinions on Private Tutoring" theme. The category and codes of general opinions of secondary school 12th grade students are given in Figure 2.

Findings concerning the general opinions of secondary school students on private tutoring theme are given in Figure 2. The students examined the positive and negative sides of private tutoring academically and effectively. In addition, the participants also expressed their views on the effects of teachers and socioeconomic factors on private tutoring.

According to Figure 2, it is evident that the general opinions of the students are gathered under the categories "Academic Opinions", "Affective Opinions", "Opinions About the Teacher" and "Socio-economic Opinions". The students have positive and negative academic opinions about private tutoring. The students stated that private tutoring increases course productivity and success and paved the way for deep learning through disciplined practice and support for comprehending the logic of the subjects. The students also underlined that the private tutoring they took contributed to their school courses and supported permanent learning. In addition, positive academic contributions of private tutoring are: they enhance learning, provide the opportunity for students to freely ask questions they hesitate from asking in the classroom, fulfill deficiencies, broaden students' horizons and enable time saving. It was identified that students have negative academic opinions concerning private tutoring. These opinions are: they direct students to rote-learning, the students cannot compare themselves with their peers and cause students to get used to comfort.

It was underlined that taking private tutoring has effective effects on students. These opinions are; student perceptions about the course reform, students experience the feeling of success, student interest, anxiety and motivation for the course negatively or positively gets affected, and easy communication with the teacher. In addition, close interest from the teacher, overcoming prejudgments about various courses, increased self-confidence and enabling psychological comfort are among the affective effects. Some of the students stated that they hide that they take private tutoring, they have extra burden of responsibility, and sometimes undergo the fear of insufficiency.

Figure 2

General Opinions of Secondary School 12th Grade Students on Private Tutoring

It is evident in Figure 2 that the students have different opinions about their private tutoring teachers. The students stated that they contacted the teachers through friends, journal advertisements or a common acquaintance. In addition, it was emphasized that teachers contribute to their incomes through private tutoring. There are also socio-economic opinions on private tutoring. Among these opinions are whether or not private tutoring are taken according to family income and that private tutoring costs are very high. The majority of the students stated that private tutoring increases inequality among individuals by causing unfair competition. They also stated that taking private tutoring depends on the number of family members and causes a disruption in the educational system. Various student opinions on this theme are given below:

"... I only take lessons for mathematics. My corrected scores are increasing, I get higher results with respect to comprehending the questions. I have gaps in year 9. and 10. subjects. I can learn them from the beginning". (S4)

"If we are to consider a student taking a gap year, only taking private tutoring and not attending to training centers or similar places will make him or her disappointed because there will be no one in similar conditions around them. The reason is these students see that they fulfill their gaps, solve their own tests and conduct pilot tests on their own. But they can't compare themselves with others. They can't estimate how they should arrange their study schedules. Okay, they may fill in their gaps. But there will of course questions in the exam that they will fail. They can't make comparisons about how many people around them can't solve these questions". (S9)

"We started learning derivatives before our class teacher introduced it. I knew derivatives. I didn't start solving tests, but I knew the subject. When the teacher gave the question on the board, I remembered the rules and was able to see the subject in a wide perspective. I reviewed the subject, and this helped me a lot with my lessons." (S5)

"... there is a condition, and the system pushes you towards it, the more you memorize the more successful you are in this system. What we are actually seeking is memorization and private tutoring offer this to us…" (S1)

"It is permanent. I learn it with private tutoring and in the class and it stays in my mind". (S10)

"For example, there was a point I didn't understand. No matter how much the man on the video explained, I still questioned it. Like "why is it so, why isn't it so". As a result, the answers were not clear for me. But after taking a private tutoring you understand why something is like so. You understand why it is so when you see the question why your own eyes. But I couldn't understand it when I saw it for the first time". (S11)

"I understand the logic of many things better with private tutoring or I see that the logic of the things I try to memorize at school is very different. That's why I don't believe it pushes towards memorization". (S3)

"...if I am taking private tutoring for a course, I start better following that course at school because I grasp the subject better. It may be because I am already familiar with the terms that everyone else if hearing for the first time. It increases my interest". (S3)

"The students know the subject beforehand. They get bored while the subject is being taught in the classroom and they start talking with their friends. They prevent their friends from learning. They don't listen either. It can have this negative effect in the classroom". (S6)

"Exam anxiety is something that's in the life of all of us, and it can decrease the anxiety of you know, I took private tutoring my corrected score increased, and I am closer to the university I want, because we are worried about corrected scores and making corrected score calculations." (S1)

"There are negative sides. It kind of increases anxiety. After all, you study for one and a half hour, and you get anxious when you realize that there is a long road ahead of you." (S2)

"...prejudgment is like this; you have bias against Physics, and you can't understand even though you work hard on it. You say this, I solved this many questions, I did this but still couldn't understand it, so obviously I can't succeed, and you stop studying it. But when you take a private tutoring and for example when there is a point you don't understand or can't notice, and the private tutoring teacher directs you and you finally can make it then yes you understand the subject and your bias against the subject ends." (S1)

"...I had this worry: My family pays money; my mother has full confidence because we hired a teacher, and the teacher also guides me. My perception turned into this, my family supports me even during this condition that's why I have to be successful, I have this anxiety. I feel more upset when I don't study. You think that everyone is already attending to training centers. I can't sleep on the days I take private tutoring and not study". (S5)

"...I found my mathematics teacher via my friend. Exactly. My friend told me that the teacher gives lesson to two students. So, I talked with my family. That's how we arranged it". (S11)

"We thought about trying private tutoring via an acquaintance, we talked as I will continue if it is beneficial or end the lessons. It was with my demand and my family being ready for it. I mean I didn't start after my family saying let's begin private tutoring for you". (S1)

"Private tutoring prices change according to the location. You can take private tutoring for about 50-60 liras around Fatih district. But private tutoring prices are around 300-400 liras around our district. That's why I don't think it will be a problem because prices are determined according to the people who live in the district. There are prices according to people from all financial groups. ...It costs about 1000 liras a month. There are teachers who give a session for 300 liras or 200 liras around our district". (S2)

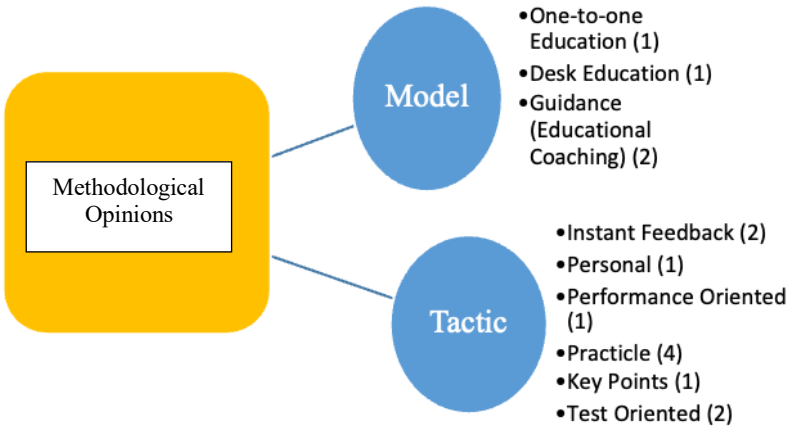
"If we were in a better financial state I mean if our state was good so I wouldn't feel any responsibilities then I would have followed video courses, but private tutoring would be great for

subjects I don't understand. For example, for Geometrics. Then I should take private tutoring mum. I won't lose time either". (S7)
"If financial state was lower than now or at low-medium state I wouldn't have taken private tutoring either". (S9)
"...there are students who can afford private tutoring and who can't. There can be inequality here. If we consider the country in general, I don't think there are many students who can't afford it but there is still inequality. A student who has a gap can fulfill it without taking private tutoring or a student taking private tutoring can fill in the gap if he or she is at a lower level. It depends a bit on income as well". (S6)
"If we had less members then maybe I would have thought about it. Because my mum and dad's attention is shared between 3 children at our house. So, each child gets less attention. If I were a single child, then I would have all the attention, and this would have been effective." (S8)
"Private tutoring means injustice. If we consider private tutoring like this, then the system reaches a deadlock. Here you want to study at a good university to be able to earn more money. You pay a teacher money so as to enter a good university but there is also a student who wants to earn much money and study at a good university but doesn't have money to pay that teacher. Your corrected score increases 5 points, but that student remains at the same point, the richer becomes even richer and this way the socio-economic injustice among the society increases. But none of us thinks about this". (S1)
"I would find it right for everyone to take private tutoring if the standard of all families could afford it but if I took private tutoring, but others didn't then I would consider this as unfair competition. But still, everyone should take private tutoring, I hope everyone can afford it." (S3)
"...And by the person who teaches the course, I think it's a good thing. After all, he also has a family to support. It contributes financially to the teacher…" (S8).

According to the analysis of the data collected from student opinions, students have methodological opinions about private tutoring. "Methodological Opinions" of the students are given on Figure 3. Category and codes of the methodological opinions of secondary school 12th grade students on private tutoring are presented on Figure 3.

Figure 3

Methodological Opinions of Secondary School 12th Grade Students on Private Tutoring



Findings concerning the methodological opinions of secondary school students on private tutoring are given in Figure 3. The students examined private tutoring methodologically as a model and a tactic. Secondary school 12th grade students underlined that private tutoring are; one-to-one education received by a single student, desk education received by more than one students together and guidance (education coaching) which brings more than one teacher together to deal with the student. The students also underlined the tactics that they acquired from private tutoring. The students emphasized that they get instant feedback about their deficiencies in private

tutoring and that the lessons usually proceed through tests. In addition, student opinions underlined that the lessons are personal, performance-oriented and focus on key points. Various opinions are given below:

> "My private tutoring teacher is also a mathematics teacher, and she also gave me guidance support. She arranged me a schedule. Study this on this day, she said I am weaker in Physics and that I have to study Physics on Saturday. She always prepared me a program and gave homework according to the pages. …. She would note them in a homework notebook so I won't forget, and I used to send the questions I couldn't solve from WhatsApp. She would understand when I didn't study, and she motivated me". (S5)

> "I also take private tutoring when I study for my school exams because it helps me out and shows me what I should know in a short time. It is good to receive professional support because I can get to a certain point with my own effort. I progress faster this way". (S3)
> "It teaches us the key point. The homework given drives the student to studying. The private tutoring teacher becomes a family member after some time. You feel bad when you don't complete the homework... I can't see various things as other than specific rules. I get lost among figures. Private tutoring helps me realize them. The lessons generally deal with key points". (S2)

Discussion, Conclusion and Suggestions

When quantitative findings of the study are considered, they are similar in general with qualitative findings. In quantitative findings, private tutoring tendencies of the students were examined based on the dimensions according to various variables. While there was a high tendency in favor of female students at the affective, imperative and socio-economic level with respect to gender, no significant differences were observed at the cognitive dimension. Private tutoring tendencies of female students were observed to be higher than male students. This finding is in line with the finding underlined by Kim and Lee (2001) stating that female students tend to private tutoring more than male students. However, other studies state that male students prefer private tutoring more than female students (Gündüz, 2003; Lee, 2013; Tansel & Bircan, 2005). It is known that there is gender-based injustice in general on educational investments. It was considered that female students have high tendency levels for additional education options such as private tutoring so as to prove themselves because they want to overcome this state, which is not in favor of female students. In a study conducted by Elbadawy, et al. (2007), it was stated that there is a high tendency for males in the workforce market thus, families make higher investments for male students with respect to education. However, in the study conducted by the researchers, no difference was observed with respect to gender in tendencies towards additional educational options such as private tutoring.

When qualitative results of the study are taken into consideration, it is evident that families are effective in the students' tendencies towards private tutoring. Findings of the study point out that past experiences of the families, economic condition of the family or being unsatisfied with their present position leads them to direct their children to private tutoring so as to give them better opportunities. Suante (2017) stated that family pressure is a factor that triggers students to private tutoring. Various studies have underlined that families direct children to private tutoring with respect to motivation and academic reasons (Bray, 2010; de Castro & de Guzman, 2010; Song, et al., 2013). Davis (2013) stated that families make their children take private tutoring so they can discharge from their responsibilities. Similarly, Bray (2007), Köşterelioğlu (2015) and Rutz and Balkan (2016) underlined that governments place responsibilities on families about their children's education. According to researchers, parents resort to additional

educational service such as private tutoring to discharge from this responsibility. It is evident that these findings are similar with these studies. It is thought that it would be more beneficial if families spare more time to their children and deal with their education closer rather than trying to discharge from their responsibilities if they could. In a study conducted by Damayanthi (2018), families being concerned with their children's education is more effective in increasing academic achievement than making them take private tutoring. The main reason pointed out for taking private tutoring was course and exam success. When previous studies are considered, it is evident that there are similar findings stating that exams and course success are among the main reasons for tending to supportive lessons such as private tutoring (Baştürk & Doğan, 2010; TED, 2010; Demirer, 2011; Saracaloğlu et al, 2014; Kösterelioğlu, 2015; Yıldızhan, 2015; Biber et al., 2017). Bray (2007) states that students with low success levels tend to private tutoring to increase their success levels and students with high success levels tend to private tutoring to remain in the competition environment. Silova (2009) and Bray and Kwo (2014) show nationwide exams as one of the main reasons for tending to private tutoring. Also, Silova (2009) emphasized the private tutoring tendency finding of this study resulting from infrastructure deficiencies. With this respect, exam and course success desires of the students create a competition environment and the students do not want to remain distant from this environment.

According to students there are teacher and student based reasons for tending to private tutoring. Some of the reasons that direct students to private lessons; The inadequacy of the efforts of the students, the inability of the teachers to teach the lesson in accordance with the level and the lack of motivation for the lesson. Yılmaz and Altınkurt (2011) consider teacher incompetency as one of the educational problems. Similarly, Bray et al. (2014) indicated that teacher incompetency as a factor leading to private tutoring. Sobhy (2012) and Bray, et al. (2013) underline that teacher and student incompetency are factors that lead to private tutoring. The majority of the students state that school insufficiency is the most important reason for them to tend to private tutoring. Student expectations from the school in an exam-based educational system is to operate in an exam-oriented. With this respect, it is considered that schools failing to meet exam related expectations leads to a perception that schools are insufficient. Many researchers state that school deficiencies are factors that push individuals towards shadow education institutions like private tutoring (Bray & Lykins, 2012; Bray et al., 2014; Buchmann, 1999; Kim & Lee, 2010; Silova & Bray, 2006). A similar finding is evident in the study conducted by Yıldızhan (2015). The researcher stated that individuals resort to out-of-school institutions or persons due to school insufficiencies related to test techniques, pilot tests and lesson reviews when preparing central exams.

With respect to opinions concerning the academic dimension of private tutoring, the students strongly emphasized the positive effects on course success and benefits on school courses. When many studies are considered, it is stated that private tutoring have positive contributions on exam and course success levels of students (Bray, 2007; Bray & Lykins, 2012; Güvendir, 2014; Kuan, 2011; Silova, 2009). However, when the literature is considered, there are studies underlining that private tutoring do not have any effect on academic achievements of students such as lesson and exam success (Guill & Bos, 2014; Smyth, 2008). When student opinions stating that private tutoring leads students to get used to comfort are taken into consideration, private tutoring

features such as memorization and taking the easy way out can be listed as factors that prevent thinking skills of the students. Rote learning is considered as a problem in the educational system (Yılmaz & Altınkurt, 2011). According to a study conducted by Sağlam and Büyükuysal (2013), it was stated that rote-based teaching conducted by traditional teachers prevent thinking skills of the students. Similarly, Rodzalan and Saat (2015) emphasize that methods which lead to comfort such as memorization prevents critical thinking and problem solving skills of individuals. In the interviews carried out with the students concerning the affective dimension of private tutoring, the students stated common opinions about the positive effect on increasing their interest, overcoming their anxieties, increasing their motivation and their self-confidence levels. It is stated that students can overcome anxiety, increase their motivation and become more interested in the courses with private tutoring (Mischo & Haag, 2002; Silova, 2009; Bray, et al., 2013). But some students underlined that private tutoring can have negative effects on student interest and anxiety levels related to school courses. According to Bray (2007), private tutoring can sometimes cause students to lose their interest to school courses. Also, according to a study conducted by Duman (2008), taking private tutoring is not a significant variable in overcoming exam and course anxiety. According to the participants, taking private tutoring leads to a feeling of responsibility in the students and this usually has negative affective outcomes. Suante (2017) stated that private tutoring cause pressure on students about being successful and leads to them to fall into stress.

When opinions related to the socio-economic dimension of private tutoring are considered, it is evident that the majority of the participants emphasize the fact that private tutoring damage the principle of equality in education. One other factor emphasized by the participants is the cost of private tutoring. The participants underlined that the cost of private tutoring differ significantly according to factors such as the region, teacher profile. In a study conducted by Tansel and Bircan (2004) in Turkey, it is stated that families spare a high level of budget on additional education options such as private tutoring and training centers. Bray and Kwok (2003), Bray (2007), Bray (2009) and Gölpek (2011) state that family income level changes the extent to and type of benefitting from supportive education options such as private tutoring. This is similar with the findings of this study. While families with higher financial opportunities have a higher chance of offering private tutoring, families with lower income have limited chance of offering private tutoring. This is a factor leading to inequality (Addi-Raccah & Dana, 2015; Aslam & Atherton, 2012; Bray & Kwo, 2014; Bray, 1999, 2007; Ireson, 2011; Kösetereliоğlu, 2015; Silova, 2009; Tansel & Bircan, 2005;).

According to the student opinions, the students contacted private tutoring teachers via friends, journal advertisements or a common acquaintance. According to the related literature, various reasons such as family force, friend factor and advertisements are crucial elements in accessing private tutoring (Barrow & Lochan, 2012; Sobhy, 2012; Vella & Theuma, 2008). The students also stated that private tutoring can have additional contributions for teachers. Silova (2009) stated that private tutoring are an income source for teachers but some teachers who give private tutoring don’t notice school courses much.

According to the interviews concerning private tutoring, students evaluate private tutoring methodologically. Interviews point out that the participants consider private tutoring as a model and tactic. When participant opinions are taken into consideration, it is evident that private tutoring can be conducted through various ways and tactics. A similar finding is evident in other studies (Bray, 2007; Demirer, 2011; Damayanthi, 2018; Guill & Boss, 2014; Rutz & Balkan, 2016).

According to the study results, a significant difference was observed in private tutoring tendency levels of the participants with respect to; gender, school type and state of taking private tutoring. When qualitative findings are considered, it is evident that opinions of the participants are mainly gathered under the titles: Reason for private tutoring tendency, general opinions on private tutoring, methodological opinions on private tutoring and solution suggestions.

Suggestions are presented as follows:

- Arranging private tutoring so as to go through government inspection and developing legal sanctions about the regulation,
- Taking into record the income of teachers from private tutoring, subjecting them to tax (preventing informality),
- Conducting experimental studies on determining the effects of private tutoring on various variables,
- Conducting studies on determining the relationship between private tutoring and various skills,
- To make reforms in the culture of competition in the education system,
- To raise awareness of families about negative attitudes and parental pressure based on exam success.
- To provide the right professional guidance to enable students to discover their talents at earlier education levels in order to move away from exam-oriented understanding.
- Conducting studies that examine which age and grade group prefer private tutoring the most and why they prefer them.

Statement of Responsibility

First author has made substantial contributions to design, or methodology, software, validation, formal analysis, investigation, resources, data curation.

The second author has been involved in drafting the manuscript or revising it critically for important intellectual content; have given final approval of the version to be published.

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Expatriate Non-native English-speaking Teachers' Challenges and Coping Strategies in the Turkish EFL Classroom: A Qualitative Study

Anadili İngilizce Olmayan Yabancı Öğretmenlerin Türkiye'de İngilizcenin Yabancı Dil Olarak Öğretildiği Sınıflarda Karşılaştıkları Zorluklar ve Başa Çıkma Stratejileri: Nitel Bir Çalışma

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ABSTRACT: The global demand for teachers of English has led to an escalation in the number of non-native English speakers traveling overseas to teach English. Although teaching English abroad is typically associated with native English-speaking teachers hailing from inner-circle countries, it has also become commonplace to see non-native English-speaking expatriate teachers being hired. Yet, studies probing into expatriate non-native English-speaking teachers' experiences have been sparse, particularly in the context of Turkey. This study endeavors to explore the challenges and coping strategies of expatriate non-native English-speaking teachers who worked in private schools and language programs in Turkey. To collect data, semi-structured interviews were conducted, and the analysis revealed that teachers faced several obstacles, including linguistic, cultural, and pedagogical challenges. Nevertheless, they managed to surmount these obstacles by acquiring proficiency in the local language, fostering intercultural awareness, and acquainting themselves with the education system. In light of the findings and the relevant literature, suggestions and implications are discussed for potential expatriate teachers intending to work in Turkey and other stakeholders.

Keywords: Expatriate teachers, EFL teachers' challenges, non-native English-speaking teachers, teaching abroad, Turkish EFL classroom, foreign teachers, foreign national language teachers

ÖZ: İngilizce öğretmenlerine yönelik küresel talep, İngilizce öğretmek için yabancı ülkelere seyahat eden anadili İngilizce olmayan öğretmenlerin sayısında artışa yol açmıştır. Yurtdışında İngilizce öğretmek daha çok iç çember ülkelerdeki anadili İngilizce olan öğretmenlerle ilişkilendirilse de anadili İngilizce olmayan yabancı öğretmenlerin işe alınması da artık çok yaygın görülen bir durum haline gelmiştir. Buna rağmen, özellikle Türkiye bağlamında, anadili İngilizce olmayan yabancı öğretmenlerin deneyimlerini araştıran çalışmalar kısıtlıdır. Bu çalışma, Türkiye'deki çeşitli özel okullarda ve dil kurslarında çalışan ve anadili İngilizce olmayan yabancı öğretmenlerin karşılaştığı zorlukları ve başa çıkma stratejilerini araştırmayı amaçlar. Yarı yapılandırılmış görüşmelerin bulguları, öğretmenlerin dilsel, kültürel ve pedagojik zorluklar da dâhil olmak üzere birtakım güçlüklerle karşılaştıklarını fakat çalıştıkları ülkenin dilini öğrenerek, kültürlerarası farkındalığı geliştirerek ve eğitim sistemine aşina olarak bu engellerin üstesinden gelmeyi başardıklarını ortaya koymuştur. Son kısımda, bulgular ve alanyazın ışığında, Türkiye'de çalışmayı planlayan yabancı öğretmen adayları için önerilere ve paydaşlar için çıkarımlara da yer verilmiştir.

Anahtar kelimeler: Yabancı öğretmenler, İngilizce öğretmenlerinin zorlukları, anadili İngilizce olmayan öğretmenler, yurtdışında öğretmenlik, Türkiye'deki İngilizce öğretim sınıfları, yabancı öğretmenler, yabancı uyruklu öğretmenler

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With growing mobility around the world, acquiring proficiency in foreign languages has gained more importance. As noted by Crystal (1997), speaking at least one foreign language fluently was once thought to be a desirable objective for everyone in many nations. The role of studying English as a tool for creating opportunities to acquire new information and possibilities in a global setting has been especially emphasized (Oder & Eisenschmidt, 2018). Although it is not easy to determine the number of English speakers due to the ever-increasing trend in learning English, it is estimated that there are over two billion speakers of English around the world (Jenkins, 2014, p. 5). According to Eberhard et al. (2020), there are over 2.5 times as many people who speak English as a second or foreign language (243%) as there are people who speak English as their first language. In this vein, Kachru's influential circles identify three categories of statuses for English: inner, outer, and expanding circles (Kachru, 1992), which are represented by, for instance, the United States, Nigeria, and Turkey, respectively. English is utilized in each of these countries in various ways and purposes and to differing degrees.

In the context of Turkey, English is the most studied foreign language with limited exposure outside of the classroom. Apart from English being a mandatory course in most educational settings, Turkish students study English for a variety of reasons, including prestige, employment, and academic careers, since it is the language of communication in international business, commerce, tourism, and academia (Dogancay-Aktuna, 1998). However, as reported by the Economic Policy Research Foundation of Turkey, TEPAV (2014) and Education First English Proficiency Index (2022) rankings, a majority of Turkish learners are not proficient enough in the English language, and Turkey comes 34 out of 35 European countries indicating "low proficiency." Therefore, language policymakers have been working on new plans and policies to help improve the proficiency level of Turkish learners of English (for a review, Karadağ, 2022).

Given the prominence of classroom learning in education, the position of English as a foreign language (EFL) teachers in facilitating language learning has always been underscored. Teachers with qualifications in teaching and education and commendable language use skills are sought, especially in the private sector. To increase the internalization and prestige of schools (Tatar, 2019) and the intercultural awareness of the students while supporting their communication skills, hiring non-local teachers is considered a must (Aydın et al., 2019). Non-local teachers may include expat teachers who are willing to teach abroad for higher salaries, more satisfying job opportunities (Clark & Paran, 2007), or simply to fulfill their desires to develop as a teacher or to continue their career path (Nunan, 2012).

However, due to the native speaker fallacy (Phillipson, 1992) and "the native speakerism [which] acts as the sword of Damocles hanging over the heads of NNESTs [non-native English-speaking teachers] across the world" (Selvi, 2010, p. 174), there is an imbalance between native English-speaking teachers (NESTs) and NNESTs in many respects such as employability, wages as well as learner bias and perceptions (Moussu & Llurda, 2008). Previous studies have already shown that when program administrators (Clark & Paran, 2007) and local non-native teachers (Doan, 2016) prioritize being a native speaker as a norm for hiring, NNESTs are disadvantaged (Aydın et al., 2019). Such biases against NNESTs exacerbate challenges in achieving

equity in hiring, which can lead to other perception-related difficulties in the classroom and at the institutional level. In his recent article, Bostancıoğlu (2022) discusses the advantages of recruiting expat NESTs and NNESTs in the context of Turkey, some of which are increasing intercultural awareness and communication, maintaining a high level of proficiency in English, and providing avenues for collaboration. An additional benefit specifically mentioned by Skliar (2014) for expat NNESTs was the increased exposure to a variety of accents which could enhance the use of English as an international language for Turkish learners of EFL (p. 435). It should be noted here that despite the complexities and arguments in defining and using the terms *native* and *non-native* in the field, these terms are used for the purposes of the present study.

To reveal the perception of NESTs through the eyes of language policymakers and implementers, Coşkun (2013) cites newspaper articles mentioning the five-year plan, which at the time intended to bring in 40,000 English teachers from inner circle nations such as the United States to work as co-teachers in the Turkish K-12 schools. This plan may be an indication that, as in many other expanding circle countries, the NESTs are perceived to play an important role in students' language learning. Native English speakers are likely preferred because of the authentic input they can provide to students without having to speak their native language. Extensive use of the local language is usually considered a threat to learners' gains in foreign language fluency. Therefore, schools tend to hire non-Turkish-speaking English teachers instead of local ones, especially in contexts where NESTs are less likely to be found and hired. This brings about a new way of approaching the NNEST perspective because NNESTs who do not come from inner-circle countries mostly use English to communicate with their students (Chen & Cheng, 2010). With the provision of an authentic environment conducive to communication in the target language, learners are obliged to lead their conversations in English with the non-local NNESTs. Recruiters' favoritism for non-local teachers at private institutions applies especially to classes in which the primary objective is communication rather than teaching more structural aspects of the language. Besides, previous research has already shown learners' preferences for NNESTs for learning and assessment of grammar and writing (e.g., Chun, 2014; Koşar, 2018). While studies have already examined the NNEST-NEST dichotomy in the Turkish context, very few studies focused on the expat NNESTs' challenges (Aysan-Şahintaş, 2019; Halicioglu, 2015). Therefore, the present study aims at examining expat NNESTs' experiences and challenges of teaching in the context of Turkey and how they coped with these challenges.

Literature Review

While the present study does not specifically discuss the NNEST vs. NEST dichotomy, there is a need for a review of these two constructs mainly because it will help better understand their positioning in the global context of English language teaching (ELT). The construct of "native speaker" in the field of ELT has been defined and challenged in diverse ways in the literature. In his chapter devoted to discussing the construct of "the non-native teacher," Selvi (2019) provides a definition in line with what he calls "compulsory native speakerism" in the following way:

> "the idealized NS [native speaker]" construct (and "NEST") in ELT has traditionally been conceptualized as White, Western, (often) male, middle-class, (often) monolingual individual

> living in urban spaces and endowed with the uncontested privilege of linguistic, cultural and pedagogical authority to serve as the benchmark by which facets of the ELT enterprise (e.g., theory, research, learning, teaching, publishing, instructional materials, assessment, teacher training and hiring practices) might be defined and/or measured (Kubota & Lin, 2009). (p. 186)

Selvi (2019) further defines NNESTs as those "whose linguistic, cultural and pedagogical capabilities as language users and teachers are defined *vis-à-vis* their 'NS'/ 'NEST' 'other'….and therefore are often associated with discrimination and marginalization of professional identities and personas" (p.186). These definitions are noteworthy in illustrating the many true facets of being an NNEST, which are often disregarded and/or taken for granted in many language-teaching contexts. Despite the demand for NESTs, the number of NNESTs is rapidly expanding around the world as NNESTs outnumber the NESTs in many expanding circle countries. In other words, the world's English-speaking population is now a minority, with less than a quarter speaking English as a native language, while nearly one billion individuals who speak English as an L2 now constitute the global majority (Lyons, 2021). Recruiters, therefore, favor NNESTs over local teachers in contexts where NESTs are less available or unaffordable. This brings about new challenges germane to non-local NNESTs in the EFL classroom. In this vein, Halicioglu (2015) summarizes various challenges that expat EFL teachers may face in the Turkish context. Some of these are choosing the right school, accepting and dealing with various stages and forms of culture shock, getting the right support in the new cultural environment, and professional and personal life challenges. She explains each of these in detail and suggests that teachers do their research before moving to a new country, be open to change and see this process as "personal growth" (p. 252).

Lave and Wenger's (1991) notion of "legitimate peripheral participation" is worth noting here because it is usually used to explain how experience and participation serve as learning opportunities for teachers in their adaptation processes. This framework has been used in various ways to account for the experiences of newcomers into a society or community, including expat NESTs (Yim & Hwang, 2019) and novice teachers (Shin, 2012). In this theoretical framework, Lave and Wenger (1991) underscore the fact that "learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the sociocultural practices of a community" (p. 29). In the context of the present study, expat NNESTs are perceived as learners in their new environment in which they may or may not take part in the communities of practice, but all the information is legitimately available to them, which may very well be transferred into a learning experience leading to be included in the community. This will, in turn, affect how they perceive their experiences of teaching abroad, including the challenges and their coping strategies.

Previous studies have examined the challenges and perceptions of expat NNESTs in various contexts. Chen and Cheng (2010) investigated the challenges encountered by foreign English teachers in Taiwanese elementary schools using a case study design. They interviewed three South African teachers from different elementary schools. The data analysis indicated three major challenges foreign English teachers face in Taiwanese elementary schools: class size, teachers' doubts about their accents, and using a textbook with which they were unfamiliar.

In her study, Ma (2012) looked at how local English teachers perceived their NEST peers and found that foreign English teachers' lack of local cultural background and expertise in the school system was likely to cause issues. Some of these were reported as NESTs' ignorance of students' preferences and desires, misconceptions in the formation of intimate relationships with their students, students' unwillingness to communicate with foreign English teachers, as well as their difficulties in maintaining classroom discipline. Similar findings were reached by Walkinshaw and Thi Hoang Duong (2012), who found that NNESTs are not knowledgeable enough about the culture of their students, which may lead to misunderstandings. Hasanah and Utami (2019) conducted a similar study about NNESTs' challenges in the language teaching classroom, with participants from diverse countries such as China, Japan, Thailand, Cambodia, and Laos. Besides cultural difficulties, their findings showed that teachers felt challenged by overcrowded classrooms, unfavorable school environments, students' low motivation, and poor learning resources that did not meet students' needs. Similarly, Dumlao and Mengorio (2019) reported fifteen expat NNESTs' teaching experiences in Indonesia, Thailand, and Vietnam. The study specifically examined the reasons for and benefits of teaching abroad and the challenges expat teachers faced. The findings relevant to the present study indicated that the status of being an NNEST, culture shock, and curriculum and materials were the primary challenges.

In the context of Turkey, Demir (2017) looked at the challenges faced by NESTs and Turkish NNESTs and identified three key challenges which are described as student-related, teacher-related, and institutional. Among student-related issues, Demir (2017) mentioned learners' attitude problems, use of L1 Turkish, and lack of autonomous learning, which may be related to teacher-related problems as these factors prepare the ground for teachers' assertion of not being able to teach learners effectively. Other challenges directly related to teachers were found to be classroom management, burnout, and pedagogical knowledge. Finally, institutional challenges were summarized as crowded classes, mixed-level classes, tech support, and issues regarding curriculum and assessment. There was a substantial difference between NNESTs and NESTs in terms of the challenges they reported, with the latter complaining much more about teacher-related issues followed by institutional difficulties. In light of the fact that NNESTs are primarily comprised of local teachers, studies on expat NNESTs may provide a different point of view.

A study by Aydın et al. (2019) discussed the perspectives of 25 expat teachers working at Turkish private schools regarding educational and administrative issues through interviews. The analyses of the interviews revealed that (a) the program of education was "heavy" and outdated, (b) teachers did not use innovative ways of teaching and learning, (c) administrators were not sufficient in their competencies of management, and (d) there was injustice regarding the employment of expats from Western cultures as opposed to those coming from other nationalities. However, it should be underscored that the participants in this study comprised teachers from various subject fields and were not limited to language teachers. Besides, it included both native and non-native speakers of English. Therefore, studies looking at expat NNESTs help better understand the specific challenges they face.

Aysan-Şahintaş (2019) also provided an analysis of the pedagogical practices and professional identity of a highly experienced expatriate NNEST from Pakistan

working in Turkey at the time. The results of semi-structured interviews with a single participant indicated that her pedagogical practices and professional identity were largely based on the following: her collaboration with students and co-workers, including teachers and administrators, and her teaching style, which emphasized inclusive and responsive instruction. Since the study findings are based on a single participant, it calls for further studies that could explore the expat NNESTs from various contexts and perspectives.

Given the findings from the previous research, it is obvious that while NNESTs and NESTs may experience similar problems, being a non-local NNEST adds more complication to the existing issues teachers face in the language classroom. To date, studies have investigated the challenges of language teachers from both the perspective of NESTs working abroad/overseas (e.g., Demir, 2017) and of NNESTs working in their own countries as well as abroad (e.g., Chen & Cheng, 2010). However, little is known about the perspective of expat NNESTs working in Turkey. One study looked at the experiences of expat NNESTs in Turkey. However, it was from the perspective of a single participant without specifically aiming to examine the challenges and coping strategies (Aysan-Şahintaş, 2019). To fill the gap, the purpose of this case study is to explore expatriate NNESTs' struggles in teaching EFL in Turkish private (language) schools and their strategies for overcoming these challenges. In order to unravel some of these challenges and coping strategies, the present study sought to answer the following research questions:

1. What are the experiences of the expatriate NNESTs regarding the challenges in the Turkish EFL classroom?
2. How did expatriate NNESTs overcome these difficulties?

Method

The present study aims to understand the difficulties faced by expat NNESTs while teaching in Turkish EFL classrooms. This is a descriptive study that required qualitative inquiry and qualitative data because the research questions were aimed at an in-depth study of the challenges teachers experienced (Creswell & Poth, 2017). We adopted a descriptive and multiple case study design to investigate the phenomenon of challenges and coping strategies faced by expat NNESTs since the purpose of a case study is to explore "a contemporary phenomenon within its real-life context, especially when the boundaries and contexts are not clearly evident" (Yin, 2003, p. 13). Specifically, in the field of English language teaching and learning, as Chapelle and Duff (2003) indicated, "a case typically refers to a person, either a learner or a teacher, or an entity, such as a school, a university, a classroom, or a program" (p. 164). They further describe case studies "as an interpretive, inductive form of research [which] explore the details and meanings of experience and do not usually attempt to test a priori hypotheses. Instead, the researcher attempts to identify important patterns and themes in the data" (p. 164). In this vein, we aimed to identify commonalities in the instructors' testimonies about their struggles and coping mechanisms through interviews by making an effort to interpret participant experiences in an authentic manner.

Participants

This study is based on qualitative data, which allows for an examination of what individuals think (Riessman, 2002). For participant selection, to provide transferability (Shenton, 2004) criterion purposeful sampling was used in which "all cases…meet some criterion [which is] useful for quality assurance" (Miles & Huberman, 1994, p. 28). The criteria for selection were determined as being an expat NNEST in Turkey actively teaching or having taught English as a foreign language in Turkish private schools at any level (only those who have taught until the past three months were eligible). It should be noted here, though, that the schools mentioned here include those which provide extra language support/teaching after students' regular schools. This is an important factor mainly because the teachers' challenges reflected in this study may be different from those experienced in other regular schools. Five NNESTs from different countries, who have experience teaching in the Turkish EFL classroom, participated in the study. Information on participants' demographics and educational backgrounds is presented in Table 1 below.

Table 1

Participant Profiles

Pseudonym	Country of origin	Gender	Teaching experience (in years)	Teaching experience in Turkey (in years)	Education background
Elian	Albania	Female	5	3	M.A. in ELT
Sema	Algeria	Female	4	3	B.A. in ELT
Ali	Iraq	Male	14	3	B.A. in ELT
Ameer	Iran	Male	10	5	M.A. in ELT
Khaled	Syria	Male	20	6	B.A. in ELT

Data Collection, Coding, and Analysis

Data was collected through semi-structured interviews in which open-ended questions were asked, including those that arose during the interviews. The benefits of semi-structured interviews are the interviewer's undivided attention and the ability to answer all the questions comfortably. The "naturalness" and the "flexibility" of the semi-structured interview make it a "productive research tool" (Gillham, 2010, p. 65). The interview questions (see Appendix), which were structured around their experiences and challenges while teaching EFL to Turkish students, were prepared by the researchers in light of the previous research on similar studies (Coşkun, 2013; Demir, 2017) to ensure credibility (Yıldırım & Şimşek, 2021) and were piloted with another expat teacher for clarity, and necessary corrections were made. The interview consisted of four main questions, with the first question having five sub-questions. To help the participants understand the purpose of the interview, they were informed about the preliminary questions prior to data collection. The first author met them individually online, and each interview session lasted about 20 minutes. The interviewer used

English to ask questions as the study involved people from diverse language backgrounds, and all five sessions were audio-recorded with the consent of the participants.

An iterative step-by-step thematic analysis was conducted in accordance with the guidelines specified for this method (Miles & Huberman, 1994). The data analysis method adopted was an inductive one, where themes were defined from the raw data that were investigated without any predefined classification. First, the information gathered from the interviews was transcribed and coded by the first author, and for cross-checking, the second author read the transcribed data and coded it to help ensure validity and reliability (Creswell & Creswell, 2018). Once an almost complete agreement was reached between coders (.90), themes were constructed through thematic analysis (Boyatzis, 1998). Then, emergent themes were created after going through several coding stages, and the initial codes were then categorized based on their similarity. Finally, themes were created from these categories, which entailed merging codes into broad themes that faithfully represented the data. All quotations that matched a theme of the analysis matrix were separately extracted and identified.

Ethical Procedure

The authors confirm the following research and publication ethics during data collection and the writing of the article. First, ethics committee approval within the scope of the research has been obtained from Kütahya Dumlupınar University Research Ethics Committee with the decision numbered 2021/218 dated 16.04.2021. Participants were also duly informed about the scope of the research, their rights, and the withdrawal procedure prior to the data collection. To ensure anonymity, pseudonyms were given to the participants, and ethical principles were considered during the interview.

Findings

Based on the analysis of the data obtained from the online interviews, the challenges of NNESTs extracted were language barrier, lack of familiarity with the educational system and the local culture, and student-related issues. For the second research question, the themes derived from their experiences indicated that NNESTs faced these challenges by overcoming the language barrier in various ways, by staying in Turkey for an extended period, and by familiarizing themselves with the education system. Figure 1 and Figure 2 below provide a summary of the findings.

Figure 1

Basic categories and themes derived

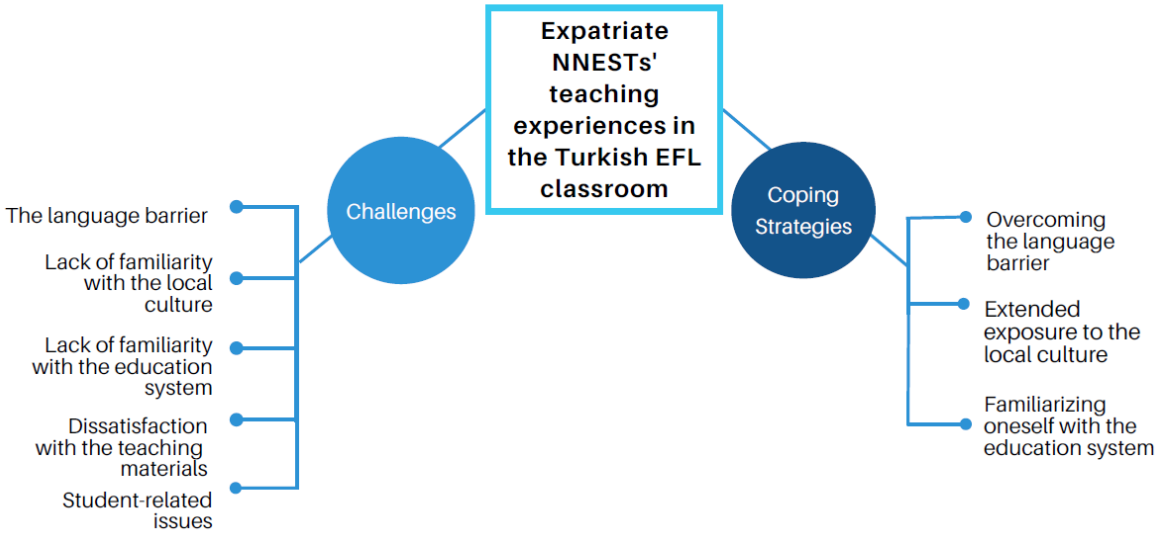

Figure 1 summarizes the main themes and subthemes of the data. However, in order to visualize the most frequently occurring codes in the data to facilitate the identification of key patterns and concepts, the codes were merged into a single visual representation (Figure 2). While word clouds may not always be accepted as a method to rigorously analyze qualitative data on their own, they are considered an excellent way to supplement other forms of data analysis through their ability to visually represent information (DePaolo & Wilkinson, 2014).

Figure 2

A word cloud of the codes derived: Foreign NNESTs challenges and coping strategies

Expatriate NNESTs' challenges

Language barrier

The participants came from different countries, and each experienced a different set of challenges when they began working in Turkish private schools. However, all five teachers agreed that the language barrier was one of the most challenging aspects of teaching in Turkish EFL classrooms. All five participating teachers were unfamiliar with the Turkish language, and they explained how this caused major communication problems with their students, leading to difficulties in building a connection with them. One of the participants, Elian from Albania, expressed her ideas as follows:

> "The first challenge was the language, their language. I did not know Turkish at that time I just knew Marhaba and like three sentences." (Elian)

Some participants, like Ameer (Iran) and Sema (Algeria), claimed that their native languages were completely different from the Turkish language, which made it harder for them to deal with Turkish students.

> "Because we are not as familiar with the Turkish language as we are with the Persian language, having a good delivery in the Turkish language is a bit difficult. I advise the incoming teachers to not get shocked, they can make it easy or worse, but they may feel shocked in the very beginning, especially, with the Turkish language and the Turkish culture." (Ameer)

> "The first challenge I faced in my first year was the language barrier because most students in Turkey are not familiar with English well. They might be but not to the point where they can understand everything I say." (Sema)

Because the teachers were not speaking Turkish, they used English to communicate with their students. Since most of the Turkish students were at the beginner level in English, they could not understand everything their teacher said, and it appeared to the teachers that this had an impact on the students' learning processes. Ali (Iraq) and Khaled (Syria) concurred with the rest of the teachers about how their communication with the students was challenged.

> "I don't know Turkish very well, and therefore, English is the only way I can communicate with them." (Ali)

> "The first time when I started teaching in Turkey at school, especially for 7th and 6th graders, they haven't had English background when I was speaking in English even though it was so simple to understand, but they can't understand it." (Khaled)

As reflected in the statements by expat NNESTs teaching in the Turkish EFL classroom, the language barrier constituted a big challenge for communication. Although it may be quite normal to hear such voices of teachers, it seems to be the major source of complaints by non-local NNESTs, which they mostly attributed to low proficiency, although there may be additional student-related reasons such as them not being used to communicating in English with Turkish EFL teachers or fear of negative evaluation by their peers (Aydın, 2008).

Lack of familiarity with the local culture

A related challenge the teachers faced was cultural differences. According to some of the teachers, despite sharing some cultural resources, each country has a unique

culture and traditions. In this vein, some teachers noted how Turkish culture differs from their culture, which, in their opinion, could affect the teaching process and the relationship between the teacher and the students.

> "As I noticed here in Turkey, they are not accepting other cultures, so I try my best to make my students understand the fact that there are different cultures and different mentalities all over the world; especially if they want to learn English, they need to know that they if you learn a new language you have to learn the cultural background." (Sema)

> "There is a culture difference between my country and this country, and also, there are some cultural beliefs that somehow affect the process of teaching in classes." (Ali)

This difficulty was not mentioned by all teachers in their interviews, and this might be due to the way teachers perceive cultural differences regardless of the culture they come from. If the teachers or their students did not construe such diversity as a problem in teaching or learning English, this might have led them not to mention it in their narratives. Another plausible interpretation could be that their own culture had already intertwined with Turkish culture, thereby rendering any cultural disparities inconsequential.

Lack of familiarity with the education system

Another challenge that teachers faced in Turkish schools was the education system, which they were not familiar with. Some participants indicated that the Turkish education system was completely different from the education system in their countries. Elian, for instance, stated how her unfamiliarity with the educational system, including classroom atmosphere and teaching methods, caused her relationship with her students to suffer, as seen in the following excerpt:

> "The most difficult for me was the education system because in my country actually, we have a different education system everything like the methods that we follow in the class, the topics that we talk about with our students, the way how we interact with each other, and the way how we do the project, so for me, everything was so different so at the beginning, it was hard because sometimes maybe some students couldn't get along you with my method of teaching; some of them could have some complaints." (Elian)

One of the teachers (Ali) commented that there were a lot of similarities between the education systems in Turkey and his home country, but he noticed one difference. In the Turkish classroom, more than two teachers were usually teaching the same class different language skills. In other words, the way the teachers were assigned to teaching certain skills as opposed to teaching those in an integrated way by a certain teacher appeared to be a difference in the school system. Although this might be a school-specific choice that may depend on the school type and curriculum design, various teachers are indeed assigned to teach different skill courses in many private schools in Turkey.

Dissatisfaction with the teaching materials

In addition to the challenge of being unfamiliar with the Turkish education system, teachers also faced difficulties with teaching materials and textbooks, which, in their opinion, made the teaching process more difficult for them. Although materials could be coded as a part of the education system in general, it was handled separately

because the challenge was beyond unfamiliarity. One of the teachers admitted that the coursebook was not suited to his students' proficiency level:

> "The level of the book was higher than the real level of the students, for example, the level of the book was B2 for example, but students' level was A1 so that was a problem." (Khaled)

Other than proficiency issues, teachers also commented on the content of the books used in their schools. For example, two teachers had a challenge with the course materials:

> "There are some grammar structures that you don't find in the Turkish language so it's going to be a problem or challenging to make it, for example, to present like all the perfect tenses according to books and materials and standard methods, but in the school I was teaching there were no books and materials using a standard method." (Ameer)

As indicated by Ameer, Khaled, and Ali (not quoted here), the teachers were not happy with the course materials, and one teacher also criticized Turkish teachers for not using the books very often, claiming that they taught their students *"whatever they have in their minds and whatever they have been taught before"* (Ameer). While the use of coursebooks is a separate discussion that would go beyond the purposes of this paper, it is clear that there was dissatisfaction with some of the materials used in the context of private schools in this study.

Student-related issues

NNESTs also reported having experienced various problems in relation to students, their overall engagement and motivation, and attitudes to learning English. One of the teachers admitted that the Turkish students did not seem willing to learn English, or they did not take learning English seriously, which was a challenge for him to gain their attention.

> "I'm concerned the issues are somehow…I can say that Turkish students are lazy they don't want to follow the lesson, they just want to come and consider this school a place only for socializing, and finally they don't learn anything." (Ameer)

Ameer seemed to be concerned about his students not being very eager to learn, and he primarily attributes it to their proficiency being low:

> "When I am speaking in English, even though it is so simple to understand…they can't understand it, and it is their English background, which is so weak and they haven't started well because of that, they are not able to understand." (Ameer)

Some teachers also reported difficulties with classroom management for different reasons and further claimed that some students even complained about their teachers only because they couldn't get along with them.

Teachers' coping strategies with challenges and advice for teachers

Overcoming the language barrier

Two ways of overcoming the language barrier were learning the local language and using online translation tools in the classroom. After presenting the challenges the participants faced, each participant reported overcoming them in different ways. The first and most commonly mentioned strategy was learning Turkish and becoming fluent speakers of the language.

> "I got over all my challenges now, after two years in Turkey, now I can speak Turkish fluently." (Ameer)

> "I got over the language challenge after I finished A1 and A2 in Turkish, so I can communicate now." (Elian)

> "[It would be useful if potential teachers learn] especially the words, when the students try to transfer the meanings or say the meaning. I have this problem, they use Turkish, if the teacher knows Turkish it can be good and useful for their teaching; it will be better if the teacher knows some Turkish vocabulary." (Khaled)

Other teachers stated that they were able to cope with the language barrier in communication by using translation tools, which helped them when they faced difficulties during the lesson.

> "[To overcome] the language challenge; yes, we have lots of different techniques in teaching to convey the material, and also we use the body language, which sometimes works. I use some smart students in the class, the ones whose English is better than the others, sometimes, I ask them to translate for their classmates, and we use some translating platforms in class." (Ali)

> "I used Google Translate, I did not translate all of the sentences, but it can help me understand their language, but I cannot speak, so I use, for example, the English-Turkish translation or dictionary, I do not translate the whole sentence, just a word or when I'm speaking about a topic, and one can help them understand it better." (Khaled)

As indicated by teachers, they either learned the local language or primarily relied on translation aids to support their communication with the students. As is seen, instead of learners feeling obligated to learn English to communicate with their teachers, it was teachers who felt pressured to learn the language as "outsiders" or "minorities in the classroom." However, one teacher also stated that teachers should not feel overwhelmed by the language barrier. They may not prefer to learn the local language but rather should see it as an advantage:

> "I can advise teachers that are newly teaching here in Turkey…I don't want them to get scared or afraid because of the language barrier with the students here in Turkey…the students are interested when you say I'm a foreign teacher, they get interested to know you, and also this will motivate you and will help you to get over the language barrier with them. and I think it won't be a problem because you will motivate them to speak English once you don't know their language, and they don't know your language, which I think is another advantage because they can speak to you in English." (Sema)

Extended exposure to local culture

Most teachers reported time as a panacea for overcoming most challenges. In other words, staying in Turkey for an extended period and raising students' intercultural awareness by being a model were the two sub-themes indicated by the teachers.

> "For the other challenge, the cultural challenge, it was not that difficult to get over, so yeah, I consider that I got over these challenges... [some piece of] advice I can give is that the teacher should be respectful. They should respect other people's culture, and try to make students understand that everyone should be respectful to other cultures and how people should deal with these cases." (Sema)

Both Sema and Ali maintain that teachers should respect the local culture, which will, in turn, demonstrate how their students should also respect their cultures. It is

essential for teachers to raise learners' awareness of intercultural communication and respect for other cultures. They stated these strategies as means of surviving in the Turkish schools they were teaching. One teacher suggests an additional approach for educators to equip themselves even before embarking on their journey to Turkey, which entails acquainting themselves with Turkish culture and acquiring a certain level of proficiency in the language.

> "When I planned to teach in Turkey, I needed to have some kind of examples about that country's culture; it can help teachers to understand it better and gets familiar with their languages." (Khaled)

Familiarizing oneself with the education system

Teachers further stated how they were able to acclimate themselves to the educational system and the classroom atmosphere. Especially after teaching in Turkish schools for an extended period exceeding two years, they succeeded in acquainting themselves with the education system, as noted by Elian:

> "I didn't change the education system in Turkey; I couldn't do that it's like such a big job, but I gave my students another point of view in life and education so as long as my students were happy, and they want to follow my way of teaching it means, yes, I got over of this challenge like we got along with each other." (Elian)

After spending an extended period teaching in Turkey, teachers were unsurprisingly able to circumvent the disadvantages of not being familiar with the educational system. In fact, they managed to come up with their own coping strategies for adapting different teaching materials for their own way of teaching.

> "I have no problem here now with the delivery of teaching or anything because I learn how to teach, and I know how to train how to use the material here according to the Turkish education system." (Ameer)

Time, not surprisingly, helped teachers to get accustomed to the culture and classroom atmosphere, as well. Ali and Sema reported overcoming difficulties due to cultural differences and student attitudes through time.

> "For the cultural parts, I am respecting old cultural attempts, and I set some rules in my classes, but I set the rule I say this is my rule and you must have made this rule, and, in most classes, it works so I could manage these by using these simple techniques." (Ali)

Discussion and Implications

The current study sought to investigate the challenges that five expat NNESTs from Iraq, Syria, Algeria, Iran, and Albania have confronted in the EFL Turkish classroom and their coping strategies to overcome these difficulties.

The findings suggested that the language obstacle was the most frequently cited problem by the instructors, a finding that corroborates with prior research in this area. (Ospina & Medina, 2020). Foreign teachers experienced impediments while communicating with Turkish students as their students, in the teachers' opinion, did not show much effort to be understood by their teachers. Teachers handled this challenge in a variety of ways, as reflected in their responses. While some overcame this obstacle by learning Turkish, others preferred using translation tools such as Google Translate, which assisted them in communicating for different purposes. Given that Turkish was not their primary language, teachers encountered challenges when attempting to

communicate with their students for social purposes outside of the class setting, as well as elucidating particular grammatical concepts during lessons. A similar study looking at foreign NNESTs' challenges also reported that not sharing the same L1 with the students was a huge barrier in the classroom, especially in the primary school context (Hasanah & Utami, 2019). Echoing the conclusions drawn from the current investigation, Skliar (2014) contended that expatriate NNESTs were the most disadvantaged in comparison to their local NNESTs and NESTs counterparts, chiefly attributable to their limited expertise and authority over both the students' first language and the target language. This phenomenon may arise from a range of factors, including the teachers' lack of prior experience in teaching Turkish students, but it could also stem from the inadequacy of the training teachers received. Specifically, they may not have undergone specialized training to teach English abroad in a context where the dominant language is foreign to them.

However, there are certain cultural norms and learning habits that may exacerbate teachers' unfamiliarity with the local culture during communication. Sharing the same L1 with the students has already been established as an advantage for teachers for several reasons, such as being a role model, providing strategies that facilitate language learning, establishing rapport, and supporting teacher confidence (Medgyes, 1992; Seidlhofer, 1999). Foreign-national teachers' concerns, therefore, seem to be legitimate, and similar concerns were also made in previous research. Reporting on NESTs' professional identities at a Turkish university, Keskin (2022) also showed that being able to speak or use Turkish in the classroom helped achieve an insider's position in the eyes of the students, and it helped to establish a good rapport with the students through humor.

However, according to Halicioglu (2015), merely acquiring linguistic proficiency in a language does not necessarily ensure effective communication without considering cultural aspects because, beyond words, language is "also about *how* the language is used and whether it is culturally appropriate" (p. 246). Therefore, lack of familiarity with the local culture was shown to be a challenge for the expat NNESTs, which exacerbates the issues highlighted in prior research conducted with NNESTs as well as NESTs teaching abroad. Although cultural differences have been claimed to bring new opportunities for learning in the classroom, it has also been shown to create an environment susceptible to problems when "cultural sensitivity" is not taken care of (Dumlao & Mengorio, 2019). Therefore, to facilitate effective language learning and teaching in terms of various aspects such as student-teacher relationships, classroom atmosphere, or classroom management, raising expat teachers' awareness of the host culture is advantageous for both the instructors and the students. Although Halicioglu (2015) emphasizes culture shock as an important challenge for expat teachers, the participants in this study did not mention this notion in their narratives. This could be attributed to the length of their teaching experience in the Turkish context, which exceeds the 10-month adaptation period described by Roskell (2013). As a consequence of shared norms and rituals, participants from cultures with various ethnic, linguistic, and religious similarities to Turkish culture may initially be thought to experience fewer problems as compared to those from completely different cultural backgrounds. Nevertheless, the present study has provided counterintuitive evidence to suggest that this may not be the case. However, this finding should be interpreted with caution and

cannot be generalized due to the small sample size and the potential for idiosyncratic attitudes and responses from participants.

Unfamiliarity with the education system, dissatisfaction with classroom materials, and misfits of the curriculum were also among the challenges teachers had to face. Participants commented that since they found the educational system very different from what they were used to, including the classroom atmosphere and classroom materials, this seemed to be a challenge for teachers. Comparable findings regarding the classroom materials were also reported in similar research, which stated that the materials did not cater to learners' needs (Chen & Cheng, 2010; Hasanah & Utami, 2019). The curriculum was also reported as a problem by the expat teachers, which was supported by Aydın et al. (2019). Teachers in their study mentioned that the curriculum was outdated, with loaded yet "superficial" content, and it was incompatible with the international curricula (Aydın et al., 2019, p. 9). However, their findings should be interpreted with caution because, in their study, it was not clear whether this challenge was reported by expats working as language teachers or in a different subject field as the participant group was mixed.

Regarding student-related issues, teachers also had difficulties with classroom management and student attitudes. Expat NNESTs found Turkish EFL learners unwilling to engage in classroom activities. The findings of the current study are supported by Kara and Ayaz's (2017) research, which also found that Turkish students lacked interest in learning English. Regarding expat teachers' reported difficulties with classroom management, although the interview data from the present study did not provide any explanations as to why teachers found classroom management a challenge, Halicioglu (2015) attributed this to varying perceptions of teacher leadership and teaching and management styles across countries. Expat NNESTs' narratives analyzed by Hasanah and Utami (2019) support the findings of the present study in that in their study, learners in the classrooms lacked motivation and engagement, and teachers had similar management and leadership issues in the classroom.

Teachers also explained how they managed to overcome these challenges. They suggested that some coping strategies were learning the local language, setting your rules right from the beginning, and being a role model in raising students' intercultural awareness. The participants advised teachers who intend to work in Turkish schools to be prepared before arriving in Turkey, have some knowledge of Turkish culture, and respect their customs. They specifically suggested learning the Turkish language because this would make it easier for them to establish rapport with Turkish students and facilitate learning in the classroom. The results also indicated that the participants' students reportedly expected their teachers to be able to converse in Turkish instead of pushing themselves to converse in English with their teachers. Although it is beyond the scope of this study to discuss the role of L1 in the classroom (for a review, Shin et al., 2020), these findings should be interpreted with caution especially because expat NNESTs implied that being able to speak the students' L1 was an advantage to be able to teach effectively.

The present study is not without its limitations. Due to the small sample size and the sampling method, the findings of the research cannot be generalized. Furthermore, triangulation of data is needed to make comprehensive conclusions because interviews, which are very useful for in-depth analyses, may not be "neutral" methods of data

collection due to various reasons such as the context or the researcher's identity (Denscombe, 2007, p. 184). Therefore, other than self-expressed forms of data, classroom observations of expat NNESTs could provide an abundance of information that could help tap into the underlying and context-related reasons for especially explaining the challenges stated by the participants.

Despite the limitations, the current study provided a clear image of the challenges faced by nonnative foreign teachers in Turkish classrooms, which were shown to impact the educational process in a variety of ways. The findings of this study have several important implications for future practice. One way to prepare foreign teachers for teaching in Turkish EFL classrooms could be developing teacher training programs for expat teachers, which could be offered online or in a blended format. The blended component could include an on-site orientation program specific to each institution/school, which could offer courses familiarizing expat teachers with the Turkish education system, including the curricular expectations and methods, Turkish classroom dynamics, cultural basics, and student profiles at each level of education.

Incorporating optional, extended training programs that are tailored to equip foreign teachers with knowledge of Turkish language and culture could be a promising strategy to promote positive outcomes both in the classroom and in their professional relationships. Learning the Turkish language and culture cannot be imposed, but the potential benefits of doing so may be underscored. Previous studies have shown that expat EFL teachers have used Turkish (even words or certain phrases) to establish rapport with the students in the classroom, which they found very helpful in keeping them engaged (Aysan-Şahintaş, 2019; Keskin, 2022). Similarly, being able to understand and speak Turkish was also found to help communicate with colleagues (Keskin, 2022) and parents (Aydın et al., 2019). The curriculum and the syllabi of such a comprehensive program would need extensive planning. However, one point that deserves noting is that these courses should incorporate practical components that go beyond traditional lecture formats and include practical examples, simulations, or case studies demonstrating how teachers can effectively handle similar situations in their classrooms. Another component of the courses could be interviews with real teachers who provide the teachers with various problems along with their own suggestions for navigating similar challenges. Although such courses may not provide the teachers with the same amount of information they would acquire through direct contact and communication, it would help them feel safer and prepare them for a smooth experience in exploring the language and the culture. To ensure that all teachers have access to such a program, employing schools might be required to have their teachers complete the training program prior to signing a contract with them. Pedagogy courses might also be offered as part of in-service training. Similar programs have been recently designed for in-service K-12 EFL teachers by the Ministry of National Education for teachers planning to take the Expert Teacher Exam (Öğretmen Bilişim Ağı, 2023).

Psychological support should also be included in the programs to avoid the extended negative effects of culture shock that incoming teachers might experience. Further professional and mental support from both peer teachers and administrators could also be performed through peer collaboration and support in the form of peer coaching and mentoring between the local NNESTs and the expat NNESTs. This could help make the transition smoother, increasing expat teachers' motivation and teaching

efficiency. A similar suggestion for helping newcomer NESTs with their adaptation to culture and learners' ways of learning in the Turkish context was made by Karakas et al. (2016). Similarly, Yim and Hwang (2019, p. 2) emphasized the crucial role of more experienced local teachers in helping the newcomer expat NESTs to "engage in legitimate peripheral participation" in the teaching community in the Korean context. The findings of the present study help extend the implications of these studies by making similar suggestions for improving NNESTs' experiences of adaptation while teaching abroad.

From the perspective of the recruiters, administrators, and policymakers, there are several implications of the present study. Previous research has shown that expat NNESTs are valuable contributors to a country's internationalization in various forms (Aydın et al., 2019); therefore, (precautionary) measures may be taken for their job satisfaction, which would have a significant impact on the way teachers approach and manage challenges that arise in their teaching environments. Ensuring that they have similar or equal rights to their local and NEST peers in terms of benefits, contracts, workload, leadership roles, support, and appreciation in the program or school they are working at is crucial. The hiring regulations and procedures for expat teachers play a crucial role, too, and Aydın et al. (2019) already summarized the laws and regulations guaranteeing the rights of expat teachers (not specifically language teachers). They state that there are certain requirements and procedures in the selection and hiring of expat teachers, and they should be followed by the institutions depending on their affiliation with the Ministry of National Education or the Council of Higher Education. However, as Tatar (2019) states, there is not "an established, systematic mechanism (except for a few private agencies)" in Turkey, which recruits expat teachers, so she maintains that requiring both the local NNESTs and the expats to hold similar qualifications is needed. However, it should be noted that her research and implications do not specifically involve expat NNESTs and the ideological underpinnings as to whether this should be performed by governmental agencies are beyond the scope of this research.

Given such implications, the present study hopes to pave the way for uncovering expat NNESTs' struggles and coping strategies to guide other teachers planning to teach EFL in Turkey. Expat teachers planning to work overseas should perform significant research and prepare themselves for unexpected circumstances. They should be aware that a change in setting and culture, new colleagues, a shift in parental involvement, and the loss of established signs and symbols all necessitate careful planning, ultimately affecting professional and personal fulfillment (Joslin, 2002). Once expat teachers have taken the necessary precautions and meticulously planned each step (Halicioglu, 2015) prior to their departure for teaching abroad, how they perceive and interpret their experiences will play a crucial role in their ability to overcome challenges in the classroom setting. Challenges may be seen as opportunities for learning and may encourage expats to discover new ways of doing things in or outside of the classroom, or conversely, these obstacles may be regarded as intolerable situations which could even lead expats to leave the country. This shows that a combination of careful research and planning, as well as mental preparation in regard to what to expect while teaching abroad, is likely to help expat language teachers during their experience teaching abroad.

Conclusion

In conclusion, this study aimed to investigate the challenges and coping strategies of five expat NNESTs teaching in Turkey. As revealed by the participants' responses, teachers faced different challenges, such as the language barrier, different education systems, and cultural differences, but they were able to overcome most of these challenges by learning the language, staying in the country for an extended period, and familiarizing themselves with the education system. By identifying the difficulties faced by five participants and offering advice and solutions to help overcome them, the present study hopes to assist expat English teachers who intend to work in Turkey. Although the study relies on the narratives of the foreign NNESTs in the context of Turkey, the findings have been shown to support similar research conducted in similar contexts in other expanding circle countries. Further research investigating expat NNESTs from a variety of different perspectives is encouraged.

Statement of Responsibility

The authors declare that they equally contributed to the manuscript. Both authors were involved in the conceptualization, methodology design, data collection instrument design, validation, investigation, data analysis, and the initial writing of the paper. Moreover, the first author was responsible for conducting the online interviews and the initial transcription of the data from the audio recordings and the second author was responsible for preparing the manuscript for submission, which involved writing and revising the paper, visualizing the findings, and addressing the reviewers' comments.

Conflicts of Interest

The authors report no conflicts of interest.

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Appendix

Semi-structured interview questions

1. What kind of challenges did you face when you first started teaching English?

   Follow-up questions

   a. Did you face any difficulties in transferring the course content? You may respond with specific references to specific skills and courses.

   b. Did you face any challenges in classroom management?

   c. Did you face any challenges due to socio-cultural differences?

   d. Did you face any challenges regarding Turkish student profiles?

   e. Did you have any problems at the institutional level (i.e., with colleagues, administrators, salary, and benefits (e.g., social security, health insurance)?

2. What kind of similarities & differences do you observe between the teaching styles in your country and Turkey?

3. Do you think you got over any of these challenges? If so, how? Please exemplify.

   Follow-up question

   a. What kind of advice would you give to foreign teachers who are already teaching or planning to teach in Turkey?

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A Geospatial Analysis of Accessibility to Primary Education

İlköğretime Erişimin Mekansal Bir Analizi

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ABSTRACT: Geographic information systems (GIS) have started to be used in developing information to be used for national and regional development in many areas; however, the use of this system for educational planning has been under-researched. Adopting the case study design, this study evaluated the current locations of primary schools in Afyonkarahisar and offered alternative locations in order to improve access to primary education for the school-aged population using heuristic location-allocation modelling approaches. An intelligent areal interpolation approach was performed to generate the population surface. The demand surface was used as input to a location-allocation analysis, and alternative locations were suggested. With the current distribution of primary schools, the primary school-aged population would have to travel an average distance of 1466.81m to access primary education. The results show that alternative primary school locations decreased the average travel distance by 339.69m, improving overall accessibility to primary schools. The results suggest that geospatial methods can be used to provide documentary evidence to support education planners and policymakers.

Keywords: GIS, educational planning, primary schools, accessibility, geospatial analysis, Afyonkarahisar.

ÖZ: Coğrafi bilgi sistemleri (CBS) birçok alanda ulusal ve bölgesel kalkınma için kullanılacak bilgilerin geliştirilmesinde kullanılmaya başlanmış; ancak bu sistemin eğitim planlaması için kullanımı yeterince araştırılmamıştır. Durum çalışması deseni kullanılarak bu çalışmada, Afyonkarahisar merkez ilçesinde yer alan ilkokulların mevcut konumları değerlendirilmiş ve buluşsal konum tahsis modelleme yaklaşımlarını kullanarak okul çağındaki nüfusun ilköğretime erişimini iyileştirmek için alternatif konumlar sunulmuştur. İlköğretim çağındaki nüfusun dağılışını oluşturmak için mekânsal enterpolasyon yöntemi uygulanmıştır. Okullara olan talep yüzeyi, yeni bir yer tahsisi analizinde girdi olarak kullanılmış ve yeni okullar için alternatif lokasyonlar önerilmiştir. İlkokulların mevcut konumuna göre, ilköğretim çağındaki öğrencilerin okullarına erişmek için ortalama 1466,81m mesafe kat etmesi gerekmektedir. Uygulanan konum tahsis model sonuçları, alternatif ilkokul lokasyonlarının ortalama erişim mesafesini 339,69m azalttığını ve okullara genel erişilebilirliği iyileştirdiğini göstermektedir. Elde edilen bulgular, jeo-uzamsal yöntemlerin eğitim planlayıcıları ve politika yapıcıları desteklemek için belgesel kanıt niteliğinde kullanılabileceğini göstermektedir.

Anahtar kelimeler: CBS, eğitim planlaması, ilkokullar, erişilebilirlik, jeo-uzamsal analiz, Afyonkarahisar.

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Primary education has always been on policymakers, education specialists, parents, and other stakeholders' agendas. Nations invest in schooling, primary education in particular, for long-term social and economic goals. Universalizing primary education is a central goal of the United Nations, and the Education for All movement has worked towards increasing access to primary education. Developing countries need to increase access to primary education (Birdsall et al., 2005). To overcome disparities in education, countries have been exerting strategies to expand access to schools, particularly for primary education (Sifuna, 2007). Access to primary schools has various aspects, such as gender equality (UNESCO, 2004) schooling costs (Lincove, 2009), but not limited to them. Another critical aspect of access is spatial equity. Although disadvantageous or poor groups are negatively affected by the concentration of schools in certain residential areas (Marques et al., 2021), spatial equity of access to primary education is yet under-researched.

The discipline of geography and analysis tools used in this discipline, such as Geographic Information systems (GIS), can be used in educational planning, i.e., evaluating the current locations of schools and coming up with the optimal locations for new schools to improve spatial equity for all (Kelly, 2019; Köse et al., 2021; Mann & Saultz, 2019; Yoon et al., 2018). GIS is a powerful tool because of its diverse sets of information to solve problems (Chamberlin, 2007). Nevertheless, research focusing on spatial access to primary schools is very limited (Burgess et al., 2011; Marques et al., 2021; Talen, 2001). Given that GIS offers innovative ways of studying spatial access to primary schools, more research studies are needed both to contribute to the literature and provide solid implications for policymakers. This type of analysis is particularly needed for countries with rapid population growth and rural-urban migration (Köse et al., 2021).

Although schooling percentages in primary schools are not problematic in Türkiye, there are no studies on spatial access to primary schools. Using an address-based school enrolment system, in which parents enroll their children in the nearest school, Türkiye needs to provide primary schools for students with at least spatial equity. In this regard, the current study focused on evaluating spatial accessibility to primary schools in Afyonkarahisar province, Türkiye. We used GIS to evaluate the current locations of primary schools using population data of primary school-aged children, city maps, paths, and other data. We also offered new spatial arrangements, i.e., optimal places for new schools, using heuristic location-allocation modelling approaches to enhance overall spatial accessibility. To this end, we sought to answer these research questions:

- How well do current primary schools in the Afyonkarahisar province serve the current population distribution?
- How can primary schools in the Afyonkarahisar province be optimally located to maximize accessibility for residents?

Theoretical Framework

Primary Education and Access to Primary Education

Primary education is of critical significance both for individuals and nations. The Universal Declaration of Human Rights, proclaimed in 1948, guarantees that education is a fundamental human right and that primary education should be free, compulsory, and universal. Primary education can be defined as "general school education at the first level, programs designed to give numeracy and literacy skills and build the foundations for further learning" (Independent Evaluation Group, 2006). Accessibility to primary education is a significant issue since it is actually related to human rights and equality of opportunity. As the states are responsible for providing free primary education to all citizens, the physical distance between students' homes and primary schools is critical to equal opportunities.

Access to primary education is measured chiefly based on indicators such as enrolment ratio. The objectives of initiatives on access to primary education include increased enrolment, improved equity, improved access for girls, and improved internal efficiency (Independent Evaluation Group, 2006). However, access is not limited to these indicators. It includes spatial equity, fairness, social equity, or student performance (Talen, 2001). Researchers have addressed access to primary education from various aspects, such as gender disparities in access to school (UNESCO, 2004; Ramachandran, 2004), access problems in underdeveloped countries due to poverty or other problems (Bennell, 2021; Zuilkowski et al., 2018), the rural-urban gap in schooling (Maarseven, 2021), or costs of primary education (Lincove, 2009). Spatial equity of access to primary education, however, is understudied. Yet, issues of spatial equity and access to public services are significant because the concentration of services in certain residential areas affects disadvantaged or poor groups to a great extent (Marques et al., 2021).

Spatial equity of opportunity is formed by capital resources one has in their living environment because the life chances of an individual are determined by those resources (Israel & Frenkel, 2018). According to Rawlsian principles regarding spatial inequity, the institutions should be distributed in a way to ensure equity and provide social justice for particularly disadvantaged groups (Marques et al., 2021). The literature on spatial equity highlights that people need equal access to public services and to ensure equal opportunities for people, planned actions should be put into practice (Fainstein, 2009; Marques et al., 2021). Empirical evidence supports the idea that spatial access to primary schools is significant. In the Scottish context, for example, Macintyre et al. (2008) showed that the allocation of primary schools differed across areas, with state schools having a higher density in low socioeconomic areas while it was vice versa for private schools. Marques et al. (2021) revealed a significant relationship between socioeconomic status and accessibility to primary schools in the Portuguese context, referring to a patterned inequality.

Though researchers worldwide study access to different services such as health care services (Neutens, 2015), irrigation market (Magistro et al., 2007) or lodging properties (Ilgaz Sümer et al., 2016), access to primary schools in terms of spatial equity is understudied. Few studies directly address access to primary schools (Burgess et al., 2011; Marques et al., 2021; Talen, 2001), and it is also studied in a few related studies

(Lee & Lubienski, 2017; Macintyre et al., 2008). Accessibility to primary schools needs to be studied using geographic information systems (GIS) in different contexts to contribute to the literature and provide solid implications for policymakers.

Geography discipline can be used for educational planning. It can help policymakers to terminate or lessen geographic restrictions and systemic inequities stemming from them (Mann & Saultz, 2019). As an efficient tool for this aim, GIS provides an association between socioeconomic information and geospatial datasets (Chamberlin, 2007) as well as providing accurate estimates of accessibility to public spaces, including schools (Higgs et al., 2012). It analyzes data on population, extant schools, and city roads in a given area and offer scientific results for planning new school locations (Köse et al., 2021). In planning school location, GIS can identify schools' catchment areas and measure how the school-aged population can access the extant schools, and where would be the optimal new places based on other factors such as population density or best paths to school (Bejleri et al., 2011; Châu, 2003). GIS is also advantageous in the sense that it visualizes complex accessibility measures and gets the policymakers or leaders to easily understand abstract measures (Kelly, 2019; Mann & Saultz, 2019), which is significant for the decision-making process. In this study, we used GIS to measure the current locations of primary schools and offer optimum new locations for new primary schools.

Primary Education in Türkiye

The Turkish education system comprises pre-school, primary school, lower and upper secondary schools, and higher education elements. Compulsory education consists of 12 years covering primary school and lower and upper secondary schools. Corresponding to ISCED 1, primary school education offers four years of education for students between 66 months and ten-year-old (Eurydice, 2021). National Education Basic Law in Türkiye (Numbered 1739) depends on such principles as equality, the right to education, and equality of opportunities. The Primary Education Law (Numbered 222) posits that primary education is free for all in state schools.

Primary education serves the most common group of citizens in the education systems, and it seeks to actualize the aims of education systems, such as socialization, enculturation, and raising productive individuals at a basic level (Gültekin, 2007). Since primary education is a long-term investment for the countries' development and economy in terms of providing human capital, and it ensures civic education, socio-cultural integration among different groups in a country, and it is a preparation period for further school levels; countries exert great effort for primary education. Accordingly, primary schools were seen as a tool for developing the nation following the foundation of the Turkish Republic in 1923. Policymakers tried to actualize the aims, such as spreading education across the country, increasing literacy, raising citizens in line with the mindset of the new republic, and creating a new national identity through primary schools (Sağlam, 2011). Therefore, primary schools have always been important in Türkiye. This is seen in the statistics. In the 2019-2020 academic year, there were over 18 million students at the K-12 level. Over five million of these students were at primary schools. In the same academic year, the schooling percentage in primary schools is 97.70% for boys and 97.11% for girls. These statistics are also very similar for the Afyonkarahisar province, which is in the scope of this

study. In the same year, there were 9775 students in primary schools in Afyonkarahisar (MoNE, 2020). As the statistics suggest, there are no severe problems in Türkiye regarding schooling percentages in primary schools. Almost all children attend primary schools; however, equality of access to primary schools is a matter of question that should be elaborated on.

Spatial accessibility is about the distance between schools and children's homes. Regarding the location of primary schools, The Primary Education Law (Numbered 222) posits that school buildings should be in an appropriate location in terms of health, education, and transportation. They should be at least 100 meters away from such places as bars, electronic game places, or shops selling alcohol. However, there is no regulation that leads to a scientific way to determine the school places for ensuring spatial equity for all citizens. Besides, in Türkiye, an address-based school enrolment system is currently in practice. This system requires parents to enroll their children in the schools that are nearest to their home location. Even in countries such as England, where parents have the right to choose the school for their children, parental school choice is restricted by geographical location, resulting in increasing house prices in the catchment areas of desired schools (Burgess et al., 2011). In an address-based system, the states should provide schools for students with at least spatial equity. Therefore, we aim to evaluate the current locations of primary schools in Afyonkarahisar province in Türkiye and offer alternative spatial arrangements for new primary schools using GIS tools to increase spatial equity.

Purpose of the Study

The purpose of this study is to evaluate the current locations of primary schools in Afyonkarahisar province in Türkiye and offer alternative spatial arrangements, thus providing documentary evidence to education planners and policymakers on the accessibility to primary education in Afyonkarahisar province.

Methodology

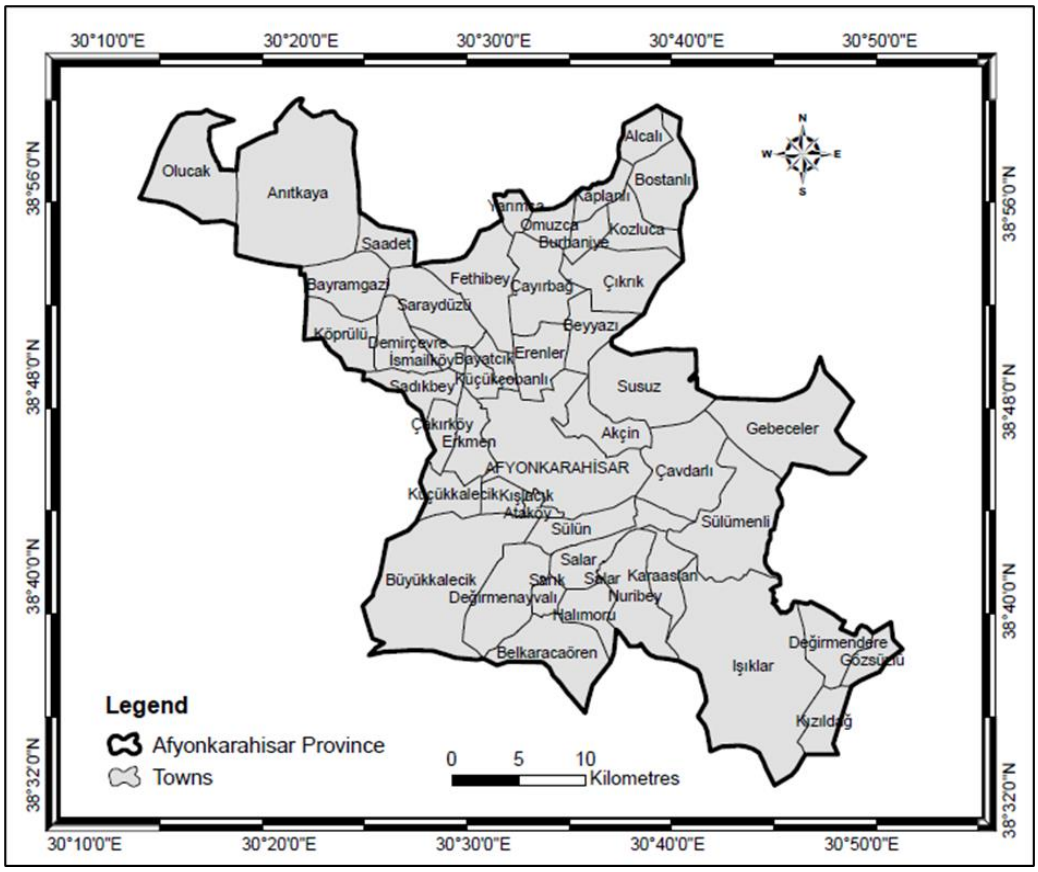
This is a case study performing a geospatial analysis on the locations of primary schools in Türkiye's Afyonkarahisar province by using GIS and offering alternative spatial arrangements, thus, isolating the case of Afyonkarahisar to act as a decision point for the problem of spatial access to primary education in Türkiye as case study is a research method bounded by defined time, place, and activities of an instance, with the goal of identifying and understanding an issue, and often seeking to isolate critical incidents that act as decision points for change (Creswell & Creswell, 2018; Newby, 2014).

Study Area

This research aims to analyse the locations of primary schools in Afyonkarahisar province, Türkiye. The study area is located in the geographical region of the Aegean in Türkiye. Afyonkarahisar has a population of 313, 063 in 2020 according to the Turkish Statistical Institute (TSI) census records. Afyonkarahisar is one of the provinces with the highest rural population in Türkiye. The study area covers both urban areas and rural villages of the Afyonkarahisar District (Figure 1).

Figure 1

Map of the Study Area Showing Afyonkarahisar's Local Government Area and the Villages of the Central District within Afyonkarahisar



Dataset

The data used for this research include locations of 90 primary schools in Afyonkarahisar province (https://mebbis.meb.gov.tr/KurumListesi.aspx, accessed 26 February 2021), the population of primary school-aged children, and road datasets. Table 1 shows the data used for the analyses. The spatial distribution of roads and 90 primary schools within the study area are shown in Figure 2. The data of current primary schools were derived in Excel format with the address of each school complex. Both private and state schools were digitized using ArcMap 10.3 software according to their geographic locations, and the accuracy assessment of digitization was done using Google Earth Program. Also, the primary school-aged population was derived from the census records of the Turkish Statistical Institute (TSI, 2020). The population totals were obtained for each spatial unit of the neighbourhood and rural village of the central district of Afyonkarahisar. Population datasets were joined with the vector layers in order to transfer population totals to each geographic unit. Generally, population totals are provided, assuming uniform population distribution within the boundaries of settlements. In reality, population total shows the spatially non-uniform distribution in most parts of the world (Köse et al., 2021). In this sense, population density changes between the urban neighbourhoods and villages within the boundary of the Afyonkarahisar administrative area. A dasymetric mapping method (Jega et al., 2017; Mennis, 2009) was performed to better estimate the spatial distribution of primary school-aged population totals. The Corine land cover dataset (2018 dated) was used as

ancillary information in dasymetric mapping to create population surfaces of settlements. Finally, the estimated population totals were gridded, and these grid points across Afyonkarahisar were used to show the population totals aged 6-10 in need of primary school services (Figure 4).

Table 1

Data Used for the Analyses

Data	Format	Data Source
Primary Schools (state and private)	Excel	Ministry of National Education official website
Population Data	Excel	Turkish Statistical Institute
Boundary Data of Afyonkarahisar	Shapefile	General Directory of Agricultural Reform (GDAR) of Türkiye
Road Data	Shapefile	Open Street Map (©OpenStreetMap)
Corine Land Cover	Raster	Open Street Map (©OpenStreetMap)
		European Environment Agency (EEA)

For location-allocation analyses, this research aims to evaluate the current locations of primary schools and suggest alternative locations that are more likely to improve overall accessibility to primary education. The p-median problem addresses this objective. Jega et al. (2017) reviewed the p-median problem, and its objective function, which aims to reduce the total weighted distance travelled from residential homes to service facilities (in this case, primary schools). Jega et al. (2017) used Teitz and Bart's (1968) heuristic search algorithm to solve the p-median problem. This research will adopt the methodology applied by Jega et al. (2017) to solve the p-median problem. Please see Jega et al. (2017) for an extensive review of the p-median problem and Teitz and Bart's (1968) heuristic search algorithm.

Figure 2

The Spatial Distribution of the 90 Current Primary Schools within Afyonkarahisar District

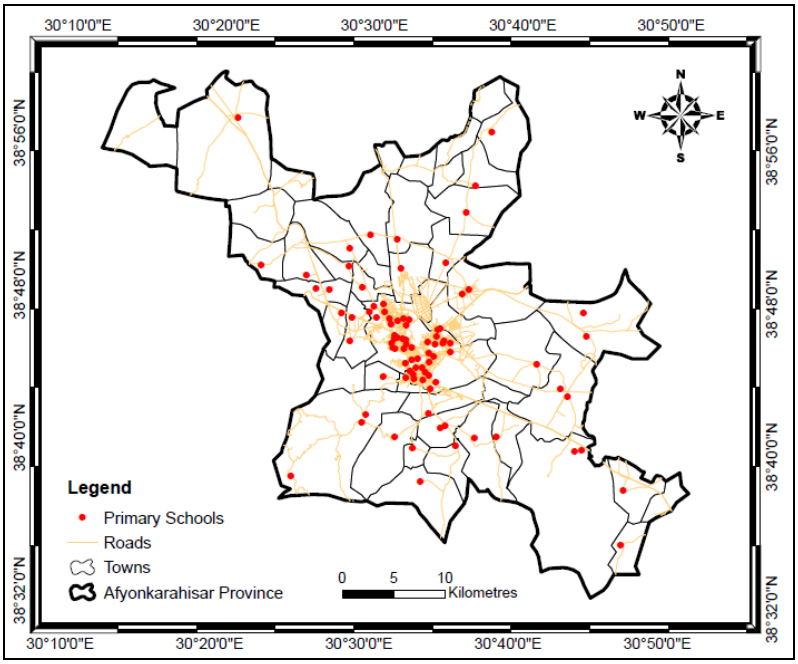
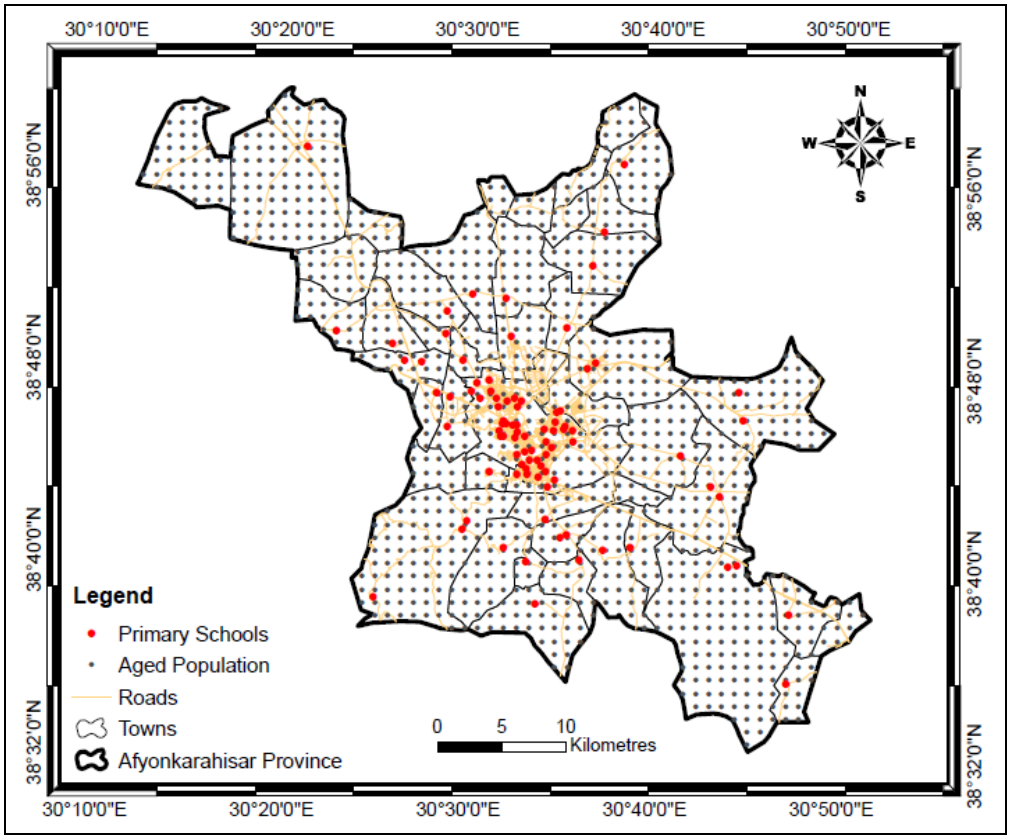


Figure 3

Spatial Distribution of 90 primary schools (red dots), Distribution of 1199 Point Locations of Estimated Primary School Aged Population (black dots), and Network of 11,741 Roads (sand color) within Afyonkarahisar District



Findings and Discussion

This section displays the results for demand allocation for current locations of primary schools, potential primary school locations, and the utility of different locations in both current and potential sets of locations.

Demand Allocation for Current Primary Schools

The demand for school services was allocated to the schools. The model did not allocate demand to 8 schools within Afyonkarahisar town. The schools are; Mehmet Yağcıoğlu, Bayraktepe İlkokulu, Fatih, Gedik Ahmet Paşa, Hacı Hayriye Özsoy, Kadaifçioglu, Sahipata and Yüksel Varlı. This is possibly due to the limitations of the road data used. Table 2 shows the total demand allocated to each of the 82 current primary schools and the mean distances between each primary school and each residential home within its catchment. The average mean distance for the existing primary schools is 1466.81m. This is slightly above the recommendation of Chillón et al. (2015) that young people should walk a maximum of 1400m to access primary schools. The table also shows the percentage of the total demand allocated to each primary school. Teitz and Bart's algorithm assumes that all primary schools in Afyonkarahisar province provide the same services. This implies that for the current locations of primary schools in Afyonkarahisar province to be optimal, the demand should be equally allocated for all the primary schools. The results in Table 3, when sorted from the highest percentage demand allocation to the lowest, show that the first ten schools were allocated about 40% of the demand while the remaining 60% was shared between the remaining 72 schools. Allocating demand to service facilities plays a vital role in policy development for spatial planning, and the results provide evidence for informed decision-making for the selection of new school sites.

Table 2

Demand Allocated to Primary Schools in Afyonkarahisar Province

S/No	Name of Primary School	Demand	Mean.dist	Maximum	% Demand
1	Ticaret_Borsası_ŞÖHD İlkokulu	227	11.24	11.24	0.89
2	Mehmet Yağcıoğlu	0	0	0	0
3	Ahmet Ömer Kocaşaban	681	960.61	1,767.39	2.67
4	Akçin İlkokulu	65	847.41	1,251.87	0.25
5	Ali Çetinkaya	227	271.71	271.71	0.89
6	Ataköy İlkokulu	427	1,268.89	2,182.52	1.67
7	Anıtkaya Faik Deniz	172	5,924.00	12,939.46	0.67
8	Atatürk İlkokulu	227	190.55	190.55	0.89
9	Ayşegül Arsoy	227	323.24	323.24	0.89
10	Bayraktepe İlkokulu	0	0	0	0
11	Belkaracaören	83	2,957.47	5,778.64	0.33
12	Beyazıt İlkokulu	2748	2,421.95	4,292.71	10.76
13	Beyyazı İlkokulu	537	1,784.00	3,043.43	2.10
14	Bozdoğan Halımoru	91	2,067.92	4,402.75	0.36
15	Bostanlı	67	2,568.29	4,526.18	0.26
16	Büyükkalecik Bahçederesi	113	3,233.91	6,584.64	0.44
17	Büyükkalecik	58	2,229.50	4,960.93	0.23

18	Büyükkalecik Kocatepe	123	3,232.22	5,961.78	0.48
19	Cumhuriyet	454	502.99	758.86	1.78
20	Çavdarlı Şehit Hüseyin	209	2,819.21	5,108.78	0.82
21	Çayırbağ	400	3,289.89	7,608.72	1.57
22	Çıkrık İlkokulu	247	2,239.00	4,513.97	0.97
23	Değirmenayvalı	173	2,189.18	5,148.89	0.68
24	Değirmendere	138	2,802.34	5,764.77	0.54
25	Demirçevre	108	2,322.19	5,107.93	0.42
26	Erenler	360	1,483.78	2,808.71	1.41
27	Ekrem Yavuz	227	109.86	109.86	0.89
28	Erkmen	339	2,163.15	4,391.44	1.33
29	Erkmen TOKİ Nurullah Oymak	118	861.32	1,229.13	0.46
30	Ertuğrul Gazi	717	1,286.27	2,271.89	2.81
31	Fatih	0	0	0	0
32	Fethibey	221	3,580.95	8,576.96	0.87
33	Gebeceler	208	2,804.11	6,402.92	0.81
34	Gedik Ahmet Paşa	0	0	0	0
35	Hacı Hayriye Özsoy	0	0	0	0
36	Hisarbank 100 Yıl	227	457.88	457.88	0.89
37	Hocaahmet Yesevi	227	1,006.49	1,006.49	0.89
38	Hürriyet	454	1,232.86	1,721.86	1.78
39	Işıklar Balı Sultan	296	3,651.54	7,560.48	1.16
40	Hüseyin Türkmen	454	819.11	1,308.80	1.78
41	İnaz İlkokulu	45	1,104.86	1,648.85	0.18
42	Işıklar Dumlupınar	107	1,845.57	2,969.56	0.42
43	Kadaifçioğlu	0	0	0	0
44	İsmail Köy	195	1,205.76	2,488.29	0.76
45	Karaaslan	339	3,146.27	6,533.31	1.33
46	Karşıyaka	1589	1,783.76	2,948.44	6.22
47	Kasımpaşa	227	397.88	397.88	0.89
48	Kışlacık	105	1,526.00	2,879.28	0.41
49	Kazım Özer	227	336.21	336.21	0.89
50	Kızıldağ	367	3,812.13	8,108.49	1.44
51	Kozluca	108	3,127.71	7,300.06	0.42
52	Kocatepe	227	335.82	335.82	0.89
53	Küçük Çobanlar	74	1,054.40	1,766.77	0.29
54	Mareşal Fevzi Çakmak	299	1,168.06	1,755.61	1.17
55	Köprülü	139	4,121.02	7,747.96	0.54
56	Maver Kemal Arsoy	681	707.63	1,113.44	2.67
57	Merkez TOKİ	227	404.80	404.80	0.89
58	Namık Kemal	454	1,554.57	1,975.71	1.78
59	Nurettin Karaman	227	200.37	200.37	0.89
60	Nuribey	134	2,148.61	4,207.45	0.52
61	Nurten Telek	227	616.75	616.75	0.89
62	Oruçoğlu	227	388.06	388.06	0.89
63	Osman Atilla	227	231.96	231.96	0.89
64	Saniye Sayıoğlu	454	544.27	698.60	1.78
65	Sadıkbey	127	1,159.99	1,637.35	0.50
66	Sahipata	0	0	0	0

67	Salar Atatürk	48	778.14	1,116.76	0.19
68	Salar	184	1,451.48	2,760.82	0.72
69	Salim Pancar	227	124.11	124.11	0.89
70	Saraydüzü Oğuz Akdağ	62	3,704.26	8,006.47	0.24
71	Sarık	88	1,370.09	2,727.76	0.34
72	Selçuklu	454	509.32	624.95	1.78
73	Susuz Atatürk	581	1,727.78	3,872.77	2.28
74	Susuz	214	3,137.47	5,976.03	0.84
75	Sülümenli	137	1,910.45	3,540.75	0.54
76	Sülümenli Yavuz Selim	113	1,978.92	3,644.02	0.44
77	Sülün Balı-Mubahat Açıkgözoğlu	164	1,259.60	2,353.06	0.64
78	Şehit Murat Saraç	227	757.50	757.50	0.89
79	Şehit Yakup Suna	155	3,358.51	5,917.68	0.61
80	Şehit Yasin Mergen	974	2,525.36	4,662.70	3.81
81	TOKİ Mevlana	239	661.77	1,159.99	0.94
82	Yavuz Selim	386	527.79	837.23	1.51
83	Yüksel Varlı	0	0	0	0
84	27 Ağustos	227	997.10	997.10	0.89
85	Özel Afyon Girne Koleji	67	1,551.01	2,330.48	0.26
86	Özel Afyon İstek	382	957.00	1,361.07	1.50
87	Özel Afyon Neziha Arslan	1431	2,028.93	4,032.91	5.60
88	Özel Afyonkarahisar Bahçeşehir	227	513.03	513.03	0.89
89	Özel Nar Tanesi	227	133.95	133.95	0.89
90	Özel TED Afyon Koleji	39	1,211.98	2,138.95	0.15

Demand Allocation for Potential School Locations

Potential school locations were generated using random grids across the study area. The grids were spaced 500m apart, and only grid points within a 30m from the road network were selected. This is done to be sure the potential locations are accessible on the road network. Similar criteria were used by Jega et al. (2017) and Köse et al. (2021). A total of 215 potential sites were selected from the grid points. To compare with the current setting of 90 primary schools, the model was configured to select 90 optimal locations from the 215 potential school locations. Table 3 shows the demand allocated to each of the 90 potential locations with the percentage demand allocation and the mean distances from each home to each potential school location. These locations are assumed to be optimal locations for siting primary schools in Afyonkarahisar province. The results show the average mean distance from each resident to each potential primary school location to be 1127.12m. This has reduced the average mean distance for the current primary schools by 339.69m.

Table 3

Demand Allocated to Potential Primary Schools' Location in Afyonkarahisar Province

Potential Primary School	Demand	Mean.dist	Maximum	% Demand
1	214.00	1,211.20	7,919.03	0.89
2	21.00	1,459.55	2,360.51	0.09
3	932.00	1,005.10	4,684.60	3.90
4	1,013.00	2,356.20	10,681.17	4.23

5	1,259.00	2,155.02	17,693.94	5.26
6	1,272.00	3,202.10	17,680.11	5.32
7	1,081.00	2,210.30	18,680.32	4.52
8	1,372.00	3,256.21	25,341.98	5.73
9	1,281.00	5,687.20	31,854.51	5.35
10	13.00	1,968.27	2,900.66	0.05
11	2,842.00	3,200.24	18,318.55	11.88
12	5.00	871.81	1,342.96	0.02
13	3.00	414.04	414.04	0.01
14	51.00	1,744.94	3,341.65	0.21
15	3.00	316.12	316.12	0.01
16	21.00	1,563.82	2,900.66	0.09
17	10.00	822.52	1,391.09	0.04
18	84.00	2,486.89	5,116.45	0.35
19	142.00	2,264.97	4,714.49	0.59
20	24.00	613.35	826.03	0.10
21	178.00	570.66	7,525.22	0.74
22	24.00	1,488.11	2,533.50	0.10
23	129.00	400.32	4,701.76	0.54
24	15.00	1,054.41	1,826.54	0.06
25	40.00	708.68	1,003.31	0.17
26	106.00	1,223.53	2,333.78	0.44
27	28.00	1,070.31	1,710.04	0.12
28	6.00	570.49	726.93	0.03
29	21.00	1,190.29	2,336.12	0.09
30	19.00	1,548.74	2,641.83	0.08
31	133.00	396.50	5,673.98	0.56
32	162.00	1,681.06	3,205.48	0.68
33	36.00	1,827.06	3,189.19	0.15
34	131.00	1,756.76	3,552.78	0.55
35	123.00	600.21	2,416.99	0.51
36	48.00	1,160.07	1,514.15	0.20
37	150.00	861.71	1,342.96	0.63
38	82.00	356.90	2,416.99	0.34
39	83.00	1,395.92	2,631.49	0.35
40	11.00	560.03	719.39	0.05
41	8.00	646.13	861.94	0.03
42	14.00	1,720.83	4,098.56	0.06
43	2.00	1,003.31	1,003.31	0.01
44	31.00	411.20	4,078.25	0.13
45	111.00	760.86	1,105.05	0.46
46	25.00	1,086.06	2,100.79	0.10
47	27.00	726.93	726.93	0.11
48	32.00	1,095.25	1,887.09	0.13
49	337.00	1,286.24	2,118.87	1.41
50	454.00	1,413.13	2,099.34	1.90
51	94.00	876.43	1,431.86	0.39
52	473.00	645.18	855.59	1.98
53	8.00	1,545.38	2,385.05	0.03

54	335.00	1,020.30	1,514.15	1.40
55	96.00	1,384.58	2,599.99	0.40
56	55.00	455.20	3,828.28	0.23
57	95.00	1,152.71	1,974.04	0.40
58	227.00	298.38	298.38	0.95
59	227.00	298.38	298.38	0.95
60	227.00	316.12	316.12	0.95
61	2.00	1,413.13	2,099.34	0.01
62	227.00	826.03	826.03	0.95
63	565.00	1,527.78	2,436.32	2.36
64	72.00	1,878.77	3,881.59	0.30
65	454.00	775.14	1,251.89	1.90
66	227.00	316.12	316.12	0.95
67	227.00	298.38	298.38	0.95
68	454.00	910.51	1,504.90	1.90
69	92.00	560.20	4,771.74	0.38
70	696.00	1,056.57	1,725.90	2.91
71	23.00	1,242.18	2,118.87	0.10
72	454.00	1,308.02	1,790.01	1.90
73	43.00	1,405.37	2,416.99	0.18
74	227.00	298.38	298.38	0.95
75	8.00	1,081.58	1,725.90	0.03
76	227.00	298.38	298.38	0.95
77	227.00	316.12	316.12	0.95
78	908.00	976.85	1,725.90	3.79
79	174.00	788.65	8,275.12	0.73
80	290.00	2,210.30	8,104.02	1.21
81	227.00	806.00	806.00	0.95
82	227.00	400.67	400.67	0.95
83	227.00	719.39	719.39	0.95
84	14.00	450.22	2,086.32	0.06
85	227.00	414.04	414.04	0.95
86	227.00	298.30	1,105.05	0.95
87	227.00	298.38	298.38	0.95
88	227.00	298.38	298.38	0.95
89	227.00	316.12	316.12	0.95
90	454.00	576.99	855.59	1.90

Selecting Different Number of Locations

The heuristic search algorithm, Teitz and Bart's (1968) was also used to select different number of locations for both current primary schools and the potential locations of schools. This is similar to the work of Jega et al. (2017) and Kose et al. (2021) to ascertain if reducing the number of current primary school locations would minimize the average mean distances from primary school-age population homes to current locations of primary schools. Table 4 shows the number of primary schools (subsets) selected for both current locations and the potential locations, the mean distance from residential homes to selected school locations in the current settings

(current distances), the mean distance from residential homes to selected potential school locations (modelled distances) and the difference between current distances and modelled distances for each subset. From Table 4, for all the subsets analysed, the modelled distances were less than the current distances. This suggests that the method used in this research has the capability of minimizing the average travelled the distance from residential homes to services facilities, in this case, primary schools. The current and modelled distances were plotted against the number of primary schools in a subset, as shown in Figure 5.

Figure 4

Spatial Distribution of 90 Optimal Locations out of 215 Potential Locations (blue dots) and 90 Current Locations of Primary Schools (red dots)

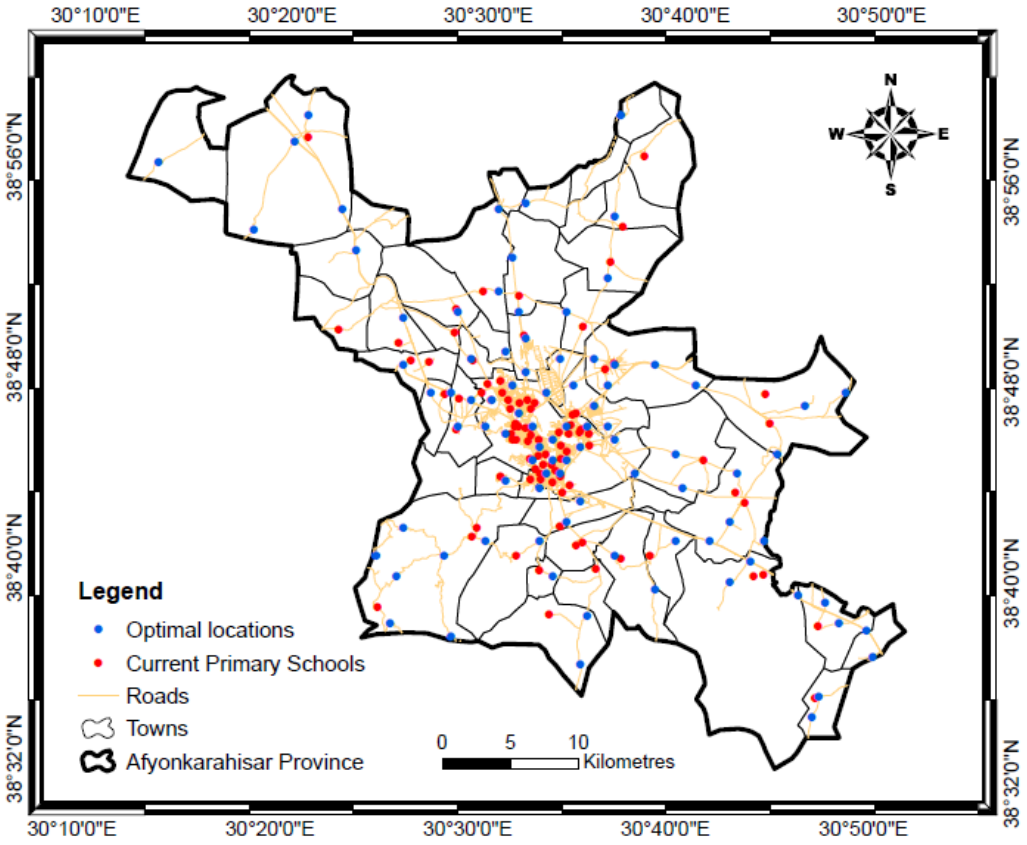


Table 4

Selecting Different Number of Primary Schools

Primary Schools	Current Distances	Modelled Distances	Difference (m)
50	2035.05	1840.88	194.17
60	1842.30	1596.03	246.27
70	1677.62	1361.98	315.64
80	1599.72	1304.54	295.18
90	1466.81	1127.12	339.69

The graph in Figure 5 shows that the average travelled distance for both the current and modelled distances reduces as the number of locations in the subset increases. Also, the modelled distances compared to the current distance have shown a significant reduction in the total travelled distances for all the subsets. This is similar to the findings of Jega et al. (2017) and Kose et al. (2021). The results suggest a decrease in the average travelled distance (modelled distances) for all the subsets, suggesting that a significant improvement can be achieved by changing the current locations of primary schools in Afyonkarahisar province.

Figure 5

Change in Current and Modelled Distances

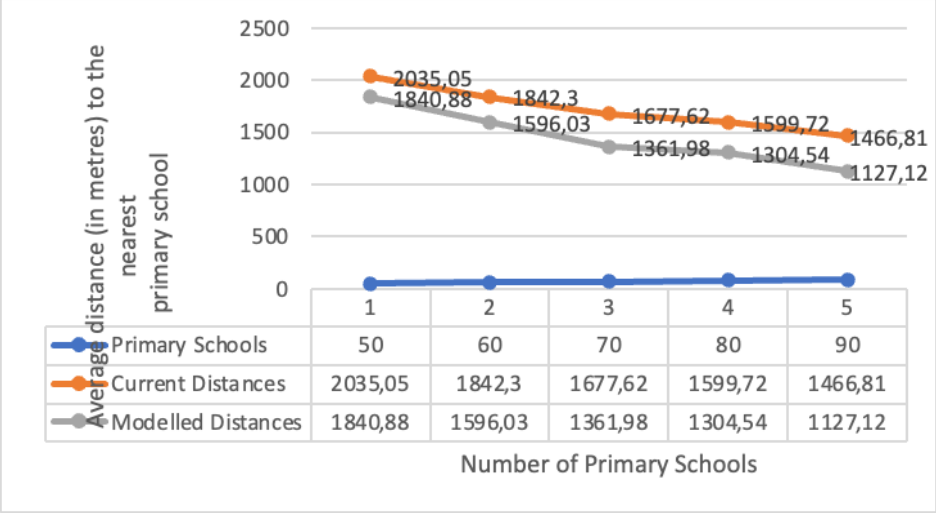
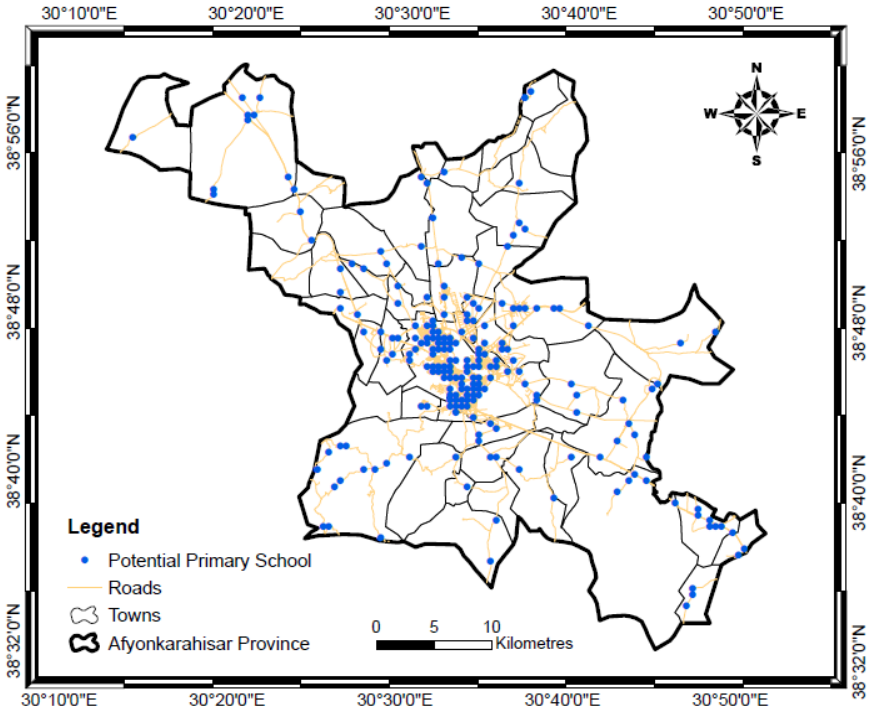


Figure 6

Spatial Distribution of 215 Potential Locations for Primary Schools (blue dots)



Conclusion

Current and potential primary school locations and the average travel distance of the children from various homes to schools were analysed using Teitz and Bart's (1968) heuristic search algorithm. The results show the average mean distance from each home to each primary school to be 1466.81m. This is 66.81m above the maximum threshold Chillón et al. (2015) recommended for young people to access primary schools. Alternative school locations that are more likely to reduce the access distance were generated and evaluated. The results show the average mean distance from each resident to each potential primary school location to be 1127.12m. This has reduced the average mean distance for the current primary schools by 339.69m. These results provide the main implication of the current study. The alternative school locations for establishing new primary schools should be considered by the policymakers in Afyonkarahisar province to increase the accessibility to primary school institutions. The results show that analysis of this nature provides documentary evidence to support decisions in locating and allocating demand to service facilities. Further geospatial analysis research is needed for different school levels and types in Afyonkarahisar, including high schools or special education institutions, to help policy and decisionmakers in their educational planning. Indeed, this data-based method for determining alternative school locations should be used throughout the country to alleviate educational planning practices for both increasing access to education and ensuring proper utilization of public resources.

The main limitation of this research is the primary school-aged population data used. The population data, which was obtained from Turkish Statistical Institute (TSI), is reported yearly. For the population distribution of each neighbourhood 6, 7, 8, 9, and 10 years, population totals were obtained and redistributed using the dasymetric technique to have an estimate of the population. Another limitation of this research involves the roads dataset, which was obtained from open street map sources. The road data did not completely cover the geographic area of the Afyonkarahisar District. The heuristic search algorithm could not allocate demand to 8 current primary schools because of this limitation. The road datasets also do not have speed limits for all types of roads within the geographic area. Indeed, roads do have different speed limits in residential and non-residential areas and on highways. The heuristic search algorithm used also assumes that all schools provide the same services. In reality, schools in urban areas have a larger capacity in terms of the student population than schools in rural areas. However, as the Primary Education Law pointed out, school complexes should be built in an appropriate location regarding health, education, and transportation. They should be at least 100 meters away from such places as bars, electronic game places, or shops selling alcohol. The study area does not have an urban atlas that contains building usage information. The dataset, which includes the usage information of the buildings, can be used as ancillary data in determining the areas away from alcohol shops, electronic playgrounds, and bars in order to build new school buildings. It must be noted that these limitations may likely affect the results but barely affect the validity of analyses and findings of this research.

Statement of Responsibility

All authors contributed to the study. Initial Conceptualization and drafting of the original manuscript were carried out by Köse, Erdem and Koçyiğit. Methodological

design and analysis were carried out by Köse and Jega. Data curation, Software and Visualization were carried out by Köse, Erdem and Koçyiğit. Writing, Revision and Editing were performed by Köse, Erdem, Koçyiğit and Jega.

Conflicts of Interest

The authors have no competing interests to declare that are relevant to the content of this article.

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Job Satisfaction and Workplace Happiness as Predictors of Workplace Friendship across Psychological Counselors

Psikolojik Danışmanların İşyeri Arkadaşlığının Yordayıcısı Olarak İş Doyumu ve İşyeri Mutluluğu

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ABSTRACT: Workplace friendship is a unique type of relationship across all organizational levels between employees in the same or different departments and is an important factor in professional life. It has been suggested that school counselors need workplace friends, who are an important source of social support, to overcome the stress associated with the corporate environment and job conditions. Furthermore, workplace friendship fulfills several positive functions for both employees and institutions. Thus, the current study's first aim is to investigate psychological counselors' perceptions about workplace friendship based on various variables. The second aim is to determine the predictive role of job satisfaction and workplace well-being perceptions of psychological counselors in workplace friendship. The study sample included 339 school counselors, 232 female (68.4%) and 107 (31.6%) male and were in different provinces in Turkey. The study data were collected with the Workplace Friendship Scale, the Job Satisfaction Scale, the Workplace Well-Being Scale, and a Personal Demographics Form. T-test, ANOVA, and multiple regression analysis were employed to analyze the study data. The findings revealed significant correlations between workplace well-being, job satisfaction, and workplace friendship. Workplace well-being and job satisfaction explained 27% of the variation in workplace friendship. The study findings contributed to determining the factors that affect workplace relations of psychological counselors.

Keywords: Workplace friendship, job satisfaction, workplace well-being, psychological counselor.

ÖZ: İşyeri arkadaşlığı, benzer ya da farklı birimlerde çalışanlar arasında, kurumun her düzeyinde meydana gelen benzersiz bir ilişki türüdür ve iş yaşamında önemli bir konudur. Okul psikolojik danışmanlarının kurumsal ve işle ilgili yaşamış oldukları stresin üstesinden gelmelerinde önemli bir sosyal destek kaynağı olan işyeri arkadaşlarına ihtiyaç duydukları düşünülmektedir. Ayrıca hem çalışanlar hem de kurumlar için işyeri arkadaşlığının birçok olumlu işlevi bulunmaktadır. Bu bilgiler ışığında bu araştırmanın ilk amacı, psikolojik danışmanlarının işyeri arkadaşlık algılarının çeşitli değişkenlere göre incelenmesidir. İkinci amacı ise psikolojik danışmanların iş doyumu ve işyeri mutluluk algılarının, işyeri arkadaşlığını yordayıcı rolünü incelemektir. Araştırmanın örneklemini Türkiye'nin farklı illerinde çalışan, 232'si kadın (%68.4), 107'si erkek (%31.6) olmak üzere toplam 339 okul psikolojik danışmanı oluşturmaktadır. Araştırmanın verileri, İşyeri Arkadaşlığı Ölçeği, İş Doyum Ölçeği, İşyeri Mutluluğu Ölçeği ve Kişisel Bilgi Formu aracılığı ile toplanmıştır. Verilerin analizinde t testi, ANOVA ve çoklu regresyon analizi kullanılmıştır. Elde edilen bulgulara göre işyeri mutluluğu ile iş doyumu değişkenleri, işyeri arkadaşlığı ile anlamlı bir ilişki sergilemiştir. İşyeri mutluluğu ile iş doyumu işyeri arkadaşlığı puanlarındaki değişimin %27'sini açıklamaktadır. Bu çalışmadan elde edilen bulgular psikolojik danışmanların işyeri ilişkilerini etkileyen faktörlerin anlaşılmasına katkı sunmaktadır.

Anahtar kelimeler: İşyeri arkadaşlığı, iş doyumu, işyeri mutluluğu, psikolojik danışman.

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Friendship was defined as sharing common experiences and interests in a particular context (a workplace, a group of mothers, or a grief group) or an activity (volunteering sports group, a community) (Pedersen & Lewis, 2012). One of these contexts, workplaces that are considered social spaces (Sias et al., 2012), provide an effective premise for establishing workplace friendship. Employees spend about one third of their lives at work (Khaleel et al., 2016; Nielsen et al., 2000; Xiao et al., 2020), and since they need to establish close relations with others (Khaleel et al., 2016), it is natural for them to build up friendships at work (Berman et al., 2002; Choi & Ko, 2020). For various reasons, such as the relationship between workplace friendship and the job, the contribution of workplace friendship to informal institutional structure, and the increase in the demand for teamwork in institutions (the individual team members and how these individuals get along with each other), workplace friendships are important (Nielsen et al., 2000). In the last decade, academic interest in this topic has increased, and several studies have been conducted (Ferreira, 2019).

Workplace friendship is different from workplace relations (Potgieter, 2019). Employee relations in the workplace could take various forms, such as those between subordinates and superiors, colleagues, and friends. Workplace relations develop over time and turn into close relations known as friendships (Sias et al., 2003; 2004). Workplace friendship is considered a unique workplace relationship that occurs at every organizational level between employees in the same or different units (Mao, 2006; Omuris, 2019). Workplace friendship is a non-coercive interpersonal and voluntary relationship. In other words, workplace friendship is not imposed but voluntary (Wright, 1984). Although employees cannot usually choose their colleagues, they choose their friends in the workplace (Omuris, 2019; Sias et al., 2003).

Berman et al. (2002) described workplace friendship as a voluntary relationship between colleagues based on a formal business theme, which includes mutual commitment, trust, common values, and interests instead of familiarity. Pederson and Lewis (2012) concluded that workplace friendship indicates informal bonds between employees who support each other through various methods. Goldsmith (2007) argued that support could be instrumental (knowledge sharing and practical assistance) or emotional (care and empathy). Thus, workplace friendship is more than acquaintances (Potgieter, 2019). According to Jehn and Shah (1997), who described workplace friendship as a positive, warm/amiable close and relationship that includes intimacy and interpersonal connections between colleagues, workplace friendship includes open communication between two individuals who relax with and trust one another, laugh and joke with each other, contributing to the professional life of both individuals (Sias et al., 2004).

In addition to social functions, workplace friendship contributes to employee well-being (Sias & Cahill, 1998; Yüksel-Şahin & Şerbetcioğlu, 2020), reduction of workplace stress (Bader et al., 2013; Berman et al., 2002), career development (Bader et al., 2013; Markiewicz et al., 2000), organizational commitment (Durusu & Cemaloğlu, 2019; Nielsen et al., 2000), effective communication, fulfillment of the duties of employees and managers, and acceptance of institutional changes (Berman et al., 2002). On the other hand, when an employee does not have friends in the workplace, or these friendships deteriorate, it affects the employee's job efficacy, career, and stress level (Sias et al., 2004). Studies demonstrated that both institutional and personal

requirements are fulfilled with workplace friendships (Durusu & Cemaloğlu, 2019). Thus, workplace friendship both affects and is affected by institutional functions (Cemaloğlu & Duykuluoğlu, 2019). In this connection, various factors could affect workplace friendships. These could be classified as personal or contextual factors. Personal factors include gender, personality, and similarities (Mao et al., 2012, p. 256). It could be suggested that job satisfaction (Angi, 2002) and the employees' workplace well-being could be consideredcontextual factors that affect workplace friendship (Bader et al., 2013; Jones, 2010). When compared to personal factors, contextual factors play a key role in developing workplace friendships (Chen et al., 2013).

Job satisfaction is the emotional reactions of individuals to their jobs (Coetzee et al., 2010). According to Herzberg's two-factor theory, internal and external factors affect job satisfaction. Internal factors include motivational elements such as success, recognition, the job itself, responsibility, advancement, and development, while external factors include elements associated with the work environment such as corporate policy and management, supervision, work conditions, salary, relations with colleagues, personal life, relations with subordinates, status, and security (Smerek & Peterson, 2007). While job satisfaction is an attitude that includes a cognitive analysis of the job (job dimensions), happiness is more comprehensive. In other words, while happiness entails personal emotions, job satisfaction reflects the analysis of the job. Thus, individuals could be happy with their jobs but could develop negative attitudes towards their jobs, or on the contrary, could love their jobs but feel unhappy at work (Wright & Doherty, 1998). Diener (2000) defined happiness as a frequent experience of positive emotions, a rare experience of negative emotions, and high satisfaction with life.

According to Heller et al. (2002), happiness is an emotional response to the entirety of one's life. Since individuals cannot separate their professional lives, emotions, and thoughts and their thoughts and emotions about their lives, they could reflect professional problems into their domestic lives and their domestic problems into their professional lives (Yüksel-Şahin & Sarıdemir, 2017). Thus, happiness in the workplace plays a key role in individuals' lives (Karayaman, 2021). The concept of happiness in workplace is not only about good and positive emotional experiences (Saenghiran, 2013, p. 22); in other words, it is more than job satisfaction since it includes a meaningful professional life (Bataineh, 2019; Saenghiran, 2013). Workplace happiness is associated with optimal employment of personal resources to overcome difficulties (Coetzee et al., 2010). Since job plays a central role in people's lives (Coetzee et al., 2010) and workplace happiness affects the life of an individual outside of work, in other words, happiness at the workplace also affects happiness in life (Keser, 2018), happiness at the workplace is increasingly important (Yozgat & Bilginoğlu, 2020).

Due to the significance of workplace friendship, several studies have been conducted with occupational groups in various industries. Although there are a few studies on teachers, no study was conducted on the workplace friendships of psychological counselors. However, several studies focused on workplace friendship (Ferreira, 2019; Tse & Dasborough, 2008), and it was reported that the factors that affected workplace friendship should be investigated (Nielsen et al., 2000). Furthermore, it was emphasized that the significance of workplace friendship is more evident in certain professions or professional groups that require emotional labor or

those with high-stress levels (Choi & Ko, 2020, p. 5). School counselors have to provide crisis intervention services for a high number of students who experience stressful and complex problems such as substance abuse (Pau et al., 2020), suicide (Capuzzi, 2002; Hopson & Kim, 2004; Pau et al., 2020; Poland, 1994), child abuse and neglect (Wanlass et al., 2006), conflicts with parents (Hopson & Kim, 2004), bullying or exposure to violence (Elledge et al., 2016; Poland, 1994), crises associated with a new school (school phobia, psychosomatic symptoms associated with schooling, sleep problems), crises associated with academic failure (failing a grade, failing exams), crises associated with sex (unexpected pregnancies in adolescents, gay and lesbian adolescents), and future anxiety (Tanacıoğlu, 2018, p.75). Furthermore, the school itself is a stressful environment (Young & Lambie, 2007, p. 107). Also, the job descriptions vary based on the grade of the students for whom the counseling services are provided (Sisson & Bullis, 1992, p. 109). Job descriptions of psychological counselors are detailed in the Guidance and Psychological Counseling Services Regulation published by the Ministry of National Education (MoNE, 2020). Psychological counselors should collaborate with school administrators and teachers and participate in the school board as team members to fulfill the duties specified in regulations, in other words, to meet the needs of all students effectively and adequately (ASCA, 2012; DeMato & Curcio, 2004, p. 243). This requirement for collaboration emphasizes the relationship-oriented aspects of teamwork, such as closeness, personal communication, adoption of similar values, and friendship (Tse & Dasborough, 2008, p. 204).

In educational institutions, school counselors perform tasks related to developmental and preventive services, remedial services, and support services. Some of these services include implementation of counseling activities, application and evaluation of individual recognition techniques, individual counseling and group counseling, psychosocial support services, referral and counseling services, and school guidance and counseling program (MoNE, 2020). School counselors experience institutional and work-related stress when implementing the comprehensive school guidance and counseling program (DeMato & Curcio, 2004; Young & Lambie, 2007). The work-related stress experienced by counselors is induced by their interaction with clients/students (Young & Lambie, 2007), the ambiguity of the roles (Culbreth et al., 2005; DeMato & Curcio, 2004), rigid hierarchical structures, and lack of adequate institutional supervision and support (Young & Lambie, 2007). These stressors could include workplace stress associated with professional relations, long work hours, paperwork, and meaningless tasks that take away the employee's sense of control (role stress) (Young & Lambie, 2007). Professional stress associated with relations could be induced by an unhappy social environment, lack of collaboration, and lack of colleague support (Young & Lambie, 2007). Another factor that leads to stress in psychological counselors is role stress (Young & Lambie, 2007, p.104). There are still problems with the roles and responsibilities of psychological counselors. It was suggested that several factors are associated with role stress, such as work hours of psychological counselors (6 hours per day), work style differences between counselors and teachers (they do not instruct classes, give exams, or supervise), limitations of their activities to the guidance room, high expectations of certain administrators and teachers from guidance services (Burnham & Jackson, 2000; Zalaquett & Chatters, 2012) or expectations that do not match the counselors' roles (Shoffner & Williamson, 2000), administrative tasks that are

not included in the job description of psychological counselors (Owen & Owen, 2008), and the assignment of disciplinary tasks (Evans et al., 2011). As stated in detail above, school counselors face many stressful situations while working in the school environment and need social support in this context. Providing emotional and instrumental support (Goldsmith, 2007), workplace friendship is very important for employees. In addition, considering the services of psychological counselors in the school, the study of the concept of workplace friendship, which also affects job satisfaction, will also allow the school's guidance services to improve. Thus, it is important to determine the factors that predict psychological counselors' workplace friendship, as Choi and Ko (2020) mentioned.

It was reported that counselors, who experience higher stress levels, received lower levels of social support (Sowa et al., 1994). Thus, the development of social relations in the workplace and the significant contribution of workplace friendships to overall social interaction and social support are important (Young & Lambie, 2007). It could be suggested that school counselors need workplace friends who could provide social support, to cope with corporate and job stress. Also, since workplace friendship has several contributions to both employees and institutions, further research is required to determine the variables that affect workplace friendship. The current study's findings would fill the literature gap and contribute to determining the factors that affect the workplace relations of school counselors. Thus, the first aim of the present study was to investigate the perceptions of psychological counselors about workplace friendship based on various variables. In this context, it was tried to determine the variables (gender, meeting outside of school, level of intimacy) that affect the workplace friendship of school counselors. Gender is thought to have special importance in friendship relations. According to Bank and Hansford (2000), women are more supportive and closer to friendships than men. In the study of Roy et al. (2000), women compared to men state that they want to spend more time with their close friends in difficult times and celebrate positive events in their lives with their close friends. It is also seen in the literature that it is emphasized that workplace friendship in public institutions differs according to gender (Song, 2006). In Keleş's (2018) study, it was found that female teachers' perceptions of friendship were significantly different from male teachers' perceptions of friendship. Based on the literature, it is thought that gender may affect the workplace friendship of psychological counselors. Another variable that is thought to affect workplace friendship is meeting outside of school. It is stated that interacting outside the institution in friendship relations will support the development of friendships (Sias, 2009; Sias & Cahill, 1998). Therefore, in the workplace, people try to establish social relations with their friends and carry these relations outside the institution (Baron & Pfeffer, 1994). Therefore, moving relationships out of the organization may affect workplace friendship.

Another important point about friendship relations is that the degree of closeness of individuals with their friends may differ. Sullivan (1953) describes intimacy as showing mutual interest and sensitivity, mutual sharing, and revealing feelings and thoughts. Intimacy in intimate relationships involves frequent meetings and self-disclosure. Such relationships require strong trust, the components of which are being sure of acceptance and love, loyalty, honesty, care, and unselfish expectation of intimacy (Govier & Verwoerd, 2002). Considering that providing all these elements in a

relationship requires a serious effort, it is understandable that the degree of intimacy of individuals in friendship relationships may differ. Therefore, the level of intimacy in relationships can also affect workplace friendships. The second aim was to investigate the predictive role of job satisfaction and workplace happiness perceptions of psychological counselors in workplace friendship. Accordingly, the research problems were determined as follows:

1. Is there a significant difference between the perceptions of psychological counselors about workplace friendship based on gender?
2. Is there a significant difference between the perceptions of psychological counselors about workplace friendship based on their friendship with colleagues outside of the school?
3. Is there a significant difference between the perceptions of psychological counselors about workplace friendship based on their intimacy with workplace friends?
4. Are job satisfaction and workplace happiness of psychological counselors significant predictors of workplace friendship?

Method

Research Model

The current study was conducted with the relational survey model. Relational survey aims to determine correlations and causalities between two or more variables. In relational survey model, it is also possible to test one of the variables as the dependent variable and the other variables as independent variables besides determining the correlations between the variables. In studies conducted to determine the correlations between variables, the presence, and direction of causality are not clear. Studies conducted to determine the predictor could reveal the effect size of the independent variable on dependent variables (Büyüköztürk et al., 2013).

The Study Sample

Convenience sampling was employed in the study. In this method, the researcher chooses a situation that is close and easy to access. This sampling method is often used when the researcher is not able to use the other sampling method (Kılıç, 2013). The study sample included school counselors employed in 55 provinces in 7 regions of Turkey during the 2021-2022 academic year. 121 (35.7%) participants were employed in high schools, 101 (29.8%) were employed in junior high schools, 93 (27.4%) were employed in primary schools, and 24 (7.1%) were employed in preschool education institutions. Among the participants, 232 (68.4%) were female, and 107 (31.6%) were male. The mean participant age was $\bar{X}$=33.37, and 5 participants had PhDs (1.5%), 64 (18.9%) had graduate degrees, and 270 had undergraduate degrees (79.6%). 243 (71.7%) participants were intimate with their colleagues outside the school, while 96 (26.3%) did not meet with their colleagues outside the school. Finally, 155 participants (45.7%) stated that they were very intimate with their colleagues at work, 121 (35.7%) stated that they have a relation only at school, and 63 (18.6%) stated that they kept their distance.

Table 1

Participant Demographics

Variable		*f*	%
1.Gender	Female	232	68.4
	Male	107	31.6
2.Education	Undergraduate	270	79.6
	Graduate	64	18.9
	PhD	5	1.5
3.Institution of employment	High school	121	35.7
	Junior high school	101	29.8
	Primary school	93	27.4
	Preschool	24	7.1
4.Intimacy outside of the school	Yes	243	71.7
	Not	96	26.3
5.Intimacy with workplace friends	Very close, friends	155	45.7
	Only in the workplace	121	35.7
	We preserve a distance	63	18.6
TOTAL		339	100

Data Collection Instruments

Personal Information Form

Participant demographics such as gender, age, school of employment, education level, and workplace relations were collected with a personal information form developed by the authors.

Workplace Friendship Scale

The Workplace Friendship scale, developed by Neilsen et al. (2000), and adapted to the Turkish language by Kıral (2016), includes 12 items and two sub-dimensions. These sub-dimensions are "Friendship Opportunity" (sample item: I have the opportunity to get to know the people I work with at my school) and "Dominant Friendship" (sample item: I make good friends at my school). The highest scale score is 60, and the lowest scale score is 12. The scale includes 5-point Likert-type positive items. Higher scores indicate higher workplace friendship level. The total score was calculated by summing the scores given to all items in the scale. Cronbach alpha coefficients of the sub-dimensions were determined as 76 and .78, respectively in the Turkish version of the scale and .84 for the entire scale (Kıral, 2016). The Cronbach alpha coefficient was .70 for the entire scale in the current study.

Job Satisfaction Scale

The Minnesota Job Satisfaction Questionnaire, the short form, was employed in the study. The scale was developed by Weiss et al. (1967). The scale was adapted to the

Turkish language by Baycan (1985). The scale has two sub-dimensions: Internal Satisfaction (sample item: always keeps me occupied) and External Satisfaction (sample item: my managers' decision-making skills).

The scale consists of 20 items. The overall satisfaction score is calculated by taking the average of the sub-dimension scores. The highest scale score is 5, and the lowest scale score is 1. All scale items are positive and rated with a 5-point Likert-type grading. A high score indicates high job satisfaction. The Cronbach alpha coefficient of the scale was reported as .78. The Cronbach alpha coefficient was calculated as .93 in this study.

Workplace Happiness Scale

The one-dimensional and 5-item scale was developed by the WHO Collaborating Center for Mental Health and Frederiksberg General Hospital Psychiatric Research Unit to measure employees' happiness in the workplace. The scale was adapted to Turkish language by Alparslan (2016) as a 6-point Likert-type scale. The reliability coefficient of the original scale was .83 and the scale was highly reliable. A high scale score indicates high workplace happiness. The last scale item is scored in reverse, while the rest are positive items. The total score was calculated by summing the scores given to all items in the scale. The items include judgements such as "I feel cheerful and pleasant at work " "When I arrive at work in the morning, I feel vigorous." In the current study, the Cronbach alpha coefficient was calculated as .88.

Data Collection and Analysis

After the approvals of the relevant institutions were obtained for the study, the study data were collected on Google Forms. Descriptive statistics and regression analysis were employed to analyze the study data. The analyses were conducted with software, and the significance level was accepted as .05.

Before the analysis of the study data, a normal distribution of the data was determined with kurtosis and skewness coefficients. A kurtosis and skewness value between -3 and +3 (Tabachnick et al., 2007) is accepted as an indication of normal distribution. In the current study, kurtosis and skewness varied between -0.700 and +0.800; thus, the data exhibited normal distribution. The presence of autocorrelation across the variables was tested with the Durbin-Watson coefficient. Durbin-Watson coefficient was calculated as 2.138 in the study. A Durbin-Watson coefficient (0 <d< 4) close to zero indicates an extremely positive correlation, while a coefficient close to 4 indicates an extremely negative correlation. Durbin-Watson coefficient could be interpreted as an indicator of no autocorrelation across the variables (Kalaycı, 2008). A status index of higher than 30 indicates multicollinearity between the predictive variables. In the study, these values were calculated as 11.350 and 17.190. Thus, there was no multicollinearity. Also, multicollinearity across the independent variables of the study was tested with the variance inflation factor. A variance inflation factor of less than 10 indicates no multicollinearity across the independent variables. The variance inflation factor (VIF) for the independent variables was 2.18 in the study; thus, there was no multicollinearity, and regression analysis could be applied (Büyüköztürk, 2009).

The total score was calculated by summing the scores given to all items in the scales. In other words, the evaluation was made based on the total score calculation.

Ethical Procedures

This study ethics committee's approval was received with the session date and number 09.12.2021/2021/24-02 from University Research and Publication Ethics Committees, Social and Human Sciences Research and Publication Ethics Committee. Scientific, ethical, and citation rules were followed during the writing process of this study. No falsification was made on the collected data.

Findings

In this section, significant differences between workplace friendship scores based on gender and significant difference between workplace friendship scores based on intimacy outside of the school variable were determined and presented. Then the results of the multiple linear regression analysis conducted on the study variables are presented.

Descriptive Statistics

Workplace friendship was the dependent variable in the study, and the independent study variables were job satisfaction and workplace happiness. The arithmetic mean, standard deviation, and minimum-maximum scores for the dependent and independent variables are presented in Table 2.

Table 2

Descriptive Statistics

Variable	$\bar{x}$	*SD*	Min	Max
Workplace friendship	35.34	5.523	14	46
Job satisfaction	3.35	.676	1	5
Workplace happiness	20.93	4.461	5	30

As seen in Table 2, the lowest workplace friendship score of the school counselors was 14, and the highest score was 46. Furthermore, the arithmetic mean of the workplace friendship scores of the school counselors was 35.34.

It was observed that the lowest job satisfaction score of the school counselors was 1, and the highest score was 5. Also, the arithmetic mean of the job satisfaction scores of school counselors was 3.35.

It was determined that the lowest workplace happiness score of school psychological counselors was 5, and the highest score was 30. Also, the arithmetic mean of the workplace happiness scores of school counselors was 20.93.

Workplace Friendship, Job Satisfaction and Workplace Happiness

As seen in Table 3, there were no significant differences between workplace friendship scores based on gender (p>0.05). The differences between the female and male participants' workplace friendship scores were insignificant.

Table 3

The Results of the t-test Conducted to Determine the Variations in Workplace Friendship, Job Satisfaction, and Workplace Happiness Scores of Counselors Based on Gender Variable

	Gender	*n*	$\bar{x}$	*ss*	*Sd*	*t*	*p*
Workplace friendship	Female	232	35.05	.490	5.078	-.647	.518
	Male	107	35.47	.375	5.722		

$p<0.05$*

Table 4 shows significant differences between the workplace friendship scores based on intimacy outside of the school variable ($p<0.05$). The workplace friendship score of school counselors who were intimate with their colleagues outside of the school ($\bar{x}$=37.08) was significantly higher than those the school counselors ($\bar{x}$=30.93) who were not intimate with their colleagues outside the school. Those who were intimate with their colleagues outside of the school had higher workplace friendship perceptions.

Table 4

The Results of the t-test Conducted to Determine the Variations in Workplace Friendship of Counselors Based on Intimacy outside of the School Variable

	Intimacy	*n*	$\bar{x}$	*ss*	*Sd*	*t*	*p*
Workplace friendship	Yes	243	37.08	.298	4.646	10.656	.000*
	No	96	30.93	.522	5.117		

As seen in Table 5, there was a significant difference between the mean workplace friendship scores based on the level of intimacy. The mean workplace friendship score of the school counselors who were very close and friendly with their colleagues ($\bar{x}$=38.58) was significantly higher than the mean workplace friendship score of the school counselors who only communicated with their colleagues at work ($\bar{x}$=32.23) and those who kept their distance ($\bar{x}$=33.34). Colleagues who were close friends had better workplace friendship perceptions.

Table 5

The Results of the ANOVA Conducted to Determine the Variations in Workplace Friendship of Counselors Based on Intimacy outside of the School Variable

	Intimacy level	*n*	$\bar{x}$	*ss*	*Sd*	*F*	*p*	Significance
Workplace Friendship	We are very close	155	38.58	.341	4.247	70.468	.000*	1-2
	We communicate only in the workplace	121	32.23	.419	4.616			1-3
	We keep our distance	63	33.34	.702	5.576			

$p<0.05$*

Table 6

The Results of Multiple Regression Conducted to Determine the Prediction of Workplace Friendship of Psychological Counselors by Job Satisfaction and Workplace Happiness

Variable	*B*	Standard Error	*β*	*t*	*p*	Paired r	Partial r
Constant	20.535	1.341	-	15.314	0.000	-	-
Job satisfaction	1.835	0.593	0.225	3.094	0.002	0.482	0.143
Workplace Happiness	0.413	0.090	0.334	4.594	0.000	0.507	0.213
R=0.527	R^2=0.278						
$F_{(2-336)}$=64.622	p=0.000						

The multiple linear regression analysis conducted to determine the predictive power of job satisfaction and workplace happiness variables on workplace friendship revealed that there was a significant correlation between job satisfaction, workplace happiness, and workplace friendship (R=0.527, R^2=0.278) ($F_{(2-336)}$= =64.622, p<0.01). Together, these two variables explained 27% of the variation in workplace friendship. The standardized regression coefficients revealed that the relative significance of the predictor variables on workplace friendship was as follows: job satisfaction β=0.334, and job satisfaction β=0.225. It was determined that both predictive variables (p<0.05) were significant predictors of workplace friendship. The analysis of the correlation between the predictor variables and workplace friendship demonstrated the following correlations: job satisfaction r=0.482, [when the effect of the other predictor variable is controlled (r=0.143)] and workplace happiness r=0.507 [when the effect of the other predictor variable is controlled (r =0.213)].

Discussion and Conclusion

The current study investigated whether workplace happiness and job satisfaction predicted workplace friendship in school counselors. The study findings demonstrated that workplace happiness and job satisfaction were significant predictors of workplace friendship. Thus, it could be suggested that when school counselors' workplace happiness and job satisfaction levels are high, their workplace friendship levels will also be high. It was determined that the significance ranking of the significant predictors of workplace friendship was workplace happiness followed by job satisfaction. The study findings also demonstrated no significant difference between workplace friendship levels of school counselors based on the gender variable, while there was a significant difference based on the intimacy of their friendship outside of the school.

It was revealed that there were no differences between the perceptions of school psychological counselors about workplace friendship based on the gender variable. Similar to this finding, certain studies in the literature reported no differences between workplace friendship scores based on gender (Berman et al., 2002; Bozanoğlu, 2020; Karaköy, 2019; Sias et al., 2003; Şahinbaş & Erigüç, 2019), while others reported differences between workplace friendship scores based on gender (Bader et al., 2013;

Song, 2006). Song (2006) reported that workplace friendship levels of public servants differed based on gender and indicated that the perceptions of males were more positive when compared to females. It could be suggested that there was no difference between the workplace friendships scores of school counselors based on gender since the friendship of men and women are similar (Sias et al., 2003). Men and women establish friendships with colleagues for similar reasons. Previous studies reported these reasons as individual factors (i.e., personality and similarities), workplace factors (i.e., affinity and shared tasks), and other organizational factors (i.e., socialization and life events) in both men and women (Sias et al., 2003).

The study determined that workplace friendship scores differed based on the intimacy of psychological counselors with their colleagues outside of the school. Individuals could interact socially both inside and outside of the workplace. This provides opportunities for individuals to get to know other traits of their colleagues (Zarankin & Kunkel, 2019). The interactions among individuals in more than a single environment allow them to learn more about one another compared to a certain environment, improving their friendship (Sias & Cahill, 1998). Based on the theoretical perspective, there are three types of social relations in the workplace: "professional acquaintances," "colleagues," and "social friends". "Professional acquaintances" are colleagues who establish formal relations at work. Interactions between professional acquaintances are task-oriented, and do not entail like or dislike. On the other hand, "colleagues" have social interaction at work. Colleagues can go out for lunch; however, their socialization is limited to the workplace. They do not participate in leisure activities outside of the work environment. Colleague relations can turn into social friendships. "Social friends" are colleagues who meet outside of work (Ohtake & Chadsey, 1999). Thus, friendship between colleagues is only temporary when it is based on professional tasks (project or common location, etc.) (Berman et al., 2002). Once these factors change, workplace friendships could end unless individuals develop new common ground. However, it could be assumed that individuals do not initiate and sustain workplace friendships to achieve organizational goals or assist in professional activities (Morrison, 2009). Most people aim to establish social relations with their friends, both in and outside of the workplace, for the intrinsic rewards of friendship (Baron & Pfeffer, 1994), and they prefer to take these relations outside of work. It was also observed that individuals are motivated to make friends in return for the rewards of that friendship (Morrison & Nolan, 2007). These rewards could include social and emotional support (Sias et al., 2003), self-disclosure, and common interests and activities (Morrison, 2009). It could be suggested that internal rewards of friendship could affect the extension of workplace relations outside workplace. This could explain the more positive perceptions of psychological counselors who meet with their colleagues outside the school workplace about workplace friendship.

It was identified in the study that psychological counselors' perceptions of workplace friendship differ according to the level of intimacy. It was observed that psychological counselors who stated that they were very close and friendly had higher workplace friendship perceptions. In the literature, it was reported that close friendships often include relations with colleagues (Morrison, 2009). In a study on the transformation of workplace friendship from acquaintance to colleague, from friendship to close friendship, and from close friendship to best friends, Sias and Cahill (1998)

determined that each transformation was associated with a different type of communication. With each transformation, communication between individuals becomes more intimate, less cautious, and less superficial. As relations deepen, intimacy, trust, and self-disclosure become more common. Thus, the improvement of relations with friends in the workplace affects the level of intimacy. The workplace friendship perceptions of psychological counselors who stated that they were friends differed from those of the other groups. It could be suggested that the intimacy of the friendship was effective in that finding.

The analysis conducted to determine the presence of significant correlations between workplace friendship, workplace happiness, and job satisfaction of school psychological counselors revealed that there were moderate, positive, and significant correlations between workplace friendship and workplace happiness and job satisfaction, and workplace happiness and job satisfaction predicted workplace friendship. This could be an indicator that the workplace happiness and job satisfaction levels of school psychological counselors could have a positive effect on workplace friendship. Similar to these findings, certain studies conducted on different occupational groups reported a correlation between workplace friendship and workplace happiness (Alparslan, 2016; Erer, 2021; Sias & Cahill, 1998; Suojanen, 2017; Wesarat et al., 2014; Yap & Badri, 2020). Deal and Levenson (2016) emphasized the significance of workplace friendships and reported that employees enjoyed their time at work more when they had workplace friendships. Bader et al. (2013) mentioned a correlation between employee happiness and workplace friendship. Since interpersonal relations play a key role in our happiness (Fisher, 2010), the emphasis on workplace friendships (Mao et al., 2012) explained the correlation between workplace happiness and workplace friendship of psychological counselors.

It was also found in the study that there was a positive correlation between workplace friendship and job satisfaction. Consistent with the present study findings, certain studies conducted on different occupational groups reported a correlation between workplace friendship and job satisfaction (Amjad et al., 2015; Huang, 2016; Markiewicz et al., 2000; Morrison, 2004; Nielsen et al., 2000; Richer et al., 2002; Yavuzkurt & Kıral, 2020). It was emphasized that workplace friendship is important for improving the employees' professional attitude and performance (Song, 2006), and supportive workplace friends positively affect job satisfaction (Tabancalı, 2016). A limited number of studies focused on the job satisfaction of school counselors. DeMato and Curcio (2004) indicated that participating psychological counselors were satisfied with their jobs; however, their overall job satisfaction had decreased during the last decade. Mao et al. (2012) reported that workplace friendship motivated employees. Furthermore, emotional support, which referred to "caring, concern, empathy, and value assurance" expressions of workplace friends, informational support, and instrumental support that recognizes "not only knowledge but also advice or new perspectives on a problem" or "resources" provided by a coworker have positive functions such as support for "goods and services" (Goldsmith, 2004, p. 13). The support provided by colleagues is different from the support offered by other friends and family members since workplace friendship allows the employees to understand workplace problems and experiences in a way that outside friends and family could not (Ray, 1987). The fact that workplace friendship could improve job satisfaction (Huang, 2016, p. 579) by providing

further resources and assistance and facilitating the job could explain the positive correlation between workplace friendship and job satisfaction of psychological counselors.

As in any research, the current study has limitations. The first limitation was the fact that the school counselors were contacted via Google Forms. Due to this limitation, 339 school counselors were contacted. Another limitation of the study was that most school counselors were female. The number of female counselors was higher than the number of male counselors. Also, data on the gender of the friends of school counselors were not collected. The gender of the colleagues could also have an impact on the individual's professional life (Morrison, 2009). Another limitation of the current study was that a separate measurement tool was not employed to determine the intimacy level of workplace friendships. The intimacy level reflects the personal perceptions of psychological counselors. Furthermore, although culture affects interpersonal relations (Hung, 2004), the study sample included only psychological counselors employed in Turkey. The lack of cultural diversity in the sample limited the generalizability of the findings.

The present study demonstrated that psychological counselors' workplace happiness and job satisfaction were significant predictors of workplace friendship. This could be useful for both school psychological counselors and administrators. Administrators could support the development of positive workplace friendships by determining the factors that affect psychological counselors' workplace happiness (e.g., communications with administrators, positive work conditions, rewards, and appreciation, etc.) and implementing these factors to improve their workplace happiness in the institution. Also, it could be recommended that administrators should spend conscious efforts to organize events both inside and outside the organization to support social interaction among their employees and allow effective communication. Especially extracurricular events are important since they could provide opportunities for individuals to get to know each other better. Considering the significance of workplace friendship and the lack of studies on workplace friendships among psychological counselors, further studies that would investigate different variables (personality traits, organizational commitment, perceptions of justice, etc.) that could impact workplace friendship among school counselors could be recommended. Due to the effect of culture on interpersonal relations, it could be recommended to conduct comparative studies on the workplace friendship of counselors in different cultures. Also, future qualitative studies would allow in-depth exploration of workplace friendships among school counselors and determine the nature of these relationships and the impact of the colleague's gender on professional life.

Statement of Responsibility

Nilgün Öztürk; data collection, writing abstract introduction, conclusion sections and review. Ezgi Sumbas; methodology, analysis, and writing results section and review.

Conflicts of Interest

The authors declare no conflict of interest.

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Developing the Skill of Associating Mathematics with Real Life Through Realistic Mathematics Education: An Action Research *

Gerçekçi Matematik Eğitimi Yoluyla Matematiği Gerçek Yaşamla İlişkilendirme Becerisinin Geliştirilmesi: Bir Eylem Araştırması

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ABSTRACT: The purpose of this study is to investigate how to improve middle school 6th-grade students' skill of associating mathematics with real life through Realistic Mathematics Education, which was reinforced with educational games, to determine the problems possible to be encountered in practice and how to solve these problems in details. This study, designed as action research, was carried out in mathematics lessons with 25 sixth-grade students studying in the first and second semesters of the 2018-2019 academic year. The qualitative data of the research were collected through semi-structured interviews, camera recordings related to the application process, a structured student diary, a researcher diary, and reflective assessment forms. The quantitative data of the study were collected with worksheets, educational games, performance projects, and the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life developed by the researchers and performed twice before and after the application. According to the results, Realistic Mathematics Education reinforced with educational games was efficient in increasing the skill of associating mathematics with real life.

Keywords: Educational games, skill of associating mathematics with real life, action research.

ÖZ: Bu araştırmanın amacı, ortaokul 6.sınıf öğrencilerinin matematik derslerinde eğitsel oyunlarla pekiştirilmiş Gerçekçi Matematik Eğitimi yoluyla matematiği gerçek yaşamla ilişkilendirme becerisinin nasıl geliştirilebileceği, uygulamada karşılaşılacak sorunların neler olabileceği ve nasıl giderilebileceğinin ayrıntılı olarak incelenmesidir. Eylem araştırması olarak tasarlanan bu çalışma 2018-2019 eğitim-öğretim yılı birinci ve ikinci döneminde matematik derslerinde toplam 25 altıncı sınıf öğrencisi ile yürütülmüştür. Araştırmanın nitel verileri; yarı yapılandırılmış görüşmeler, uygulama sürecine yönelik kamera kayıtları, yapılandırılmış öğrenci günlüğü, araştırmacı günlüğü ve yansıtıcı değerlendirme formları aracılığıyla toplanmıştır. Araştırmanın nicel verileri ise, araştırmacılar tarafından geliştirilen ve uygulama öncesi ve sonrası iki defa uygulanan Matematiği Gerçek Yaşamla İlişkilendirme Becerisi Tanılayıcı Form, çalışma yaprakları, eğitsel oyunlar ve performans görevi aracılığıyla toplanmıştır. Elde edilen sonuçlara göre, eğitsel oyunlarla pekiştirilmiş Gerçekçi Matematik Eğitimi'nin matematiği gerçek yaşamla ilişkilendirme becerisini artırmada etkili olduğu tespit edilmiştir.

Anahtar kelimeler: Eğitsel oyun, matematiği gerçek yaşamla ilişkilendirme becerisi, eylem araştırması.

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One leading issue that today's societies regard is to reach accurate information, understand the information obtained, produce new information from it, and use the produced information for decision-making processes and problem-solvingIn this sense, educators have noticed that today's education systems aim to teach students how to reach information, make sense of the information obtained, and create new information rather than simply transferring existing information. Making sense of information brings about information processing skills. Because after graduation, they are expected to be individuals who not only make sense of the information they have acquired but also produce new ones and solve their problems by using this information (Doğanay, 2017). Undoubtedly, one of the most efficient ways to make sense of information is to associate it with real-life situations. The reflection of acquired knowledge in real life facilitates learners' internalization of the information and helps them adapt to new situations.

A deep understanding of mathematics is more relevant to mathematical learning than students' current knowledge of mathematics and correct problem-solving (Dolapçıoğlu & Doğanay, 2020). The source of mathematical knowledge is real-life problems, and inferences and applications made from mathematical knowledge are also intertwined with real life. Due to this structure, mathematics includes skills and methods used in every field, starting from the preschool period until the end of life. In the renewed 2018 primary education mathematics curriculum of the Ministry of National Education (2018), it has been emphasized that mathematics education is one of the basic skills and competencies and contributes to a happy and successful life. Related to the field of proficiency, the importance of mathematical thinking, being able to formulate events mathematically, and using mathematical knowledge in inferences about events, facts, and situations have been emphasized as mathematical literacy skills in the 2018 primary education mathematics curriculum of the Ministry of National Education (MEB, 2018). The first of the points that make mathematics important is that the individual wants to live in a better quality after guaranteeing his life process. The second is that existing natural entities and events have a stable structure and that their stability can only be explained by means of mathematics. The third is that mathematics develops the thinking, reasoning, and argumentation abilities of people. Therefore, knowing how mathematics is learned by the individual is an important way to improve mathematics education (Skemp, 1987).

According to Altun (2016), everything in nature behaves decisively, this determination constitutes a suitable basis for mathematics, and mathematical correlations are obtained as a result of researching this stability. Therefore, the knowledge of mathematics produced through inspiration and applications that the human mind gets from nature is not disconnected from real life. Due to this importance, mathematics-related behaviors take place at every level and in every field from the first years of primary education to higher education (Üzel, 2007). Mathematics education includes all activities in the process of learning and teaching mathematics, and all activities in this process depend on the acquisition of mental and high-level skills (Işık et al., 2005). Well-designed, purposeful activity environments are needed for children to create knowledge through their experiences (Olkun & Toluk Uçar, 2006). On the other hand, students experience difficulties with where and how to use the information they have learned in the classroom environment in their daily lives (Doruk & Umay, 2011).

It is possible to say that mathematics education has a decisive effect on high-level mental skills and cannot be disconnected from other disciplines and real life. However, most people avoid mathematics in their education life; they are afraid, and as this fear leads them to failure, the severity of the fear increases (Keklikci & Yılmazer, 2013).

According to Akyüz (2001), one of the reasons for rote learning is that there is no real connection between life and what is learned in textbooks. The fact that memorized information is forgotten more quickly and can result in failure makes it difficult to retain information. In contrast, students can learn useful behaviors more easily (Sönmez, 1999). Baki (1996) stated that correlating the activities of the mathematics curriculum with daily life could encourage students to learn mathematics, keeping them away from the fear of mathematics. In this sense, it is possible to say that one of the approaches that can be used in mathematics education is Realistic Mathematics Education (RME). RME approach (Olkun & Toluk Uçar, 2006), which is similar to the basic principles of the constructivist learning approach, has been introduced for improving and developing mathematics education; mathematics learning is considered as a process of interpretation in this approach (Nelissen & Tomic, 1998).

According to Boehm (1967), while applied mathematicians once successfully and curiously tackled the problems of the world, pure mathematicians seemed to have almost lost touch with the real world. It was possible to talk about the sharp boundaries between applied and pure mathematics. On the other hand, studies conducted in recent years have highlighted the role of mathematics in daily life. There are researches on what the mathematics learned at school will do in real life (Moschkovich, 2002; Van den Heuvel-Panhuizen, 2003). Since it will be easier to make sense of real life by using mathematical knowledge and skills, it is possible to process mathematics lessons in the context of real life and thus increase students' ability to relate mathematics to real life.

RME is the learning and teaching approach in mathematics teaching, which was first developed and introduced at the Freudenthal Institute in the Netherlands by Hans Freudenthal and his colleagues in the 1970s. This reform movement was first triggered by the Wiskobas project developed by Wijdeveld and Goffree in 1968, and then RME has now been shaped mostly around Freudenthal's views on mathematics (Van den Heuvel-Panhuizen, 1998). The RME approach has been used outside the Netherlands; many countries such as England, Germany, Spain, Brazil, Portugal, South Africa, Vietnam, Indonesia, Malaysia, Japan, and the United States have used it in their education systems (Gravemeijer & Terwel, 2000; Yağcı & Arseven, 2010). Freudenthal (1973) mentioned that mathematics teaching should take the form of seeking solutions for real-life problems and phenomena, which means doing mathematics. RME is based on the stimulation of an environmental event to do mathematics and emphasizes that theoretical knowledge should not be acquired separately from practice. The role of students in the preparation of learning activities in RME is remarkable, and it is essential to start learning mathematics from an event that will require mathematics (Altun, 2010, p.35). This makes concretizing mathematics teaching possible in realistic mathematics education. With the RME method, students are able to think about daily life problems, develop solutions and discuss these solutions, and, thus, do well in mathematics. In this process, students are expected to reinforce the knowledge and skills they have acquired with different practices and to use this knowledge and skills in new situations. According to Boehm (1967), while applied mathematicians once successfully

and curiously tackled the problems of the world, pure mathematicians seemed to have almost lost touch with the real world. It was possible to talk about the sharp boundaries between applied and pure mathematics. On the other hand, recent studies have highlighted the role of mathematics in daily life. Research is being conducted on what mathematics learned at school will do in real life (Moschkovich, 2002; Van Den Heuvel Panhuizen, 2003). Since it will be easier to make sense of real life by using mathematical knowledge and skills, it is possible to process mathematics lessons in the context of real life and thus increase students' ability to relate mathematics to real life. RME, an approach that examines the role of real-life associations in school mathematics, is a leading approach in this regard and emphasizes that mathematics should start with reality and continue. According to this, this research can serve as an example to determine how students' mathematical estimation skills will develop in learning environments that will be organized in accordance with the principles of Realistic Mathematics Education and how they will use mathematics in situations they will encounter in real life.

For this reason, the results of the research are important in terms of determining the ways to be followed for students to do mathematics in the development of different thinking skills. In addition, since this research has been carried out by a researcher who is a mathematics teacher, it is thought that the research will contribute to understanding the problems originating from the teacher and presenting a solution to these problems. Because the research process is "the most effective opportunity for people to make progress in knowledge, to know the environment and to make the best use of it, to reach their goals and to solve some scientific problems" (Üstdal & Gülbahar, 1997, p. 82). And the examples of activities, educational games, and performance tasks that have been used in this research can guide instructors in developing targeted skills.

Another important point here is the necessity of considering the age characteristics of student groups in reinforcement activities to be performed. Young children acquire concepts by discovering them as a result of their active interaction with their environment (Aktaş-Arnas, 2004). According to this, games are the activities students enjoy, especially in small classes, and are mostly used for the reinforcement of what has been learned (Altun, 2016). The most acceptable game is the game that does not require mathematical activities explicitly but requires these mathematical activities to be performed for winning the game" (Altun, 2016, p.38). In this sense, it can be useful to reinforce the knowledge and skills acquired with games possible to be used at different levels after RME-based activities in order to increase the permanence of the learned. Çakır (2013) stated that mathematization means more mathematical. Mathematization can be examined in two stages horizontal and vertical mathematization.

a) Horizontal mathematization: Mathematization is the process of formulating or visualizing a problem in different ways, discovering relationships, and transferring a real-life problem to a mathematical problem (Üzel, 2007). In other words, horizontal mathematization refers to the transition from an environmental event to symbols (Altun, 2010). The process starts with horizontal mathematization.
b) Vertical mathematization: Vertical mathematization is reaching higher-level mathematical concepts and formulas by working with symbols and establishing

relationships between existing mathematical concepts (Van den Heuvel-Panhuizen, 1998).

Treffers (1987, 1991) classified mathematics education under four headings, considering horizontal and vertical mathematization.

Traditional or mechanical approach: This approach, by its nature, tends to teach by saying to apply rules and regulations; in other words, it is algorithmic (Akyüz, 2010). A person is like a computer or a machine. In this approach, both horizontal and vertical mathematization is less or even not used (Treffers, 1991).

Experimental approach: In this approach, students work with materials from their own environment. Horizontal mathematization is used to move students from real models to mathematical knowledge, but vertical mathematization is not used as students are not encouraged to symbolize this informal situation.

Constructivist approach: This approach uses vertical mathematization. This is done with artificial materials prepared by the students beforehand. However, in light of the information gained in the lessons, unless the students are taught how to use certain rules, how the applications will be made, and adaptations to new situations cannot be revealed. Therefore, only vertical mathematization can be used in this approach (Cansız, 2015).

Realistic approach: The starting point for learning in the realistic approach is a real-world situation or a real-life problem. Learning starts with horizontal mathematical activities, and students organize problems, try to determine the mathematical aspects of the problem, explore rules and relationships, and develop their own mathematical concepts using vertical mathematization (Cihan, 2017).

When the foreign literature on mathematics education was reviewed, it was noticed that different studies were carried out on RME (Barnes, 2004; Fauzan, 2002; Papadakis et al., 2016, 2021; Rasmussen & King, 2000; Searle & Barmby, 2012; Van Der Kooij, 2001). However, it was observed that these studies were mostly carried out on RME within the scope of academic achievement. In addition, when the literature was reviewed, it was noticed that studies on WME were mostly planned experimentally (Akyüz, 2010; Bıldırcın, 2012; Can, 2012; Çakır, 2013; Çilingir, 2015; Gelibolu, 2008; Verschaffel & de Corte, 1997). In the studies, the realistic mathematics education approach and the traditional approach were compared.

According to Ekiz (2009), active participation in action research meant that practitioners had the opportunity of changing and developing their own activities participating into the research process. This enabled the practice to be understood and developed systematically. For this reason, there has been a need for a more qualitative, in-depth problem-solving research approach, such as gaining basic knowledge and skills in mathematics education. In secondary school mathematics curriculum, it was observed that daily life experiences and real-life problems were regarded in accordance with the RME approach. However, the studies designed as action research were found to be missing among the research reviewed to develop the skill of associating mathematics with real life. However, in-depth research should be conducted on thinking skills in learning-teaching processes and on the use of what is learned in daily life because acquiring these skills is an effort that requires time and effort in the process. According to Arıkan (2013), action research has three purposes:

a) Ensuring that social and educational activities are reasonable and fair,
b) Understanding these activities and developing related concepts,
c) Developing the environment in which these activities are carried out" (Arıkan, 2013, p.70).

This study will contribute to the field of curriculum development because it can both facilitate the meaning of the learned, associating it with daily life, and support the development of similar skills in different disciplines. It is also important that this research provides alternative ways of teaching thinking skills and contributes to in-service training studies.

In light of the obtained information, this study aims to examine how to improve middle school 6th-grade students' skill of associating mathematics with real life through Realistic Mathematics Education reinforced with educational games in mathematics lessons in detail, analyze the possible problems to be encountered in practice, and how to solve these problems. In accordance with this main purpose, answers to the following questions were sought:

- When reinforced with educational games, does Realistic Mathematics Education in secondary school sixth-grade mathematics lessons contribute to the development of students' skills in associating mathematics with real life? And if yes, how?
- What are the problems encountered in secondary school sixth-grade mathematics lessons in the process of developing students' skills of associating mathematics with real life, and the ways to be followed in solving these problems?
- What are the pre-application and post-application views of the students about Realistic Mathematics Education administered to improve students' skills of associating mathematics with real life in secondary school sixth-grade mathematics lessons?
- What are the parents' opinions before and after the research regarding the education process of developing students' skills in associating mathematics with real life?

Within this context, it is aimed to evaluate in detail how the implementation process can be organized and implemented and how the problems that may be encountered in practice can be resolved.

Limitations of the Research

- It is limited to the data to be collected for the purposes of measuring the development of the ability to relate mathematics to real life from middle school sixth-grade students through RME.
- Information on the development of students' ability to associate mathematics with real life during the research process, the problems to be encountered in the process, and the solution to these problems are limited to the analysis of the qualitative and quantitative data to be obtained during the application process.
- In the 6th grade of a State Secondary School, the three-stage, 20-week, 30-lesson hours are limited to the mathematics course time.

Method

Research Model

In this study, action research, which is one of the qualitative research designs, was performed. "Action research used in education emerged in the 1960s in England in the case of school-based program development" (Ekiz, 2009, p.181). Fraenkel et al. (2012) define action research as research conducted by one or more individuals or groups to solve a problem or gather information about local practice. The action research approach in the qualitative research is a research approach that includes systematic data collection and analysis to reveal problems related to the application process or to understand and solve existing problems either directly by the practitioner or a researcher (Yıldırım & Şimşek, 2013). Similarly, Mills (2003) defined action research as a process carried out by teachers and administrators to define "what has happened" to their students in schools and classrooms and to understand the effects of educational interventions. Unlike real scientific research, action research is a more impressionistic and subjective approach to solving classroom problems and includes self-assessment, continuous assessment of changes, and development of practices to achieve goals (Cohen & Manion, 1994). When we look at the literature, it is seen that action research is classified in different ways in terms of genre (Yıldırım & Şimşek, 2013). Combining these different classifications, Berg (2001) classifies action research under three headings: technical/scientific/collaborative action research, practice/mutual collaboration/discussion-oriented action research, and liberating/developing/critical action research.

Mills (2003) and McNiff and Whitehead (2002) list the steps of the action research process as follows (Balcı, 2013, p. 54):

- Planning the action,
- Application,
- Observation,
- Evaluation,
- Replanning.

In this study, the process was carried out with a group of students who lacked the skills to associate mathematics with real life. For the solution to this problem, the researcher carried out studies to identify the problems and solve them within the process. Throughout the research, an approach that included planning, application (act and observe), and reflection was regarded as the basis. In order to improve the skills determined in the application process, learning experiences were continuously planned and evaluated, and moving to a new stage or developing and administering a new action plan was decided to solve the problem according to the results of the analysis of the problems experienced.

Participants

The participants of the action research were determined with the criterion sampling method as one of the purposeful sampling methods. The study group included 25 6th-grade students studying at a branch out of 11 classes in a secondary school in the central district of Turkey. Of the 25 sixth-grade students, who were the participants in

the study, 13 were females, and 12 were males. Within the scope of assessment studies, a preliminary interview was done with the mathematics teachers working at the school where the application was administered in order to both confirm the existence of the problem situation and decide on the practitioner teacher. Within the scope of assessment studies for the determined branch, observation studies were carried out through the camera during a predetermined unit, and the students' skill of associating mathematics with real life was examined in order to reveal the problem situation more clearly. Subsequently, interviews were made with the students selected with a purposeful sampling method and six students' parents, these students' skills of associating mathematics with real life were evaluated with a level identification form, and the data obtained were analyzed. Within the scope of the research, some information about the students and their families was collected, and more detailed information was obtained about the characteristics of the study group. Moreover, the information obtained from the e-school information system about students' mathematics achievements was used to describe the study group. Before the application, information about the students' pre-test scores for their skills in associating mathematics with real life was presented in Table 1.

Table 1

Results of Pre-test Scores Related to the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life

Number of Participants	Arithmetic Average	Standard Deviation	Mode	Median	Min Score	Max Score	Possible Max Score	Skewness	Kurtosis
25	9.52	6.44	8	8	1	24	40	.958	.127

According to Huck (2012), the skewness and kurtosis values varying between -1 and +1 indicated that the data had a normal distribution. According to Table 1, it was revealed that the total scores obtained from the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life met the normality condition (skewness = .958; kurtosis = .127). As presented in Table 1, the arithmetic average of the pre-test scores of the participants in the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life was 9.52 before the application. Since the highest score that was possible to be obtained from the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life was 40, it could be mentioned that the participants' level of associating mathematics with real life was low according to the pre-test results.

In addition, the class in which the action research was conducted was determined by the criterion sampling method, one of the purposive sampling methods. The following criteria were taken into account in determining the study group of the research:

Criteria for teachers, school administrators, and physical conditions:

- Volunteering of the mathematics teacher, who is teaching in the classroom that constitutes the study group, to participate in the action research,
- The mathematics teacher is having problems with the determined problem situation,
- Having at least 5 years of experience in the profession of mathematics teacher,

- Allowing the use of video cameras and audio recording devices in the research,
- The school administration's willingness to support the work and fulfill its duties in this process,
- The physical equipment required for the implementation to be available at the school.

The criteria taken into account in determining the students who make up the study group:

- They are studying at the 6th grade level of secondary school,
- Lack of ability to relate mathematics to real life and to predict.

Role of the Researcher

Action research is possible to be carried out by the practitioner himself or by an outside researcher (Yıldırım & Şimşek, 2013, p.333). In this study, the researcher took the role of the researcher teacher due to providing the conditions of being a practice teacher. The researcher made observations through the camera and administered the action plans before and during the application stage. During the extracurricular times, the researcher conducted interviews with the students and parents and recorded them.

Data Collection Tools

The data obtained to answer the research problem were collected in order to monitor the development of students' skills of associating mathematics with real life with Realistic Mathematics Education reinforced with educational games in 30 lesson hours in the 2018-2019 academic year. Data collection techniques in action research could vary depending on the research questions, the status of the research, and the researcher's individual competencies (Balcı, 2013, p.54). The data of this study were obtained by means of qualitative and quantitative data collection methods. The data relating to the research were collected with unstructured observations based on camera recordings, in-depth semi-structured interviews, student-researcher diaries, worksheets, educational games, and student products before, after, and during the process. In addition, the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life was performed in order to determine students' skill of associating mathematics with real-life before and after the application in the study. During the application process of the research, activities were used within the scope of Realistic Mathematics Education to improve the skills of associating mathematics with real life. The information obtained with the activities was assessed using worksheets, and an educational game application was included at the end of each action cycle in order to reinforce the learned. The information related to the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life was presented below.

In the research, first of all, the Diagnostic Form of Associating Mathematics with Real Life was applied in order to determine the ability of students to associate mathematics with real life. In the implementation process of the research, activities within the scope of Realistic Mathematics Education to be carried out to improve the skills of associating mathematics with real life were used. The information obtained through the activities was evaluated using worksheets, and an educational game application was included at the end of each action cycle in order to reinforce what was

learned. In addition, data organization charts were used to prevent data loss during the research process and to assist the researcher in collecting and organizing data. Student work products, on the other hand, are written or visual data sources created by students that emerge during or at the end of the teaching-learning process. Samples can be collected at different time intervals to make sense of students' performances and changes over time (Johnson, 2014). After the activities were carried out within the scope of Realistic Mathematics Education, educational game applications aimed at reinforcing the determined skills and worksheets were included to evaluate what was learned. Student game scores and worksheet performances obtained from these educational games were used as data collection tools. Educational games are applications that develop high-level mental skills such as problem-solving, creativity, and critical thinking (Yıldız et al., 2017). In this respect, educational games are a technique that provides reinforcement and repetition of what has been learned (Hazar & Altun, 2018).

Diagnostic Form for Students' Skill of Associating Mathematics with Real Life

The Diagnostic Form for Students' Skill of Associating Mathematics with Real Life used before and after the application was developed by the researcher, and a validity study was carried out to make it ready for use. Tekin (2009) defined content validity as the degree to which the scale and each item in the scale served the purpose. For the validity study, two field experts were consulted in terms of content and language validity. The validity study was carried out with the support of two experts, an associate professor at the Department of Primary Education at Çukurova University and an assistant professor carrying on studies in the Department of Instructional Programs and Teaching. Furthermore, a faculty member carrying on studies as an associate professor in the Primary Education Department was consulted in terms of the suitability of the age of the students to whom the measurement tools would be applied and the language development level of the questions. In accordance with the interviews and feedback, the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life was prepared for pilot application. The Diagnostic Form for Students' Skill of Associating Mathematics with Real Life had two parts, including questions about how to use mathematics in 10 different places and how to associate ten mathematical concepts with real life.

Rubric (Graded scoring key)

The criteria for scoring the success and skill levels in the rubrics used in the action research process were determined. In order to ensure content validity, the relevant rubrics were revised in accordance with the opinions of experts who have carried out studies in the field of mathematics education. Opinions regarding the clarity and comprehensibility of the rubric items and their status of reflecting the specified criterion, and their suitability for the purpose were obtained from each expert. The rubrics were finalized in accordance with the views. The diagnostic Form for the Skill of Associating Mathematics with Real Life had four criteria, including determining the area of use, associating with real life, using accurate knowledge and skills, and using mathematical thinking processes in the rubric. For each criterion, scoring was specified as Sufficient (5 points), Partially Sufficient (3 points), Insufficient (1 point), and Empty

(0 point). The highest score possible to be obtained from the rubric was calculated to be 40. The rubric was also used to evaluate the performance task given for students' skills in using mathematics outside the school during the application process. This rubric included 5 criteria and 4 levels of achievement for each criterion. Performance statements were created for each success level, and multiplying the obtained scores by 5.

Data Analysis and Validity-Reliability Studies

The data analysis used for answering the research questions was the process of revealing the meaning of the data obtained (Merriam, 2013). In data analysis, quantitative and qualitative data analysis techniques were used depending on the data type. Quantitative data analysis could be defined as the process of deriving scientifically valid results from data using appropriate statistical techniques (Büyüköztürk, 2014, p.7). An inductive and comparative approach was adopted in the analysis of all qualitative data obtained from this action research, which was carried out to develop the skill of associating mathematics with real life. Lincoln and Guba (1985) defined inductive data analysis as a process that involved dividing data into units and creating categories in order to reveal embedded information and make it visible. While collecting the data of the research, the obtained data were analyzed for the next process to be administered. Apart from micro analyzes, all data obtained after the research was completed were analyzed at macro level. In the analyzes made at the macro level, all data were analyzed collectively, and the findings were reached, revealing the categories and themes and the relationships between them.

The validity committee established to carry out the research systematically and gain an objective perspective on the study assumed the role of supervising and examining the researcher's study. Totally seven meetings were held with the validity committee on different dates. In addition to validity studies, the way to determine whether the method used was effective or not was to assess its reliability (Jackson, 2008, p. 67). According to Lincoln and Guba (1985), expert control was the most important method in ensuring the reliability of the studies (cited in Creswell & Miller, 2000). In this sense, the researcher gave the texts obtained from student and parent interviews conducted to collect data before and after the application to a mathematics teacher who completed his master's degree in Statistics and determined the consistency between the analyzes of two coders. For the agreement rate between the two coders, the reliability formula of Miles and Huberman (1994,64) as "P (Percentage of Agreement%) = [Na (Agreement)/Na (Agreement) + Nd (Disagreement)] x 100" was used for calculations. Four interview texts, two of which belonged to parents and two to students, were given to an expert, and the consistency of the two coders in the analysiswas calculated in terms of coder reliability. These rates were [9/9+2x100] = 81% and [8/8+2x100] = 80% in terms of the interview texts belonging to the parents, [20/20 + 6X100] = 76%, and [13/13]. + 4X100] = 76% in terms of the interview texts belonging to the students. Miles and Huberman stated that the consensus between coders being at least .70 indicated that the coding was reliable (Akay & Ültanır, 2010). The researcher and the expert reached an agreement about the codes of disagreement studying together.

Ethical Precautions

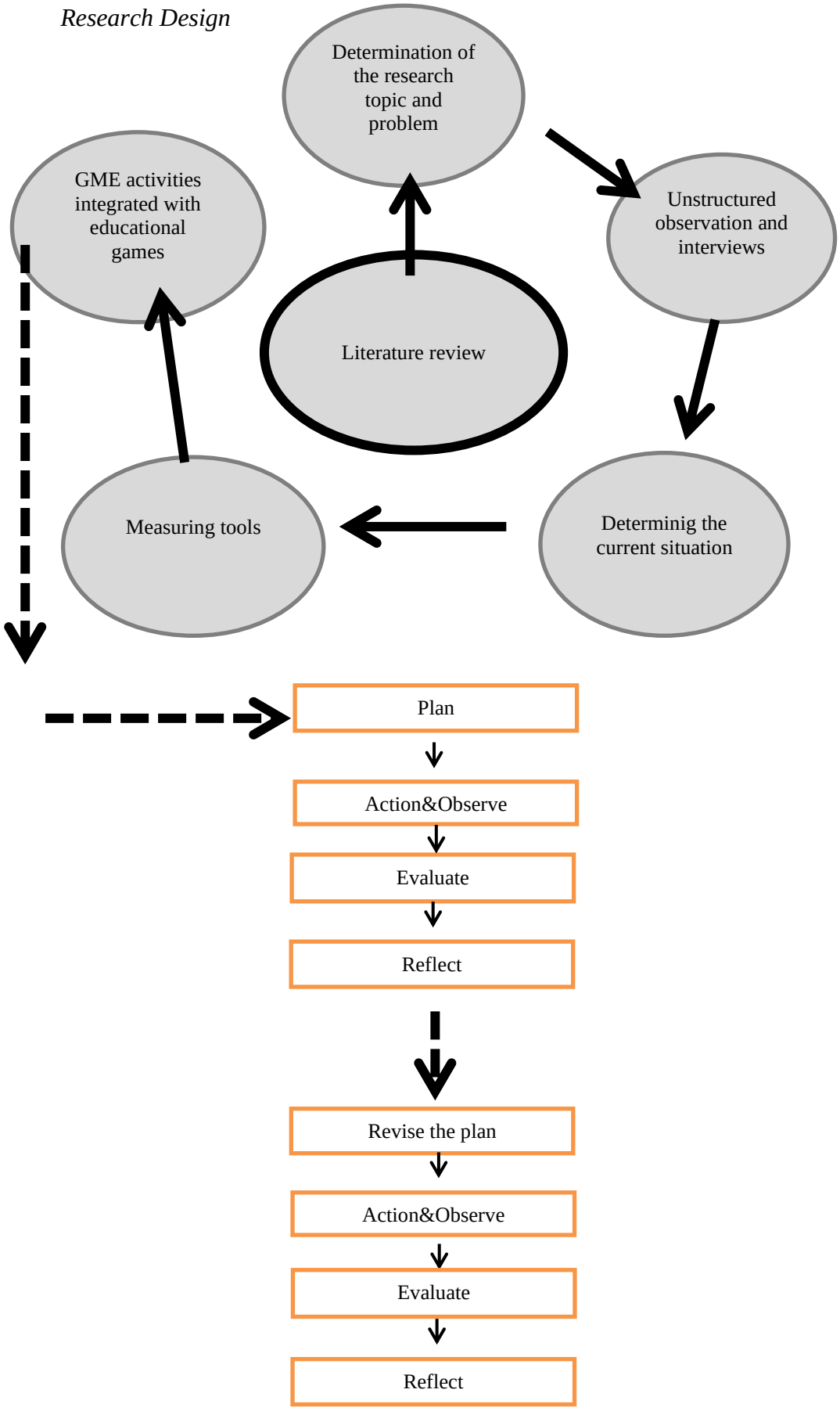
Since human has generally been the subject of educational research, the ethical and legal responsibilities of conducting such research should be known and applied (McMillan & Schumacher, 1984, p.135). According to Graziano and Raulin (2007), many experts argued that research participants should be protected from deception, dangerous procedures, and invasion of privacy. In this study, the researcher took some ethical precautions. The research was initiated with the official permission of the Adana Provincial Directorate of National Education. At the beginning of the study, all participants were informed about the purpose of the study, the implementation process, and the data collection methods.The parents of the students in the classroom where this study was carried out were also informed about the process, and the camera recording in the classroom and a confirmation letter that the study would be carried out were submitted for their signature. Name codes were used to keep the identity information of the participants in the research confidential. It was stated that all sounds and images obtained would not be used outsideof the research.

Action Research Process

The first stage of the research process was the literature review. The research topic and research problem were determined using the information obtained. In order to confirm whether the determined research problem was a problem encountered in practice or not, a pre-interview was made with the mathematics teachers at the school where the research was conducted. In these preliminary interviews, mathematics teachers were asked whether they noticed a deficiency in students in terms of their skill of associating mathematics with real life. After confirming the existence of the problem situation with preliminary interviews, the literature review was maintained, and information about the problem situation. After this stage, measurement tools were developed using this information. After determining the participants, an interview form and a diagnostic form were prepared in consultation with field experts to determine the current level of students' ability to associate mathematics with real-life situations.Information was collected by combining these data with in-class observation data. Subsequently, the research problem was reviewed, and action research questions were determined. These studies were presented to field experts, and a validity study was carried out. In line with these studies, implementations were carried out by preparing action plans.

Figure 1

Research Design



Results

The answer to the first sub-question of the study is "When reinforced with educational games, does Realistic Mathematics Education in secondary school sixth-grade mathematics lessons contribute to the development of students' skills of associating mathematics with real life? How?" was sought using the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life. Whether there was a significant difference between the pre-test and post-test mean scores of the students was analyzed in order to determine the efficiency of Realistic Mathematics Education. The analysis results are presented in Table 2.

Table 2

Pre-test and Post-test Paired Groups T-Test Results Related to Students' Associating Mathematics with Real-Life Skills

Measurement	Number of Participants (*N*)	Arithmetic Average (X)	Standard Deviation (S)	Degree of Freedom (*Sd*)	T Value	Level of Significance (*p*)
Pre-test	25	9.48	6.55	24	-12.182	.000*
Post-test	25	27.76	8.59			

*$p<.001$

As can be seen in Table 2, there was a significant difference between the pre-test and post-test scores of the students. This difference was in favor of the post-test scores. Based on this finding, it was possible to mention that students' skill of associating mathematics with real-life increased significantly as a result of the applications based on Realistic Mathematics Education. The second sub-question of the study was: "What are the problems encountered in secondary school sixth-grade mathematics lessons in the process of developing students' skills of associating mathematics with real life and the ways to be followed in solving these problems?? " The answer was sought by analyzing the problems that occurred in each action cycle and developing solutions to reflect them in the next cycle.The solution suggestions were developed for the problems encountered in each cycle during the action research process. The process progressed, reflecting the developed solution suggestions for the next action cycle. The data obtained from the interviews regarding the third sub-question of the study, which was stated as, "What are the pre-application and post-application views of the students about Realistic Mathematics Education administered to improve students' skill of associating mathematics with real life in secondary school sixth-grade mathematics lesson?", were analyzed with NVIVO program. The findings related to the student views were presented as pre-application and post-application.

Table 3

Pre-Application Views of Students to Associate Mathematics with Real Life

Definitions to associate mathematics with real life	Not knowing how to associate mathematics with real-life *f:3*
	Making operations in daily life *f:1*
	Encountering mathematical operations in daily life *f:1*
	Using mathematics in daily life *f:14*
	Using mathematics knowledge in daily talks *f:1*

As could be seen in Table 3, three out of 20 students could not make a definition for associating mathematics with real life because they had not heard it before. When definitions of the other students were analyzed, it was seen that fourteen students responded as using mathematics in daily life but did not include any information about which aspect of mathematics was used in their definitions. In addition, it was determined that one student each made a definition of making mathematical operations in daily life, encountering mathematical concepts in their daily lives and using mathematical knowledge in their daily conversations. While S19 said "For example, using mathematics when talking to our friends", S14 said "I can't think of anything" in reference to the words associating mathematics with real life. When these definitions were regarded, it was possible to state that the students did not have sufficient skills in associating mathematics with real life. When all these definitions were analyzed, it was noticed that the students used a certain aspect of mathematics in real life before the application, and they could not make a comprehensive definition to associate mathematics with real life. And it was determined that some students could not make a definition because they had not heard of it before. When asked how they used the knowledge they acquired in mathematics lessons in their real lives, the answers given by the students were presented in Table 4.

Table 4

Students' Views on Using Mathematical Knowledge in Real Life

Use of mathematical knowledge in daily life	*Areas of using*	For money calculations in shopping *f:12*
		while giving directions *f:1*
		in time calculations *f:1*
		while helping friends with subjects they don't understand *f:1*
		while studying *f:1*
		while sharing *f:1*
		while making mental calculations *f:1*
	Partly using	For money calculations in shopping *f:5*
		while doing homework *f:1*

		While taking a test *f:1*
	Not using	not associating mathematics with real-life *f:1*

As can be seen in Table 4, the students stated that they mostly used the knowledge and skills they gained in mathematics lessons while making money calculations during shopping. One student stated that mathematics was not a course related to real life and therefore did not use mathematics knowledge and skills in real life. Aiming to use mathematical knowledge and skills during shopping, S3 said, "I use something when summing or subtracting something in the market." Related to be used when describing directions, S4 said, "For example, when someone asks a question and asks for directions, I say 'go straight, then turn right, walk this far.'" Benefiting from mathematics knowledge and skills while describing directions, calculating time, and sharing could be given as examples of using mathematics in different real-life situations as these were the activities in daily life. In this context, students were asked about their opinions on whether mathematics should be a lesson intertwined with real life or not. The given student answers are presented in Table 5.

Nineteen of the students said that mathematics was a lesson that was intertwined with real life in at least one aspect, and one student said that the rules of mathematics were not valid in real life. Ten students justified their opinions as to the use of mathematics in daily life, and four students said they needed mathematics in daily life. In addition, two students expressed that four operations made their lives easier, while one student said that he had numbers in his life. Accordingly, whereas S6 said, "Let me give an example, we need to calculate at home before going to the cashier in the grocery store, we need to calculate money accordingly, and this makes our life easier," S10 said, "It is a good lesson, that can be useful." T19 mentioned that "We definitely use numbers when talking to our friends, cousins , and neighbors." It was possible to mention that the students' views on this question were limited, and they associated with only one aspect of real life.

Table 5

Students' Views about Mathematics' Being A Lesson Intertwined with Real Life

Mathematics' being a lesson intertwined with real life	*Positive thoughts*	Having numbers in our lives f:1
		being a beneficial lesson f:1
		needing mathematics f:4
		having reflections in real life f:1
		Four 'operations' making our lives easier f:2
		using in daily life f:10
	Negative thoughts	Mathematics rules' not being real in real life f:1

Table 6

Pre-Implementation Students' Views on Lecturing Mathematics through Associating with Real Life

Reasons for not associating with real life in mathematics classes	*Reasons related to real life*	real life's being more important than exams *f:1*
		needing in real life *f:2*
		being a part of real-life *f:1*
		making life easier *f:7*
		making life more enjoyable *f:1*
	Reasons for not associating with real life	not using in real life *f:1*
		its being related to exams *f:4*
	Reasons related to academic achievement	providing to be successful in exams *f:1*

Most of the students expressed reasons related to real life, such as being a part of real life, needing in real life, making life easier, and real life's being more important than exams. One student stated reasons related to academic achievement such as providing to be successful in exams while another student stated reasons for not associating with real life, such as not using in real life. When the students' views were analyzed, it was noticed that all students considered that mathematics lessons should be taught, associating with real life, depending on the different reasons presented. Then, the students were asked for suggestions on how to ensure that mathematics lessons are connected to real-life situations. When all students' suggestions were examined, it was seen that most of the suggestions were based on not getting bored in mathematics lessons and increasing academic success. It was possible to mention that the suggestions made for teaching lessons without disconnecting mathematics from real life were insufficient and superficial. In the interviews made after the application, students were asked their opinions about the teaching process. The findings for this question are presented in Table 7.

As shown in Table 7, students' views on the post-application teaching process were centered around two themes: the positive and negative aspects of education. It was possible to specify that the students' views on the teaching process were generally positive. In addition to the development of their skill of associating mathematics with real life, their positive impact on different subjects could be accepted as a result of the fact that mathematics lessons are taught through Realistic Mathematics Education. It was liked by students and provided them with benefits within the scope of mathematics lessons.

At the end of this training, the students were asked whether there were any changes in their use of mathematics in real life. Four of the students stated that there was no change, and the other students stated that there was a change. The students who said that there were changes in their use of mathematics in real life were asked what kind of changes occurred. Students' answers given to this question were gathered under

two themes as using mathematics in daily life and associating it with real life in mathematics lessons. Students' answers led to the conclusion that the applications for the skill of associating mathematics with real life through Realistic Mathematics Education positively affected students' association between mathematics and real life when reinforced with educational games.

Table 7

Post-Implementation Students' Views On The Teaching Process

The opinions related to the educational process	*Positive sides of education*	reminding forgotten subjects *f:2*
		acquiring a regular study habit *f:1*
		making contributions to decreasing discipline problems *f:1*
		making learning easier *f:5*
		causing mathematics lesson to be loved *f:4*
		providing to learn subjects in depth *f:4*
		providing to make predictions closer to real results *f:5*
		strengthening student-teacher relationship *f:1*
		providing to use mathematics knowledge in real life *f:2*
		increasing mathematics achievement *f:1*
		providing to overcome the fear of mathematics *f:1*
	Negative sides of education	not eliminating missing learning completely *f:1*
		solving few questions in lessons *f:1*
		some educational games' being difficult *f:1*
		not regarding the lesson enjoyable *f:1*

At the end of the application, semi-structured interviews were conducted with 6 parents of the students, who were interviewed before the application related to the fourth sub-question of the study. This sub-question was expressed as "What are the parents' opinions before and after the research regarding the education process of developing students' skills of associating mathematics with real life for their parents?" The findings obtained from the interviews revealed that the students' parents of the students were generally satisfied with the education. Parents stated that thanks to this training, they observed positive changes in students' behaviors towards their skill of associating mathematics with real life and their use of mathematics in environments outside school.

Table 8

Changes Appeared in Using Mathematics in Real Life

Changes experienced in associating mathematics with real life	*Using mathematics in real life*	perceiving mathematics knowledge used in daily life *f:1*
		increase mathematical awareness in real life *f:2*
		solving problems using mathematics knowledge in real life *f:2*
		using mathematical concepts in daily talks *f:2*
		Using mathematics to make sense of real-life events and facts *f:1*
	Establishing a relationship with real life in mathematics lesson	giving examples of situations when numbers are rounded in daily life *f:4*
		noticing the counterpart of decimal presentations in real life *f:3*
		noticing the counterpart of rate calculations in real life *f:3*

The Current State of the Ability to Relate Mathematics to Real Life

- Before the application, it was determined that the students' ability to associate mathematics with real life was low according to the scores they got from the Descriptive Form of Associating Mathematics with Real Life.
- Before the application, it was determined that the students used a certain aspect of mathematics in real life, and they could not make a comprehensive definition for associating mathematics in real life.
- Before the application, it was determined that the students benefited from the knowledge and skills they acquired in mathematics lessons the most during shopping outside of school.
- Before the application, it was determined that some students did not use their mathematical knowledge and skills in real life.
- Before the application, it was determined that the students did not see mathematics as a discipline that is intertwined with real life and that they associated mathematics with one aspect of real life at most.
- Before the application, it was determined that all students, for different reasons, thought that mathematics lessons should be taught in connection with real life.
- Before the application, it was determined that the students offered a limited number of suggestions in order not to be disconnected from real life in mathematics lessons and in order not to get bored in mathematics lessons / to increase academic success.
- Before the application, it was determined that the parents of the students had the opinion that the mathematics education given at school was not related to real life and that the students had difficulty using their mathematical knowledge and skills in real life or that they did not use them at all.

- According to the findings obtained from the Diagnostic Form of Associating Mathematics with Real Life and interviews with students and students' parents, it was concluded that students' skills in associating mathematics with real life should be developed before the application.
- The results obtained regarding the development of students' skills in associating mathematics with real life through Realistic Mathematics Education were as follows:
- When the pre-test and post-test scores of the students obtained from the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life were compared, it was determined that there was a significant difference in favor of the post-test scores. Accordingly, it was found that after the application, students' skills in associating mathematics with real-life increased significantly.
- It was determined that the students who were determined to use mathematics in limited areas in real life before the application started to use mathematics knowledge and skills in different situations in the form of using mathematics in daily life and connecting with real life in mathematics lessons.
- It was determined that before the application, the parents of the students had the opinion that their children had difficulty with using their mathematical knowledge and skills in real life or that they did not use it at all, and after the application, the education had a positive effect on the use of mathematics in real life.
- According to the findings obtained from the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life and the findings obtained from the interviews with the students and their parents, it was concluded that the students' skill of associating mathematics with real-life improved positively after the application when compared to the pre-application process.

Discussion and Conclusion

According to the results of the analysis obtained from the quantitative data on the development of the skill of associating mathematics with real life, it was determined that the students' ability to associate mathematics with real life before the application was lower than the scores they got from the Descriptive Form of Associating Mathematics with Real Life. It was determined that there was a significant difference in favor of the post-test scores related to the Diagnostic Form for Students' Skill of Associating Mathematics with Real Life between the pre-test and post-test scores of the participant students in the study. Accordingly, it could be concluded that the students' skills in associating mathematics with real-life improved significantly as a result of the application. It was possible to mention that some studies analyzing the effect of Realistic Mathematics Education on mathematics achievement also supported this result, and studies conducted with activities based on Realistic Mathematics Education achieved successful results in increasing mathematics achievement (Akkaya, 2019; Bintaş et al., 2003; Gelibolu, 2008; İnce, 2019; Klein et al., 1998; Özdemir & Üzel, 2011; Özdemir, 2020; Özkan et al., 2023; Widjaja & Heck, 2003).

When the students' opinions before and after the application were compared, it was determined that the students understood the importance of mathematics lessons better in associating mathematics with real life as a result of the application, and this revealed the idea that Realistic Mathematics Education was efficient in associating

mathematics with real life. This situation may have resulted from the fact that students were given the opportunity of finding their own solutions and discussing in Realistic Mathematics Education, and thus the students produced shortcuts suitable for their level and gained experience. Bulut et al. (2016) stated in their study that they structured it according to document analysis that in the evaluation of a subject they dealt with in the 7th-grade mathematics textbooks, especially real-life associations were included. The activities in the textbooks should be organized in accordance with the curriculum and of high quality in terms of gaining knowledge and skills. In this direction, there are studies showing that the textbooks examined in different years are oriented towards associating the subjects with daily life (Arslan & Özpınar, 2009; Dinç-Artut & Ildırı, 2013; Küçüközer & Bostan, 2007). However, on the contrary, there are studies that show that the textbooks are not arranged in a way that students can use in their daily lives and that examples selected from real life are not included in the textbooks (Şahin & Turanlı, 2005; Taşdemir, 2011). This situation suggests that alternative approaches, such as Realistic Mathematics Education, can be used, which will enable students to integrate the knowledge and skills in the textbooks with daily life in order to associate mathematics with real life.

It can be said that Realistic Mathematics Education positively affects students' making the connection between mathematics and real life and enables them to start using mathematical knowledge in many different areas of real life. In addition, considering that mathematics develops as a result of solutions to real-life problems, it is possible to say that mathematics can be produced with in-class applications. In the study carried out by Doruk and Umay (2011), the effect of mathematical modeling activities on transferring mathematics to daily life was examined. It was concluded that these modeling activities, similar to the principles of Realistic Mathematics Education, increased the level of students' skill in transferring mathematics to daily life. It can be said that this result is consistent with the research findings. Moreover, the obtained result was coherent with the results of similar research results, which concluded that mathematical modeling using real-life activities was efficient in increasing the relationship of mathematics with real life (Deniz & Akgün, 2014; Sağırlı et al., 2010). In the study carried out by Karakoç and Alacacı (2012), expert opinions suggest that the use of real-life connections in the course increased students' interest in mathematics and improved their mathematical process skills. When this opinion was compared with the results of the research, it was possible to mention that the suggestions of the students, such as teaching lessons based on student problems and bringing real-life examples to the classroom, were acceptable to increase their skill of associating mathematics with real life. The student recommendations for the application were coherent with the findings of the research carried out by Cankoy (2002) that provided data for the development of the Mathematics and Daily Life course program that was used in the Turkish Republic of Northern Cyprus.

It was noticed that the students made associations with mathematics, focusing on only one aspect of real life before the application. After the application, emphasizing the activities based on the principles of Realistic Mathematics Education, they stated that these activities enabled them to use their mathematical knowledge in real life. It could be said that the students who said that achieving the result without making any actions in activities and applications had a facilitating effect on real life, saw after the

application that mathematics was a lesson intertwined with real life in different aspects. In the research conducted by Fauzan et al. (2002), it was concluded that students were satisfied with Realistic Mathematics Education in terms of thinking in class, and being more active and creative. The parents of the students, who offered positive opinions about Realistic Mathematics Education, suggested that this kind of education and practices should continue, and similar practices should be applied in different lessons. Accordingly, it could be said that the parents of the students considered that the structure of Realistic Mathematics Education, which progressed in the form of determining the mathematical aspect of real-life problems and the way of evaluating the students' 'knowledge, contributes to the development of students' skill of using mathematics in real life.

Implications

The results of the research revealed that Realistic Mathematics Education reinforced with educational games improved secondary school sixth-grade students' skills in associating mathematics with real life. Accordingly, mathematic lessons could be lectured with problem situations selected from real life, educational games related to the subject taught in mathematics lessons could be included, and activities could be organized in accordance with the principles of Realistic Mathematics Education. According to the research results, considering that associating mathematics with real-life improved learning, cooperation could be made with students' parents, and informative training could be organized for them on the importance of this situation in order to create an environment and provide more opportunities for students to use their mathematics knowledge and skills in out-of-school environments. Considering the principles of Realistic Mathematics Education, it could be ensured that Realistic Mathematics Education applications were included in pre-service and in-service training of teachers in order to improve their teaching skills. In order to ensure that students learn mathematics by associating it with real life, action research based on students' considering mathematics in real life should be conducted. In this study, the diagnostic form developed by the researcher was used to develop the skill of associating mathematics with real life. Different measurement tools for this skill could be developed and used in future studies. This study was carried out in a school with middle and lower socioeconomic level students. More comprehensive results can be obtained by conducting studies in schools where students from upper socioeconomic levels are included.

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Statement of Responsibility

All stages such as conceptualization, methodology, software, validation, formal analysis, investigation, resources, data curation, writing-original draft, visualization, supervision, project administration, and funding acquisition of this research were carried out by Pelin UREDI under the supervision of Prof. Dr. Ahmet DOGANAY.

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Mediational Moves and Reciprocity Behaviors in Face-to-Face and Mobile-Assisted Dynamic Assessment

Yüz Yüze ve Mobil Destekli Dinamik Değerlendirmede Aracılık Hareketleri ve Karşılıklılık Davranışları

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ABSTRACT: Research on dynamic assessment (DA) has been conducted on the efficiency of either face-to-face (F2F) or mobile-assisted (MA) DA sessions. However, studies investigating the difference between these sessions conducted in the foreign language learning context are scarce. Thus, this study aims to explore the differences between F2F- and MA-DA sessions in terms of the mediator's mediational moves and learners' reciprocity behaviors. To this end, F2F- and MA-DA sessions were held with four tertiary-level learners. Then the mediational moves and reciprocity behaviors employed in these sessions were explored through qualitative descriptive analysis. The results showed that the DA interactions between the mediator and the learner in F2F and MA contexts were generally not much different in terms of the mediational moves and reciprocity behaviours. However, it is noteworthy that the learners made more inaccurate responses and used L1 more in F2F-DA sessions. In contrast to this, the learners made more careful attempts in MA-DA sessions. Moreover, the teacher as a mediator tended to give more approval to the learners' responses to eliminate the disadvantage of the restricted context of MA-DA. In light of these findings, pedagogical implications were suggested for both language teachers and researchers.

Keywords: Dynamic assessment, mobile-assisted language learning, mediational moves, reciprocity behaviors.

ÖZ: Dinamik değerlendirme (DD) üzerine araştırmalar yüz yüze (YY) veya mobil destekli (MD) DD oturumlarının etkililiği üzerine yürütülmüştür. Ancak, yabancı dil öğrenme ortamlarında gerçekleştirilen bu iki oturum arasındaki farkı araştıran çalışmalar yetersizdir. Bu nedenle, bu çalışma, YY ve MD DD oturumları arasındaki farklılıkları aracının aracılık hareketleri ve öğrenenlerin karşılıklılık davranışları açısından araştırmayı amaçlamaktadır. Bu amaçla, dört üniversite öğrencisiyle YY ve MD DD oturumları gerçekleştirildi. Daha sonra, bu oturumlarda kullanılan aracılık hareketleri ve karşılıklılık davranışları nitel betimsel analiz yoluyla ortaya çıkarıldı. Sonuçlar, arabulucu ve öğrenci arasında YY ve MD bağlamlarda meydana gelen etkileşimlerin arabuluculuk hareketleri ve karşılıklılık davranışları açısından genel olarak çok farklı olmadığını göstermiştir. Ancak, öğrencilerin YY DD oturumlarında daha fazla hatalı yanıtlar vermesi ve ana dili daha fazla kullanması dikkat çekicidir. Bunun aksine, öğrenciler MD DD oturumlarında daha dikkatli girişimlerde bulunmuşlardır. Ayrıca, arabulucu olarak öğretmen, MD DD'nin kısıtlı bağlamının dezavantajını ortadan kaldırmak için öğrencilerin yanıtlarına daha fazla onay verme eğiliminde olmuştur. Bu bulgular ışığında hem dil öğretmenleri hem de araştırmacılar için pedagojik çıkarımlar önerildi.

Anahtar kelimeler: Dinamik değerlendirme, mobil destekli dil öğrenimi, aracılık hareketleri, karşılıklılık davranışları.

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Today's foreign language learning context has become increasingly characterized by technology-facilitated instruction. Growing numbers of teachers integrate technology into the learning and teaching environment instead of interacting with learners through traditional educational tasks. Mobile-assisted (MA) learning is a powerful tool that enables teachers to create learning tasks for digital natives (Prensky, 2001). In addition, assessing learners' achievement through digital technologies has also been growing recently.

Methods and approaches for language instruction and language testing and assessment have evolved over time. Dynamic assessment (DA) is a new approach to assessment that differs from the traditional static testing methods. It sees teaching and assessment as unique rather than separate activities (Poehner, 2008; Shrestha, 2020). In other words, DA views assessment as a part of the learning process rather than a standalone evaluation. DA, which is the central theme of this study, is based on Vygotsky's sociocultural theory (SCT) and Feuerstein's mediated learning experience (MLE), integrating instruction and assessment (Poehner, 2008). SCT posits that human learning and functioning are shaped by culture and society rather than being purely individual. This means that social interaction and the use of cultural and symbolic tools play a key role in shaping how humans think and behave (Lantolf & Poehner, 2004). Within SCT and DA, two important concepts are mediation and the zone of proximal development (ZPD). Mediation involves providing support and guidance to help individuals develop their abilities, both those that are already developed (zone of actual development) and those that are still in the process of development (ZPD) (Vygotsky, 1978). ZPD, which is another key concept for SCT, is defined as the distance between the actual level of development and the level of potential development under adult guidance or in collaboration with more capable peers (Vygotsky, 1978). Besides, it necessitates mediated teacher-student dialogue throughout the assessment procedure.

Focusing on both process and product, DA has been an issue taking the attention of researchers in the field of foreign language learning. For example, some researchers investigated the use of DA in face-to-face (F2F) learning environments (Ableeva, 2010; Ableeva & Lantolf, 2011; Çetin-Köroğlu, 2019; Davin, 2013; Lantolf & Poehner, 2011; Poehner, 2005; Yılmaz-Yakışık & Çakır, 2017). In addition, the impacts of MA-DA on the development of language skills also drew attention of the researchers and they conducted experimental research studies by comparing the effects of various MA-DA conditions with the ones of non-dynamic or static assessment (Andujar, 2020; Ebadi & Bashir, 2021; Rad, 2021; Rassaei, 2020; Rezaee et al., 2019; Torang & Weisi, 2023). Although these studies revealed valuable findings regarding the impacts of different types of DA and the procedures employed by the mediators and the mediatees, they generally focused on just one type of context, such as F2F or mobile. Moreover, there is a dearth of research comparing which mediational moves and reciprocity patterns are employed in different DA contexts. Therefore, this study aims to answer the following research questions:

1. What are the mediational moves employed in the F2F- and MA-DA sessions conducted in an EFL context?

1.1. Are there any differences between F2F- and MA-DA in terms of the frequency of the mediational moves employed?

2. What are the reciprocity behaviors employed in the F2F- and MA-DA sessions conducted in an EFL context?

2.1. Are there any differences between F2F- and MA-DA in terms of the frequency of reciprocity behaviors employed?

3. What are the attitudes of the participants toward the F2F- and MA-DA?

The findings of this research are expected to reveal to what extent the DA sessions held in the F2F and MA contexts are the same or different in terms of the mediational moves and reciprocity behaviours employed during the DA sessions.

Dynamic Assessment

Vygotsky's SCT, and Feuerstein's MLE are the theories on which DA is based. The first theory, SCT, asserts that "the human mind is mediated by using symbolic or psychological and physical tools to interact with world" (Ebadi, 2016, p. 17). Mediation, regulation, ZPD, and internalization are some of the salient constructs related to DA based on SCT. Of these, mediation is a core concept differentiating DA from static or conventional assessment (Lantolf & Poehner, 2004; Rezaee et al., 2019), and it means "the process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate (i.e., gain control over and transform) the material world or their own and each other's social and mental activity" (Lantolf & Thorne, 2006, p. 79). In this mediation, humans play a significant role as well as the physical and symbolic artifacts (Lantolf & Poehner, 2004) and language, as a symbolic artifact, is one of the most influential elements used in the cognitive development process.

Regulation, which is a form of mediation, refers to the ability of an individual to manage their own behavior. This construct has three stages, which are ranked from least to full autonomy: object-, other-, and self-regulation (Lantolf et al., 2015). Object regulation involves the people adopting the materials in their environment for making cognitive changes in their minds, and they can be such objects as computers, dictionaries, books, or audio (Özturan & Uysal, 2022). Other regulation is the stage where an individual is exposed to mediation from others who are more competent teachers or peers (Shrestha, 2020). Lastly, self-regulation is the situation of independently managing physical or psychological behaviors without the existence of mediation from a source like a human or an object.

As for the ZPD, it refers to the distance between an individual's actual developmental level as determined by his or her capability to solve problems on their own and the degree of potential growth as determined by the capability to solve problems when receiving adult guidance or working with more advanced peers (Vygotsky, 1978). To unfold an individual's potential level of development, in this regard, the learning support called mediation should be provided to that person by more capable others in social interactions by taking that individual's needs of learning into consideration (Leung, 2007). Regarding effective intervention to an individual's ZPD, Aljaafreh and Lantolf (1994) refer to three characteristics of mediation: graduated, contingent, and dialogic. Graduated mediation means the provision of mediation in line with the required help, and it is given progressively by starting from the most implicit to the most explicit according to the responsiveness of the mediatee. In addition, the mediation should be given as needed and withdrawn gradually as the learner or mediatee becomes self-regulated. That is to say, it should be contingent. Lastly, dialogic

interaction is necessary to unfold an individual's ZPD, and it occurs between the mediator, who is a more capable person, and the mediatee, who is a novice needing help to carry out an activity or a task.

Internalization is a construct related to regulation, and Vygotsky (1978) calls it "the internal reconstruction of an external operation" (p. 56). It refers to an individual's ability to perform complex cognitive and physical tasks by relying primarily on self-regulation rather than other-regulation (Tzuriel, 2000). For the emergence of internalization, an individual should be exposed to external mediation from social resources, and then the need for this exposure decreases, and s/he is able to self-regulate his or her own physical and psychological behaviors through internal mediation (Lantolf et al., 2015). That is to say; there is "a transformation of an interpersonal process into an intrapersonal one" (Vygotsky, 1978, p. 57).

MLE by Feuerstein is another theory closely related to DA. Emerging as a result of Reuven Feuerstein's studies with children having "massive intellectual and academic dysfunctioning" (Feuerstein & Feuerstein, 1999, p. 4), MLE asserts that humans' cognitive functioning is modifiable, and this modification can be achieved with the help of MLE (Feuerstein et al.,1988; Shrestha, 2020). During the MLE, the human mediator, who will usually be a knowledgeable adult, intervenes between the stimuli and the organism (i.e., learner) and between the responses of the organism and the stimuli (Feuerstein et al., 1988). Like SCT, MLE also emphasizes the importance of mediation through humans who are more knowledgeable and symbols that will attract the attention of the mediatee (Poehner & Wang, 2021; Shrestha, 2020).

In this regard, the DA process based on MLE theory involves a teacher and student interaction for attaining self-regulation and favours mediation instead of quantitative measurements (Lantolf, 2009). According to MLE, an interaction should have three universal parameters to be labelled as mediational: intentionality and reciprocity, transcendence, and mediation of meaning (Feuerstein, 2000). Of these, intentionality means the mediator deliberately makes changes to the stimuli as compatible with the needs of the mediatee during the interaction (Feuerstein, 2000; Mentis et al., 2008; Poehner, 2008), while reciprocity refers to the learner playing an active role during the interaction and co-constructing knowledge together with the mediator (Poehner, 2008). Transcendence, which is called "the most humanizing" of the MLE components (Feuerstein et al., 1988, p. 65), involves the mediator providing mediation that goes beyond the immediate needs and enables the child to transfer and adapt his or her knowledge into other situations (Feuerstein et al., 1988; Tzuriel, 2011). As for the mediation of meaning, it is about the worth, significance, and emotional value attributed to the stimuli by the mediator (Tzuriel, 2001) and answers "why, what for, and other questions related to the causal and teleological relationship reasons for something to happen or to be done" (Feuerstein & Feuerstein, 1999, p. 24). In light of the preceding discussions of DA, it can be concluded that it provides a wealth of information about an individual's abilities and contributes to their development by providing instruction or mediation during assessment tasks. Therefore, in DA, the emphasis is on the process rather than the products of learning. (Lantolf & Poehner, 2004, Lidz & Gindis, 2003). In other words, DA is a type of assessment that integrates instruction and assessment (Antón, 2012). It aims to detect the learner's actual level of learning and enhance this level to its potential degree (Antón, 2012; Lidz & Gindis,

2003) by the interventions made by a knowledgeable source like a teacher or a computer (Bakhoda & Shabani, 2019; Poehner & Wang, 2021; Yang & Qian, 2019). In contrast to traditional types of assessment, DA supports the view that assessment and instruction should not be separated during the assessment process (Poehner, 2005; Rassaei, 2021).

The implementation of DA has been researched extensively across various language domains and skills, with studies focusing on listening, reading, writing, and oral skills. Ableeva (2010) and Wang (2015), for instance, investigated the effect of DA sessions on listening skills. Kozulin and Garb (2002), Teo (2012), and Yang and Qian (2019) studied DA in relation to reading abilities. Özturan and Uysal (2022), Shrestha and Coffin (2012), and Rad (2021) demonstrated an interest in DA writing applications. As for communication skills, DA research was conducted by Ebadi and Asakereh (2017), Poehner (2005), Swithaworn and Wudthayagorn (2018), and Yılmaz-Yakışık and Çakır (2017).

To conclude, this study will delve deeper into the use of DA to enhance speaking skills, focusing on mediational moves. The section below discusses the role of DA in promoting speaking skills.

Dynamic Assessment for Promoting Speaking Skills

In many research studies (Antón, 2009; Çetin-Köroğlu, 2019; Davin, 2013; Hill & Sabet, 2009; Jia et al., 2023), DA sessions have been implemented to assess learners' development of speaking skills. However, Poehner's (2005) study, which investigated how learners progress their oral skills, has pioneered other studies in this field. His study is a good example of an interactionist approach to DA, as he carried out oral interviews with university students and dynamically assessed their ability to use the two types of past tenses in French (imparfait and passé composé) when narrating a movie. In order to construct a ZPD, Poehner (2005) provided flexible mediation, which was determined by the mediator in consideration of the learner's needs of assistance during the conversation rather than in a predetermined way, and found that the learners' difficulties were resolved through mediation. As a result of the findings of this research, Poehner (2005) created typologies for mediation and learner reciprocity, as in the following table.

Table 1

Poehner's Mediation and Learner Reciprocity Typology

Mediational Typology	Learner Reciprocity Typology
Helping move narration along	Unresponsive
Accepting response	Repeats mediator
Request for repetition	Responds incorrectly
Request for verification	Requests additional assistance
Reminder of directions	Incorporates feedback
Request for renarration	Overcomes problem
Identifying specific site of error	Offers explanation
Specifying error	Uses mediator as a resource
Metalinguistic clues	Rejects mediator's assistance
Translation	
Providing example or illustration	
Offering a choice	
Providing correct response	
Providing explanation	
Asking for explanation	

Note. (Poehner, 2005)

Another study that investigated the learners' potential to improve their speaking skills was conducted by Siwathaworn and Wudthayagorn (2018). Through the elicited imitation tasks, learners' speaking skills were assessed in terms of fluency, vocabulary, syntax, and pronunciation. The results yielded that DA had a positive impact on learners' speaking skills. Participants became more engaged and self-directed learners. The interview and diaries also displayed those learners had positive attitudes toward DA procedures. It is also significant that DA was found to have promising potential as a classroom practice, particularly for low-proficient students.

There is also research investigating the applicability of the DA approach to assessing speaking skills in large classes. Yılmaz-Yakışık and Çakır (2017) carried out speaking tests in experimental and control groups. Each group consisted of 18 English language teacher trainees, employing both non-dynamic and DA sessions in the sandwich format, namely, pre-test, training, and post-test. The results indicated that the learners in the experimental group who received mediation during DA and took a training program between pre- and post-tests outperformed the learners in the control group in terms of the development of speaking skills.

Moreover, the studies conducted by Antón (2009), Davin (2013), and Jia et al. (2023) focused on the implementation of DA in contexts where Spanish or Chinese was learned as a foreign or a second language. Of these, Antón (2009) adopted the interventionist approach to DA and found that DA provided rich and deep descriptions of learners' actual and potential levels of development. Similarly, Davin (2013) also employed the interventionist DA, and integrated it with the instructional conversations. As the findings, the research revealed that DA and instructional conversations were compatible for developing the learners' ZPD in a classroom setting. Different from these studies, the investigation carried out by Jia et al. (2023) was an experimental study comparing the effects of DA and explicit feedback on the acquisition of a Chinese grammatical structure. And the research found that the DA was more effective on acquiring the target structure and enhancing the learning potential.

Interventionist and Interactionist Approaches to DA

The studies mentioned above highlight two different approaches to DA: interventionist and interactionist (Ebadi & Saeedian, 2016; Ebadi & Latif, 2015; Lantolf & Poehner, 2004), which "differ in their flexibility of the mediation provided to learners during the procedure" (Yang & Qian, 2023, p. 21). Of these, the interventionist DA, which "better aligns with the preference in many conventional assessments for standardized administration procedures" (Tang & Ma, 2023, p. 46), involves the scripted mediation hierarchically ranging from implicit to explicit (Kushki et al., 2022; Yang & Qian, 2023). In this vein, the quantification of assistance required for achieving the predetermined goal is an aspect of the interventionist approach to DA (Lantolf & Poehner, 2004). The results obtained through this quantification are used to make comparisons among the individual learners and groups (Poehner, 2008). Regarding the interventionist approach, which is usually implemented by adopting a pre-test, implementation, and post-test design (Ebadi & Latif, 2015), Poehner (2005) states that it explicitly aims "to increase the predictive validity of current testing procedures" (p. 83). In addition, pre-specified prompts and hints are used during the interventionist DA process (Andujar, 2020), and this can negatively affect the mediator's ability to respond

appropriately to the learners' problems that emerge during the assessment process (Poehner, 2005). However, despite its discrepancy with the general view that every learner has his or her own characteristics and needs, the interventionist approach also has some advantages in terms of implementation. For example, the interventionist approach enables the teachers to give mediation to a large group of learners. Moreover, the implementation of interventionist DA does not require as much time and effort as one-on-one or interactionist DA does (Poehner & Lantolf, 2010). To illustrate how the interventionist DA is conducted, the following excerpt from Andujar (2020, p. 12) involves the prompts which are scripted before the DA session.

Figure 1

A Sample Excerpt for the Interventionist DA

Example 3: Topic: Food and restaurants

18:36	A: "What's the best tapas bar in your opinion?"
18:40	J: "There are much bars in Almería with great food"
18:40	A: "I think the best ones are in the city centre"
19:01	T: (emoticon indicating the person is thinking) **(Prompt n1)**
19:04	A: "any mistake teacher?"
19:05	T: "There are much bars in Almería with great food?" **(Prompt n2)**
19:05	J: "mm … yes …"
19:06	T: "There are much bars?" **(Prompt n3)**
19:07	J: "I think that is 'many' bars."
19:07	T: "That's correct Judit many for countable nouns."

As for the interactionist approach to DA, it is "more open-ended and conversational" (Kushki et al., 2022, p. 2) and involves the provision of mediation adjusted according to the responsiveness of the learner during the interaction (Lantolf, 2009). In other words, the mediation is not provided according to a pre-specified script (Davin, 2013; Lantolf & Poehner, 2004; Shrestha, 2020), and the importance is given to development rather than the amount of assistance and the predetermined goal (Lantolf & Poehner, 2004). In this regard, the interactionist DA is more sensitive to the learner's ZPD (Kushki et al., 2022). Although it is not as standardized as in the interventionist DA, the mediation in interactionist DA "does typically proceed along a continuum of implicit to explicit depending upon learner needs and responsiveness as these become apparent during the interaction" (Poehner & Wang, 2021, p. 475). Moreover, the interactionist DA does not involve the quantitative scores, and MLE is mentioned as one of the most prominent types of interactionist DA (Davin, 2013; Shrestha, 2020). In the study by Özturan et al. (2023, p. 68), interactionist dialogic mediation was provided to the learners based on the texts they wrote, as given in the excerpt below.

Figure 2

A Sample Excerpt for the Interactionist DA

Excerpt 1: (T: Teacher, M: Mia)

T: Can you please read it again? **(Mediational move 1—existence of an error)**
M: It has four windows that has a curtain ((she is reading the sentence))
T: four windows that ↑has **(Mediational move 2—location of an error)**
M: yes **(Reciprocity act 1—no response)**
T: that have **(Mediational move 3—providing the correct form)**
M: yeah, that have. Windows are plural **(Reciprocity act 2—partial autonomy)**

Mobile-Assisted Language Learning and Assessment

The increasing popularity of mobile-assisted language learning in English as a second/foreign language (ESL/EFL) education can be attributed to the facilitative nature of mobile-based language learning in enhancing the quality of learning and teaching. Internet connectivity, interactivity, portability, multimedia capabilities, universality, convenience, and cost-effectiveness are some of the primary advantages of mobile-assisted language learning (Ally & Samaka, 2016). These benefits of MALL can increase the amount of time spent learning outside of the classroom (Burston, 2015), and these advantages have encouraged researchers to investigate mobile-based language learning as an effective method for enhancing language learning.

Mobile-assisted dynamic assessment (MA-DA) and mobile-assisted formative assessment (MA-FA) are two different assessment types used in mobile learning environments. Although both types of assessment favour the development of the learners' abilities in time, they differ in terms of some aspects, which are, in fact, mentioned as the divergence between DA and FA (Leung, 2007). Of these, the first is that the MA-DA is based on the theoretical background provided by SCT and MLE about cognitive development, while the MA-FA lacks such a theory to draw on. Secondly, while the MA-DA intends to develop the learners' ZPD and make long-term effects on their learning capacity, the MA-FA is more inclined to assist the learners in overcoming challenges germane to specific tasks. In addition, the MA-DA involves less risk of erroneous evaluation because it allows the provision of contingent feedback adjusted according to the learner's needs (Poehner & Lantolf, 2005). To conclude, the MA-DA is a type of assessment that aims to identify learners' potential for growth, whereas the MA-FA is a type of assessment that aims to facilitate learning by providing learners with ongoing feedback.

Although there are some studies investigating the differences between mobile-assisted language learning and face-to-face settings, such as the research conducted by Aliakbari and Mardani (2022), the focus of the studies conducted on MA-DA and F2F-DA was mostly on investigating the advantages of one form of DA. The study conducted by Aliakbari and Mardani (2022), for example, explored that EFL students who participated in mobile learning classes improved their speaking abilities more than those who took face-to-face classes. The privacy afforded by mobile learning and the ability to access and utilize vast amounts of content on the internet have been identified

as major contributors to this achievement. The study found that students were more content with mobile learning classes than face-to-face classes because mobile learning classes offered greater flexibility and personalized settings; therefore, mobile learning classes increased student motivation and engagement.

Another study investigating the possible advantages and disadvantages of mobile-assisted language learning is conducted by Chinnery (2006). In this study, the researcher discusses the potential advantages and difficulties of employing mobile technologies for language learning. Although mobile technologies are readily available and frequently less expensive than standard equipment, their portability presents obstacles such as smaller screen size and poor audiovisual quality. In addition, their availability may be restricted, and connection issues may occur. Furthermore, it might pose problems such as inadequate nonverbal communication and cultural context. However, the advantages of mobile-assisted language learning (MALL) are substantial, including its potential to increase social inclusion by enabling students to study at their own pace and in any location.

Merzifonluoğlu and Takkaç-Tulgar (2022) explored the relationship between self-directed technology use and learners' success in vocabulary development. The results were insignificant, and the possible factors that could have contributed to this outcome could be the learners' limited self-directed learning abilities, the duration and scope of the intervention, limited resources, technical and software problems, and the exam format. Their study also highlights the need for clear instruction and modeling on how to use applications and websites effectively in and out of the classroom.

There is more research arguing the advantages of mobile-assisted language assessment. In the study by Tarighat and Khodabakhsh (2016), the speaking proficiency of EFL learners was assessed through portfolios. WhatsApp application was the main instrument for collecting data in this research. The participants recorded a two-minute speech, shared the recording, and finally received peer feedback and teacher feedback on grammar, vocabulary, pronunciation, and overall performance during the process of Mobile-Assisted Language Assessment (hereafter MALA), which was coined by these researchers. The researchers reported the striking finding that MALA, which involves the operation of assessment and instruction simultaneously, was found fairer by the participants than the static tests, and they commented that it could be adopted along with other assessment methods. Additionally, MALA helped to boost EFL learners' ZPD. It is also observed that the MALA was quite compatible with DA principles, and the DA procedures could be implemented through telecommunication strategies.

Mobile-Assisted Dynamic Assessment

The literature provides empirical studies on MA-DA in the area of language learning. For instance, Rezaee et al. (2019) investigated the effects of MA-DA via WhatsApp on EFL learners' oral fluency development. In this experimental research, the participants in the experimental groups were exposed to DA via either voice-chat or text-chat. The study results revealed that the learners in the experimental groups outperformed the ones in the control group.

Phetsut and Waemusa (2022) examined the efficacy of the mobile-assisted language assessment intervention on the oral accuracy of Thai EFL learners using WhatsApp. The results demonstrated that the MALA had a significant impact on the

improvement of the learners' oral accuracy, shedding light on how to maximize the use of mobile devices in the classroom. The MALA-based intervention provides Thai EFL learners with an opportunity to practice speaking through interaction with the teacher, and WhatsApp functions as a mediator to be utilized in MALL while supporting the DA process. However, a large class may increase the teacher's workload, and limitations regarding a stable internet connection in some local contexts should be considered for future planning.

Another study pointing out the issue of teacher workload in these innovative methodologies of assessment is conducted by Rad (2021). This researcher has introduced a new term, which is hybrid dynamic assessment (HDA), and used mobile-mediated HDA applications to assess language proficiency in L2 learners, which allowed for individualized learning and addressed challenges found in earlier research on HDA. The study found that learners were able to comprehend language errors faster and compose more target-like forms by the end of the interaction. The mobile-mediated HDA approach developed an environment that supported dialogic mediation and converted in-class time into an individualized source of L2 input and feedback. However, according to the researcher, practical suggestions such as decreasing teacher workload may be necessaryfor some instructional settings.

The research conducted by Rassaei (2021) compared the effects of three conditions on the learning of request forms: mobile-mediated DA, non-DA mobile-mediated explicit correction, and control condition. Rassaei (2021) found that mobile-mediated DA was significantly more effective than the other two conditions. Moreover, he qualitatively analyzed the reciprocity patterns occurring in the DA sessions and reported that the learners reciprocated to the mediation more in the later DA sessions.

Reviewing the literature, one can obviously find out that the research generally focused on the effectiveness of DA on the acquisition of various language sub-skills in comparison to non-dynamic assessment procedures. In these studies, the DA was implemented either in F2F or MA contexts. However, to the best of the researchers' knowledge, which mediational moves and reciprocity behaviors are employed in the F2F and MA-DA procedures have not been investigated so far. Therefore, this research aims to fill this gap in the literature.

Method

Research Design

This research is based on a qualitative descriptive design (Sandelowski, 2000), where the researchers collected data to discover the differences in mediational moves and reciprocity behaviors between F2F- and MA-DA sessions. Nassaji (2015) reports that qualitative and descriptive research is well-adjusted for foreign language teaching, which takes place in EFL classrooms. Lambert and Lambert (2012) also use the term 'qualitative descriptive design', which is driven by natural inquiry, and report that a qualitative descriptive study does not produce a theory from the data; however, the objective is to obtain cases rich in information and to present a detailed description of the existing situation. More specifically, they state "there is no pre-selection of study variables, no manipulation of variables, and no prior commitment to any one theoretical view of a target phenomenon" (Lambert & Lambert, 2012, p. 255).

Participants

For the present study, convenience sampling, which involves the participants who are available to the researchers, was employed (Fraenkel et al., 2023). In this vein, the second author of this article reached 45 tertiary-level EFL learners who were the students taking the general English course taught by the researcher. Then they were given an online proficiency test (DIALANG) in order to detect their proficiency in terms of the correct use of syntax and vocabulary in English. After obtaining the test results, four learners, two male and two female, whose ages ranged between 18-20, were randomly selected among the ones whose level was A2 according to the DIALANG test results. The learners at A2 level were selected because the researcher observed that the students with lower English levels had some significant problems communicating in English because of their inadequate knowledge of grammar and vocabulary.

As for the mediator in the research, she is one of the researchers in this study and the instructor teaching the participants. She has a Ph.D. degree from English language teaching. Previously, she has studied DA procedures in language classes, and her doctoral dissertation is about the effectiveness of DA on the improvement of tertiary-level learners' speaking skills.

Instruments

Three instruments were used to conduct this research: YouTube videos for narration, WhatsApp application, and a written interview form. Furthermore, the F2F-DA sessions were audio-recorded by the mediator's phone, while the MA-DA ones were video-recorded on WhatsApp.

YouTube Videos for Narration

The participants were asked to watch five-minute-long animated YouTube videos in which a moral lesson was involved, and then they were asked to narrate the events in past tenses. These videos were operated by the mediator during the F2F-DA sessions. On the other hand, for the MA-DA sessions, the links to the videos were shared with the participants just before the sessions, and they were asked to take short notes while they were exposed to the stories in the videos.

WhatsApp Application

In the present research, WhatsApp Application was selected to use in MA-DA sessions. This application was preferred for two reasons. The first one was that it was available and free for all the participants to easily use it. The second reason was that it provided us with opportunities for text or voice messages as well as video talk.

Written Interview Form

A written interview form was prepared to get the participants' views regarding these issues: difficulties encountered during the F2F- and MA-DA sessions, preferences about the contexts of the DA sessions, stress levels of the F2F- and MA-DA sessions, and the ideas about the benefits of DA sessions. In this vein, five questions (see Appendix) were asked in the participants' native language (Turkish) in order to enable them to express their opinions easily.

Procedures and Data Collection

After the participants were selected, they were given information about two contexts of assessment, which were F2F and MA, with the aim of raising the students' awareness about the procedures. While describing the framework of the study, the researcher informed the participants that they would get assistance from the mediator when they had difficulty narrating the stories. Moreover, in order to make the students feel secure the mediator stated that their performance would not be scored. It was also ensured that the participants had an internet connection since MA sessions would be held through WhatsApp application. During the data collection process, the mediator held F2F-DA sessions at Gazi University campus, while MA-DA sessions were implemented according to the participants' convenience. In this context, two participants (Aycan and Cem) initially received F2F mediation from the mediator, while the other two participants (Filiz and Okan) got synchronous online mediation from the same mediator via WhatsApp application. Then, the participants changed the context of the interaction. That is to say, the students who received F2F mediation in the first session received MA mediation in the second session, while those who received MA mediation at first were exposed to F2F mediation later. Each pair had a one-week interval between the F2F- and MA-DA sessions. Table 1 illustrates how the context of the DA sessions changes according to the pair of learners.

Table 1

The Contexts of Dynamic Assessment Sessions

Session	Face-to-face	Mobile -assisted
The First session	Aycan-Cem	Filiz-Okan
The Second session	Filiz–Okan	Aycan-Cem

Note. (*Pseudonyms were used.*)

All the students participated in both F2F- and MA-DA sessions throughout the data collection process. During these sessions, the participants first watched short animated films and then narrated these stories F2F or on WhatsApp. The reasons for using these films were that they would provide the necessary prompt for the interaction between the learner and the mediator and allow the learners to use the target language while narrating them. Furthermore, each session involved the mediation provided by the mediator to the various points of the interaction, such as content, flow, grammatical accuracy, and vocabulary choice. The reasons for this are that focusing on a specific point, particularly a grammatical structure, may hamper the natural flow of the interaction (Kang, 2010), and the participants face some challenges in narrating a story because of their low English proficiency. The participants receiving this mediation, on the other hand, could or could not reciprocate it in various ways.

Each interaction between the mediator and the participants was audio-recorded for analysis, and 148 minutes of verbal data were collected at the end of the DA process. Furthermore, the participants' views regarding the F2F- and MA-DA were obtained through a written interview form. In this form, the questions were asked and answered in Turkish in order to get more detailed answers.

Data Analysis

To achieve the aims of the study, qualitative data analysis was employed. First, the oral data obtained from the F2F and MA interactions between the mediator and each learner were first transcribed verbatim. Then, content analysis was performed on the collected data from these interactions. Content analysis involves coding for themes, examining patterns, and making interpretations to draw conclusions about common themes (Ellis & Barkhuizen, 2005). In the analysis process, both deductive and inductive content analysis approaches were adopted. The researchers first read the whole dataset in order to get familiar with it and detect the prominent and recurrent codes. Then they repeatedly read the data in detail and checked the initial codes, and assigned the new ones. While analyzing the data, the researchers focused not only on language-related episodes (Swain, 2001) but also on other aspects of the interaction where the mediator provided mediation, and the participant could or could not reciprocate this mediation.Moreover, it is noted that the typology suggested by Poehner (2005) was used, and new codes were also assigned for the data that could not be labelled with this typology. After coding the whole data separately, the researchers came together and discussed the discrepant codes until reaching a common decision. At the end of this process, new mediational moves and reciprocity behaviors emerged. All these themes, namely the typologies previously explained by researchers and the new typologies that emerged during the content analysis, were defined by two researchers and finalized with feedback on the reliability of the qualitative analysis. Another critical researcher with a doctorate and expertise in the qualitative analysis was asked to evaluate these mediational typologies proposed by the researchers.

As for the data collected through written interview form, the participants' answers to the open-ended questions were also content analyzed by both researchers; themes and subthemes were drawn, and the discrepancies were discussed with the feedback of a third researcher who had expertise in the field.

Ethical Procedures

Ethical approval for the research was taken from Gazi University Ethics Committee with the number E-77082166-604.01.02-342542 and date 05.04.2022. After getting the ethical approval, the participants were asked to sign a consent form indicating that they were voluntarily participating in the study.

Findings

The primary focus of this research was to distinguish between the F2F- and MA-DA sessions in terms of mediational moves and reciprocity behaviors. For this reason, the content analysis of the dialogs between the participants and the mediator was done, and some important findings were obtained. However, before presenting the findings and answering each research question, it should be noted that not only was Poehner's typology (2005) used as a reference during the analysis of the conversations, but some additional moves and behaviors were also identified. Furthermore, explaining the emerging moves and behaviors in F2F- and MA-DA sessions is necessary. These were called "emerging moves and behaviors" by the researchers as they emerged as natural consequences of the dialogs aiming to result in student progress. Furthermore, they were

classified and provided with examples from the dialogs between the mediator and the participants.

Table 2

Emerging Mediational Moves

Move	Explanation	Excerpt
	Dialogical Moves	
Positive reinforcement	Encouraging the learner by referring to the success of the learner	Filiz: Imm. She told her achievement to her friends. Mediator: *Very good*. (Filiz MA DA 1)
Asking for translation	Asking the learner to translate what s/he tries to say	Mediator: Mindy didn't show. Cem: Show… much Mediator: What do you mean? What didn't she show? Cem: For celebrity. For mate. Mediator: *Ne demek istedin? In Turkish, can you tell me what you mean? Tamam Türkçe söyle*. (Cem F2F DA 1)
Asking further question for details	Asking about some details of the story	Ozan: Made a surprise. Mediator: Okay. For Tim. Made a surprise for Tim. Ozan: Yes. Mediator: *What was the surprise?* (Okan F2F DA 2)
Asking for clarification	Asking the learner to clarify what s/he says	Filiz: And grandpa answered him: "No they always expect to you" Mediator: *Do you mean Stephan's question? I mean Stephan's question. What was the question? What about?* (Filiz F2F DA 1)
	Implicit	
Recasting	Providing the correct form implicitly	Aycan: He went to shopping. Mediator: Okay. Alright. *He went shopping*. Hı hı. Aycan: Hı hı. His mom Mediator: Hı hı. *With his mom*. (Aycan MA DA 1)

Table 3

Emerging Reciprocity Behaviors

Behavior	Explanation	Excerpt
	Demanding Help	
Asking for explanation	Requesting explanation from the mediator	Mediator: Shirt okay. Do we say he wanted to t-shirt or he wanted to buy a t-shirt? Aycan: *I don't understand*. (Aycan MA DA 1)
Asking for translation	Requesting translation from the mediator	Ozan: But Ilyn didn't accept. Mediator: Okay. Ozan: Didn't want accept. Because his birthday party's invited. Sorry. Was going to invite Tim. *Katılıyor olaca*k. (Okan F2F DA 2)
	Moves Resulting in Inaccuracy	
Hesitating	Pausing	Mediator: A brave person? Cem: No. *Celeb…* Mediator: Do you mean? Ha. Celebrity. Do you mean famous person? (Cem F2F DA 1)
Using L1	Narrating in the mother tongue	Filiz: He res res… *Dinlenmesi gerekiyor*. Mediator: He had to rest. Filiz: Yes. He had to rest. (Filiz MA DA 2)
Unclear narration	Ambiguity in the narration	Mediator: Yes there are some events. Cem: Then *he came your home*. *Maybe then they at lunch*. Mediator: They what? What did they do at lunch? (Cem F2F DA 1)
Inadequate answer	Failure to complete the sentence	Mediator: Okay. It has different colors or it had different colors? Ozan: *It had a ….* Mediator: Had different colors. Hı hı. And shapes. (Okan F2F DA 1)

Mediational Moves Employed in the F2F- and MA-DA Sessions

In this research, "mediational moves" refer to what the mediator does to facilitate the learners' language development during DA. Drawing on this definition, the mediational moves have been detected and divided into three main categories: dialogical moves, implicit mediation, and explicit mediation. Here, it is to note that all of these categories involve both the moves in Poehner's (2005) typology and the moves

emerging from the data. Moreover, as this is a qualitative descriptive research study, the overall frequency scores have been analyzed, and the total scores of each context have been compared.

Firstly, when the frequencies of the categories are compared regardless of the contexts, the study reveals that the category of dialogical moves (*f*= 329) involving the moves which are employed for maintaining the conversation by the mediator has the highest frequency. This means that although the two contexts (F2F and MA) are different in terms of their affordances, both of them require the interlocutors to participate in the conversation in various ways, such as asking questions or repeating the previous expressions. On the other hand, the category of implicit moves (*f*= 163), including the moves regarding the mediator's indirect help to the learner during the conversation, is the second most frequent one, while the explicit moves (*f*= 76) are the least frequent ones in total. However, the mediator also provided explicit mediation to the learners when there was not any other way to maintain the conversation.

Secondly, if the mediational moves are compared with regard to the contexts, it is obvious that F2F and MA interactions differ in terms of allowing the mediator to use some mediational moves. For example, F2F-DA allowed the mediator to employ more dialogical moves in comparison to MA-DA (*f*= 175 in F2F, *f*= 154 in MA-DA). Moreover, helping move narration along (*f*= 67), requesting for verification (*f*= 30), and asking further questions for details (*f*= 20) are the prominent moves of F2F-DA sessions, and they are more frequently used in these sessions than the ones in the interactions on WhatsApp. Helping move narration along, accepting responses, and requesting for repetition, on the other hand, are the most prominent and frequent moves in MA-DA sessions.

As for the implicit category, the summative frequency of it indicates that the mediator provided more implicit mediation to the participants during the F2F-DA sessions (*f*= 87 in F2F, *f*= 76 in MA-DA). Although offering choice (*f*= 26 in F2F, *f*= 24 in MA-DA) and recasting (*f*= 31 in F2F, *f*= 16 in MA-DA) are the most prominent moves for both F2F- and MA-DA sessions, they are obviously different in terms of the frequency of recasting move. That is to say, the mediator provided more recasts in the F2F interactions.

Finally, the category of explicit moves referring to the situations that the mediator directly provided the mediation to the learner also indicates the difference between the F2F- and MA-DA sessions. When the summative frequency of the explicit mediational moves employed in these sessions is compared, it is obvious that the MA-DA sessions involve more explicit moves (*f*= 32 in F2F, *f*= 44 in MA-DA). However, it should also be noted that the interactions occurring in both of the contexts involve providing the correct response (*f*= 15 in F2F, *f*= 25 in MA-DA) as the most frequently used move, and this means that the mediator gave the correct response when she thought that there was not any other way to help the learner to overcome the problem.

Table 4

Mediational Moves Employed in F2F-DA

Moves	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Dialogical Moves									
Helping move narration along	5	4	16	3	9	6	12	12	67
Approving	4	1	0	0	0	0	1	0	6
Accepting response	4	2	0	0	0	0	0	0	6
Requesting for verification	2	3	11	1	1	1	5	6	30
Positive reinforcement	1	0	0	0	1	2	1	0	5
Requesting for repetition	2	1	3	3	0	3	2	4	18
Asking for explanation	0	1	6	1	0	0	0	2	10
Requesting for renarration	0	0	1	1	0	0	0	0	2
Asking for translation	0	0	2	0	0	0	0	0	2
Asking further question for details	0	0	0	2	3	2	3	10	20
Asking for clarification	0	0	0	0	2	0	6	1	9
T0TAL									175
Moves	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Implicit Mediation									
Identifying site of error	3	1	0	3	0	0	1	3	11
Offering choice	4	3	2	4	3	3	3	4	26
Recasting	1	1	5	5	5	4	3	7	31
Metalinguistic clues	0	1	0	0	0	3	2	2	8
Specifying error	3	0	1	1	1	0	2	3	11
Reminder for directions	0	0	0	0	0	0	0	0	1
TOTAL									87
Moves	Aycan		Cem		Filiz		Okan		

	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Explicit Mediation									
Providing correct response	1	1	0	1	0	5	3	4	15
Providing explanation	0	1	1	2	1	0	0	4	9
Providing translation	0	1	2	0	2	1	2	0	8
TOTAL									32

Table 5

Mediational Moves Employed in MA-DA

Moves	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Dialogical Moves									
Helping move narration along	1	6	13	6	7	5	11	5	54
Approving	0	0	0	0	2	0	0	0	2
Accepting response	0	0	0	0	4	3	17	10	34
Requesting for verification	1	1	2	1	1	3	8	2	19
Positive reinforcement	0	1	0	0	2	0	1	2	6
Requesting for repetition	2	5	4	1	2	1	7	4	26
Asking for explanation	0	0	2	0	2	0	0	1	5
Requesting for renarration	0	0	0	0	0	0	0	0	0
Asking for translation	0	0	0	0	0	0	0	0	0
Asking further question for details	1	0	2	3	0	0	0	0	6
Asking for clarification	0	0	0	0	0	0	1	1	2
TOTAL									154
Moves	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Implicit									
Identifying site	0	0	0	0	3	0	1	0	4

of error									
Offering choice	2	3	5	4	5	2	2	1	24
Recasting	4	1	0	0	2	1	3	5	16
Metalinguistic clues	0	1	3	1	2	1	5	0	13
Specifying error	2	2	1	1	4	2	1	0	13
Reminder for directions	0	0	0	0	1	1	4	0	6
TOTAL									76

Moves	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
					Explicit				
Providing correct response	3	3	4	3	3	5	2	2	25
Providing explanation	0	3	4	1	2	0	2	0	12
Providing translation	0	0	1	0	1	3	2	0	7
TOTAL									44

Reciprocity Behaviors Employed in the F2F- and MA-DA Sessions

In the present study, reciprocity behaviors refer to what the learners did during the DA sessions while interacting with the mediator. According to the findings of this research, these behaviors were classified under five major categories: *agentic behavior, demanding help, taking the mediator as a model, moves resulting in inaccuracy,* and *rejecting reciprocity*. In Table 5, the behaviors that each category involves are given with regard to the participants, DA sessions, and contexts.

Firstly, when the frequencies of these reciprocity behaviors are examined regardless of the contexts, it is obvious that some behaviors were more frequently deployed by the participants during the DA sessions. For example, *overcoming a problem* (*f*= 103) is the most frequent behavior. In contrast to this, *repeating mediator* (*f*= 62) is the second most frequent reciprocal behavior, and it is a sign that the participants were less independent. Moreover, *responding incorrectly* (*f*= 43) and *requesting additional assistance* (*f*= 28) are the third and fourth most frequent behaviors in sequence, and these are also evidence indicating that the participants need more mediation.

Secondly, when these reciprocal behaviors are compared with the contexts, F2F and WhatsApp, it is possible to detect some differences. For instance, the frequencies of the behaviors in the category of *agentic behavior* are different. Of these behaviors, *overcoming a problem* (*f*= 55 in F2F, *f*= 48 in MA-DA) in particular was more frequently deployed in F2F interactions for maintaining the conversation, indicating that the participants could successfully reciprocate the mediation and were more active. On

the other hand, the F2F interactions also involved more situations of inaccuracy in comparison to the ones on WhatsApp (*f*= 52 in F2F, *f*= 24 in MA-DA). *Using L1* and *responding incorrectly* are the prominent behaviors that are classified under the category of *moves resulting in inaccuracy*.

Table 6

Reciprocity Behaviors Employed in F2F-DA

Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Agentic Behavior									
Overcoming a problem	10	6	2	5	3	5	6	18	55
Incorporating feedback	0	0	2	0	0	0	0	1	3
TOTAL									58
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Demanding Help									
Asking for explanation	1	0	0	0	0	0	0	1	2
Asking for translation	0	1	0	0	2	2	0	1	6
Requesting additional assistance	0	1	0	1	2	2	4	4	14
TOTAL									22
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Taking Mediator as a Model									
Repeating mediator	2	0	5	2	1	8	6	8	32
Using mediator as a resource	1	0	2	1	0	2	0	1	7
TOTAL									39
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Moves Resulting in Inaccuracy									
Hesitating	0	1	1	1	0	0	1	0	4
Using L1	0	0	2	0	1	2	6	4	15
Responding incorrectly	0	1	7	2	0	1	4	10	25

Unclear narration	0	0	3	0	0	0	0	0	3
Inadequate answer	0	0	2	0	0	0	2	1	5
TOTAL									52
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Rejecting Reciprocity									
Unresponsive	0	0	2	2	0	0	0	0	4
TOTAL									4

Table 7

Reciprocity Behaviors Employed in MA-DA

Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Agentic Behavior									
Overcoming a problem	2	8	7	5	12	4	4	6	48
Incorporating feedback	0	0	0	0	0	0	0	0	0
TOTAL									48
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Demanding Help									
Asking for explanation	1	1	0	0	1	0	0	0	3
Asking for translation	0	1	1	0	3	3	3	0	11
Requesting additional assistance	0	1	3	0	3	5	1	1	14
TOTAL									28
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Taking Mediator as a Model									
Repeating mediator	1	2	6	2	4	6	7	2	30
Using mediator as a resource	0	0	0	0	0	0	0	1	1
TOTAL									31
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total

Moves Resulting in Inaccuracy									
Hesitating	0	0	0	1	1	0	0	0	2
Using L1	0	0	0	0	1	3	0	0	4
Responding incorrectly	1	2	2	3	2	2	4	2	18
Unclear narration	0	0	0	0	0	0	0	0	0
Inadequate answer	0	0	0	0	0	0	0	0	0
TOTAL									24
Behaviors	Aycan		Cem		Filiz		Okan		
	DA1	DA2	DA1	DA2	DA1	DA2	DA1	DA2	Total
Rejecting Reciprocity									
Unresponsive	0	0	2	2	0	0	0	0	4
TOTAL									4

The Students' Attitudes toward F2F-DA and MA-DA Sessions

The participants' answers to the written questions involved some common ideas about the affordances of F2F- and MA-DA. For example, Aycan, Filiz, and Cem stated they had some difficulties expressing their opinions in English during the F2F-DA sessions, while Okan did not mention any challenges. Aycan expressed that: "*I could understand everything I watched, but I had difficulty while conveying what I knew because of my lack of word knowledge*". As for the MA-DA sessions, Okan and Cem stated that they did not face any difficulties. In contrast, Aycan pointed out she had some challenges because of the poor internet connection. Filiz also expressed she felt more stressful during the MA-DA sessions than the F2F ones, as in this sentence: "*I felt more comfortable meeting face-to-face, but the meetings being on the internet made me a bit nervous.*" Furthermore, all of the participants preferred the F2F-DA by accentuating various reasons such as preparing the learners for real life more, expressing themselves more easily, and feeling safer and more relaxed. However, as a response to the question of during which sessions they felt more stressful, just two of the participants chose one of the contexts, while the other two pointed out they had not felt stressful. Of these participants, Cem mentioned the F2F sessions were more stressful, while Filiz called the MA-DA sessions more stressful for herself. Finally, all the participants stated the mediation provided during the sessions was very beneficial and helped them maintain the conversation.

Discussion and Conclusion

Initially, when comparing face-to-face and mobile-assisted language assessment processes for speaking skills, it was assumed that the face-to-face assessment process would be more effective for students. However, the growing popularity of digital tools in the field of education and the pandemic process requiring the evaluation process to be online necessitated the comparison of these two processes. Furthermore, the benefits of dynamic assessment, whose tenets are based on the constructivist approach, integrating

both learning and assessment, cannot be denied, leading to thestudy's goal of comparing F2F- and MA-DA in an EFL setting. Dialogical moves between the mediator and the language learners were analyzed using the qualitative research design to reach conclusions. Before discussing the results, it is essential to note that there are no studies comparing F2F- and MA-DA sessions in EFL settings. Thus, the previous studies cited here are limited to those that examined the efficacy of a single assessment session.

As the findings revealed, the mediator frequently used dialogical moves in both contexts. This finding is consistent with the natural flow of the conversation because the interlocutors usually employ actions that allow the other interlocutor to continue the conversation by taking the floor again (Sidnell, 2010). Moreover, it was found that the implicit mediational moves were more frequently used than the explicit ones in both contexts. This indicates that the mediator preferred to give mediation more implicitly than in an explicit way, and this is compatible with the procedure that is usually followed in the DA process and allows the learners to make corrections on their own and develop their ZPD (Davin & Donato, 2013; Poehner & Lantolf, 2013).

When the F2F- and MA-DA sessions were compared, the research found that the mediator employed the dialogical and implicit moves for mediation more frequently during the F2F interactions. In contrast, the MA-DA sessions involved more frequent use of explicit moves compared to the F2F sessions. Considering these findings, it can be deduced that the conversational channel was rather restricted in MA-DA sessions. In line with this, Çakmak (2019) refers to the challenges of MALL and explains that some dimensions in environmental design, such as mobility, connectivity, and spatial and temporal dimensions, can cause disruptions if a problem occurs in these dimensions. Furthermore, regarding the more frequent provision of recasts in F2F sessions, it can be stated that the participants could consider recasting to be mere repetition, and this attempt might not result in accuracy. This finding is in line with what Lyster and Saito (2010) report. They argue that recasts tend to be ambiguous for grammatical errors. Therefore, students might not distinguish the mismatch between the correct and incorrect forms of the target language. However, in F2F-DA sessions, thanks to nonverbal parameters such as body language, gestures, and mimics, the mediator relied more on recasting since these nonverbal parameters could eliminate misinterpretations.

It is important to note that in each F2F- and MA-DA session, the mediation presented to the students was different for two reasons. First, the ZPD was different for each student. Second, the nature of F2F- and MA-DA sessions guided the mediator to provide the appropriate mediational move. For instance, the mediator employed more implicit feedback, such as recasting, in F2F-DA sessions while using more explicit feedback in MA-DA sessions. Rezaee et al. (2019) argue that mediation is not standardized but adjusted to the students' responses in an interactionist approach. In this study, both the students' responses and the nature of the two contexts (F2F- and MA-DA) determined the mediational moves and reciprocity behaviors. In this vein, the mediator offered more prompts for accepting responses during MA-DA sessions due to the restricted nature of the context in mobile learning. In F2F-DA sessions, both the mediator and the students utilized the advantage of turn-taking. For example, the mediator asked further questions for details more frequently in F2F-DA session. Hence, the F2F interaction increased the dialogic activity making the conversation flow smoothly. Moreover, when the reciprocity behaviors were analyzed, it was remarkable

that students tended to use L1, and they gave more responses that resulted in inaccuracy. This can be explained by saying that the ease of F2F interaction caused the students to act more comfortably and carelessly.

As for the reciprocity behaviors, the participants frequently employed *overcoming a problem*, *repeating mediator*, *responding incorrectly*, and *requesting additional assistance* behaviors. Of these, *overcoming a problem* is the most frequent behavior used in both contexts, and this indicates that the participants were able to solve the problems by efficiently using the mediation and were less dependent on the mediator (Shrestha & Coffin, 2012). On the other hand, the other three behaviors show us that the participants were less independent in the process of developing their ZPD. Therefore, they still needed mediation.

When the contexts are compared in terms of the reciprocity behaviours, it is obvious that the participants overcame more problems during the F2F interactions. The reason for this might be that the participants felt less anxious while interacting F2F with the mediator and made more attempts to solve the language-related problems in their speech. In contrast to this, it also seems that the F2F interactions involved more inaccurate attempts. When this is considered with regard to the participants, it can be called an individual case because it is obvious that Okan made more unsuccessful attempts during the F2F-DA sessions. Although he was initially exposed to DA on WhatsApp, Okan made more errors in the later F2F sessions. However, this is not an unusual case for the DA since there can be regressions in the learners' ZPD throughout the development process (Vygotsky, 1978).

As for the participants' attitudes toward F2F- and MA-DA, they found mediational moves beneficial as these helped them to correct their mistakes, overcome problems, and maintain the conversation. This corroborates the findings reported by previous studies (Çetin-Köroğlu, 2019; Ebadi & Asakereh, 2017). Despite this, the two participants pointed out that they either had connection problems or felt anxious while interacting with the mediator on WhatsApp. Similarly, a lack of connectivity may cause disruption during mobile activities (Chinnery, 2006; Merzifonluoğlu & Takkaç-Tulgar, 2022), which may result in anxiety. However, the general attitude toward the F2F- and MA-DA sessions was positive since DA in both contexts helped them learn while being assessed. This finding also supports the study by Siwathaworn and Wudthayagorn (2018). The participants in their study stated that they could correct their mistakes with individualized support, and therefore they were not afraid of speaking in the DA sessions.

The findings of this study suggest both theoretical and pedagogical implications. Theoretically, this research made contributions to the fields of EFL learning and teaching, DA, and MALL. This study revealed the applicability of MA-DA sessions in online educational settings since they were successfully implemented like F2F-DA sessions. The effectiveness of MA-DA has been investigated and found to be helping learners' oral accuracy (Phetsut &Waemusa, 2022; Rad, 2021); however, more research could be done on mobile technologies revealing their effectiveness in language learning and teaching. Besides, this study contributed to the field of mobile-based assessment, and it can be implied that these technologies might be employed along with the paper or computerized tests.

The study also has pedagogical implications for language teachers, teacher trainers, and researchers. Of these, language teachers can conduct MA-DA to assess their students' oral accuracy outside the classroom. The likelihood of pandemics has led language teachers and educational reformists to develop new technologies to integrate into language courses. MA-DA sessions can be regarded as one of these latest technologies enabling the mediator to diagnose students' linguistic problems and then scaffold the students to overcome these problems and eventually advance their learning. Aliakbari and Mardani (2022) also support this view by revealing that students in mobile learning classes performed better than those in F2F classes. Mobile learning classes significantly increasedstudents' motivation to participate in class discussions. Trainers of language teachers can also benefit from the results of this study as they should tap into the significance of personalized learning, learner-centered classes, mediation, ZPD, and individual differences. Besides, they can organize in-service training sessions about how MA-DA sessions can be conducted. Finally, EFL researchers could also investigate mobile assessment facilities in the field of language assessment.

The findings of this study may pave the way for language instructors, EFL students, and researchers by highlighting the significance of DA and emphasizing that MA-DA can be implemented as effectively as F2F-DA for enhancing speaking skills. The results of this study can be used to justify combining online and F2F approaches as well as F2F-DA and MA-DA procedures. Similar to other studies, this one is limited by the research setting and the number of participants. The research was conducted at a single state school, and the number of participants was limited to four A2-level students. Consequently, the low proficiency level and the small sample size may have limited the interpretability and generalizability of the study's findings.

Statement of Responsibility

All authors have equal responsibility for conducting and reporting this research.

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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Appendix

Written Interview Form

1. Did you encounter any difficulties during the face-to-face meetings you held throughout the study process? If you had, could you explain these difficulties in detail?

2. Did you encounter any difficulties during the interviews you made via WhatsApp throughout the study process? If you had, could you explain these difficulties in detail?

3. Do you prefer to participate in face-to-face or WhatsApp activities that require summarizing stories, similar to the practices you did throughout the study process? Why?

4. Which of the meetings, face-to-face or via WhatsApp, you had throughout the study process was more stressful for you? Why?

5. Do you think that your teacher communicating with you during the meetings throughout the study process is beneficial for language learning? Why?

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Investigation of Teacher Candidates' Awareness towards Inclusive Education

Öğretmen Adaylarının Kapsayıcı Eğitime Yönelik Farkındalıklarının İncelenmesi

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ABSTRACT: This study aimed to examine the awareness of teacher candidates towards inclusive education. This mixed method study was performed with the convergent parallel mixed pattern. The sample of quantitative part of the study consisted of 708 teacher candidates in an education faculty determined by criterion sampling. The study group of the qualitative part of the research is 14 teacher candidates (preservice teachers) selected from among these participants. The research data were collected with Awareness Scale for Inclusive Education and Interview Form for Evaluation of Inclusive Education Course. The scale data were analyzed by descriptive and inferential statistics, and the semi-structured interview data were analyzed by content analysis. The results revealed that the awareness of teacher candidates' inclusive education was at a moderate level. In addition, the awareness level of the participants who had inclusive education training was higher than the participants who did not, and the female participants had higher awareness compared to the male participants. The interview results revealed that training on inclusive education increased teacher candidates' awareness of its history, aims, the students it encompasses, and its applications. According to the results of the research, it has been suggested to expand the inclusive education provided to teachers before and during the service.

Keywords: Teacher candidate, inclusive education, awareness.

ÖZ: Bu araştırmada, öğretmen adaylarının kapsayıcı eğitime yönelik farkındalıklarının incelenmesi amaçlanmıştır. Karma yaklaşıma sahip olan bu araştırma, yakınsayan parelel karma deseni ile yürütülmüştür. Araştırmanın örneklemini, ölçüt örneklemesi ile belirlenen bir eğitim fakültesinde öğrenim gören 708 öğretmen adayı oluşturmuştur. Araştırmanın nitel kısmının çalışma grubu ise, bu katılımcılar arasından seçilen 14 öğretmen adayıdır. Araştırmanın verilerinin elde edilmesinde Kapsayıcı Eğitime Yönelik Farkındalık Ölçeği, Kapsayıcı Eğitim Dersinin Değerlendirilmesine Yönelik Görüşme Formu kullanılmıştır. Ölçek verileri betimsel ve çıkarımsal istatistik, yarı yapılandırılmış görüşme verileri ise içerik analizi ile analiz edilmiştir. Araştırmada öğretmen adaylarının kapsayıcı eğitime yönelik farkındalıklarının orta düzeyde olduğu belirlenmiştir. Ayrıca, bu eğitime ilişkin öğrenim gören katılımcıların öğrenim görmeyen katılımcılara ve kadın katılımcıların erkek katılımcılara göre bu farkındalıklarının daha yüksek olduğu tespit edilmiştir. Yarı yapılandırılmış görüşmeler sonucunda da kapsayıcı eğitime ilişkin öğrenim görmenin öğretmen adaylarının bu yaklaşımın tarihçesine, amaçlarına, dikkate aldığı öğrencilere ve uygulamalarına ilişkin farkındalığını artırdığı belirlenmiştir. Araştırmanın bu sonuçları doğrultusunda öğretmenlere hizmet öncesinde ve esnasında sağlanan kapsayıcı eğitime ilişkin eğitimlerin yaygınlaştırılması önerilmiştir.

Anahtar kelimeler: Öğretmen adayı, kapsayıcı eğitim, farkındalık.

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The cognitive, biological, emotional, cultural, social, and other characteristics of individuals differ due to the influence of both hereditary factors and the environment in which they live. Individual differences such as interest, readiness, cognitive ability, learning styles, learning speed, culture, and socioeconomic level have direct impact on the academic, affective, social, cultural education of students in the same class (Drapeau, 2004; Gregory & Chapman, 2002). Physical, mental, or multiple disabilities, emotional and behavioral disorders, speech and language disorders, learning and specific learning disabilities, autism spectrum disorder, giftedness, cultural and language differences, and being at risk (Mastropieri & Scruggs, 2016) are situations that can lead to differentiation in students' needs, inadequate performance in certain activities, and disadvantage or special needs. The perspective of these individuals regarding their status in society, being a part of it, and their means of living has significantly differed from past to present (Yücesoy-Özkan et al., 2019).

The perspective on the education of individuals with special needs has also evolved considerably over time. Until the 1960s, these individuals were excluded (Osgood, 2005), segregated (Bakker, 2015; Pfahl & Powell, 2011), and received individual education in special education classes with students with special needs like themselves (Heward, 2013). In the 1960s, on the contrary, it was advocated and put into practice that these individuals should live in conditions as close to normal as possible, benefit equally from the opportunities provided to other people in society, and become educated (Hallahan & Kauffman, 1988). In the 1970s, the view of the least restrictive environment where the needs of disadvantaged individuals would be met in the best way and they could access education in the same environment as their companions emerged, forming the basis of inclusion (Heward & Orlansky, 1988). In the 1980s, students with special needs were taught in general education classes with an inclusion approach, and these classes were prepared to meet the needs of these students and provide them with appropriate education. In the 1990s, adaptations were made in programs, methods-techniques, or measurement-evaluation to meet the educational requirements of these students with integration, and support education services were provided (Hallahan & Kauffman, 1988). In the 2000s, the view of education for everyone was accepted, considering that education services should take into account all disadvantaged students due to their gender, language, religion, ethnic origin, and race, as well as students with special needs, which turned into inclusive education in the late 2000s and became widespread since 2010 (Ineson & Morris, 2006). In summary, the concept of inclusive education began with the inclusion of physically or mentally disabled students with special needs in general education processes. It then expanded to consider disadvantaged students, such as those with low socioeconomic status, ethnic and cultural minorities, and foreign nationality, in their access to education, culture, and social life (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2009). Today, it encompasses the differentiation of education for all students, whether they are disadvantaged or not (Gülay, 2021).

In the context of this historical development, inclusive education can be defined as the process of responding to the needs of all students with different characteristics by increasing participation in education, culture, and social life, minimizing discrimination in education, and maximizing equality of opportunity (Taylor & Sidhu, 2012; UNESCO, 2009). In other words, all students with different developmental and

educational needs, including disadvantaged students, are educated together in the least restrictive environment and conditions, and no student is excluded from education (Strieker et al., 2013). Inclusive education aims to provide equal educational opportunities by considering students' expectations, needs, and abilities. It also aims to provide quality education, reduce costs by ensuring that all students study together in the same schools, increase participation in society, prevent discrimination different fields, and create a more fair and inclusive society (Westwood, 2013).As a result of this education, it can be easier for all students to adapt to their school and social life (Bayram, 2019), these experiences can be associated and integrated (Monika et al., 2015), and the risk of failure in these experiences can be minimized (Ereş, 2015). In addition, implementing this training can help students feel a stronger sense of belonging to their school and improve their communication skills (Altındağ-Kumaş, 2022).

In order for inclusive education to provide these benefits and be effective, various stakeholders need to fulfill some duties and responsibilities. For instance, teachers need to take an active role in the successful realization of inclusive education as they interact with students closely and for a long time. They are the key elements in the process (Ünay & Çakıroğlu, 2019). Therefore, with the use of differentiated instruction, content, materials, methods-techniques, and activities, learning products can be diversified according to students' interests, readiness, and learning profile, and flexibility can be provided in their planning (Alquraini & Gut, 2012; Tomlinson, 1999). In addition to this teaching, the constructivist approach, multiple intelligence theory, or multicultural education can be applied (Uysal & Uysal, 2019). In addition, it can be benefited from the universal design that aims to develop products that can be reached by all individuals, regardless of their disability (Henry et al., 2014), and to participate in all areas of society with equal opportunity (Yan, 2014).

Different measurement-evaluation techniques can be used to identify the expectations and needs of students before teaching (Levy, 2008; Tomlinson, 1999), to provide feedback to students about what they have learned and have difficulty learning during teaching, to monitor them in the process (Levy, 2008; Sousa & Tomlinson, 2011), and to determine the effectiveness of the teaching (Tomlinson, 1999; Whipple, 2012). Furthermore, teachers can provide their students with support from special education services such as a support education room, Special Education and Rehabilitation Center, and Science and Art Center (Uysal et al., 2019). They can also design the physical environment of the classroom according to inclusive education principles, foster a democratic and highly participatory classroom atmosphere, ensure cooperation with all stakeholders of the school, and encourage them to take responsibilities (Alquraini & Gut, 2012; Gülay & Altun, 2022). School administrators can also lead the application of inclusive education and cooperate with all the school's stakeholders, create a school culture that includes and supports everyone, and design the school's physical environment in accordance with this education. Families, on the other hand, can cooperate with the teacher, provide information to the teacher about their child's situation at home, and play a role in the planning and implementation of their child's education (Ministry of National Education [MoNE], 2013).

With the increasing realization of the significance and benefits of inclusive education, legal arrangements have been made for this education in the world and Turkey. Legal arrangements regarding inclusive education at the international level are

the UNESCO Convention Against Discrimination in Education (1960), Declaration on the Rights of Persons with Intellectual Disabilities (1971), Resolution on the Inclusion of Children and Young People with Disabilities in the General Education System (1990), UNESCO Education for All Program (1990), and Principle Decision on Ensuring Equal Opportunity in Education and Vocational Education for Students with Disabilities (2003) (Ağalday, 2022). The legal arrangements regarding inclusive education in Turkey are the Regulation on Children in Need of Special Education (1962-1968), Law on Children in Need of Special Education (1983), Regulation on Educational Practices for Children with Mental Disability (1992), Decree on Special Education (1997), Special Education Services Regulation (2000-2018), Special Education Institutions Law (2007), Special Education Institutions Regulation (2012), Support Education Chambers Opening Circular (2015), Science and Art Centers Directive (2016), and Education Practices through Inclusion/Integration Circular (2017) (Ağalday, 2022; Koç et al., 2019). These regulations lay the foundation for inclusive education or legally guarantee this education by emphasizing that all students receive education with equal opportunities.

Along with these regulations, the Ministry of National Education has been taking serious steps to realize inclusive education in recent years. First, it has emphasized inclusive education and differentiated instruction in its curriculum since 2015 (Gülay, 2021). In addition, the "Inclusive Education Project" was developed in the following process and executed in cooperation with United Nations International Children's Emergency Fund [UNICEF] and the coordination of Erciyes University. Within the scope of this project, in-service training on this approach was provided to approximately 235 thousand teachers between 2016 and 2018. These trainings first provided theoretical instruction on inclusive education and differentiated education. Then, the preparation of plans for these in practice, the use of methods-techniques (station, etc.), and the realization of measurement-evaluation were shown. The in-service training aims to support the professional development of teachers with its activity-oriented practices and to make it a skill to use student-centered methods-techniques (MoNE, 2022). While practicing their profession, teachers need to exhibit positive and inclusive attitudes and behaviors towards students with different characteristics (Boer et al., 2011; Kula, 2020). In addition, since they carry out more effective practices for inclusive education (Banks, 2010); teacher candidates to receive training on this approach before service. As a result, to increase their knowledge and awareness. Some education faculties included the inclusive education course in their 2018 undergraduate programs and started to provide this education to their students. It is important to determine the professional life-oriented outputs, contributions, and deficiencies of this course for teacher candidates and the suggestions for making it more effective. This study is expected to contribute to the literature in this aspect. Therefore, it aimed to examine teacher candidates' awareness towards inclusive education. In this study, answers were sought to the following questions:

1. What is the awareness level of teacher candidates towards inclusive education?
2. Do teacher candidates' awareness levels of inclusive education differ significantly according to their education on this subject and gender?
3. What are the evaluations of teacher candidates regarding the inclusive education course?

Method

Research Model

This study aimed to find out the awareness levels of teacher candidates about inclusive education and how this awareness differed according to their educational status and gender. The quantitative and qualitative data were collected together to elaborate the research (Çepni, 2010), and mixed design was used to obtain and present more findings and results related to the purpose (Christensen et al., 2015). To determine the awareness of teacher candidates towards inclusive education, a parallel mixed-method design was used. This involved collecting quantitative data using a data collection tool and supplementing it with qualitative data to ensure accuracy and provide a more detailed interpretation (Creswell, 2016). Teacher candidates' awareness about inclusive education was examined by simultaneous screening and semi-structured interviews with some participants. In this respect, first of all, the "Awareness Scale for Inclusive Education" was applied in the quantitative part of the research to prospective teachers studying at an education faculty in the 2021-2022 academic year. In order to examine this awareness of the participants according to whether they received inclusive education courses on this approach or not, teacher candidates who studied at different programs such as music education, preschool education, guidance and psychological counselling, and primary education were included into the research. Since the third and fourth-grade teacher candidates in these programs have taken this course and the lower grades have not yet taken it, the research was carried out with all grade-level teacher candidates in order to accurately examine the effect of inclusive education courses on their awareness. In the qualitative part of the study, semi-structured interviews were conducted with 14 teacher candidates who studied and took inclusive education courses in the third and fourth grades of these four programs in order to explain the effect of this course on the awareness of pre-service teachers about inclusive education widely.

Participants

The population of the quantitative part of the research included teacher candidates studying at an education faculty in the 2021-2022 academic year. The sample was determined by criterion sampling, one of the purposeful sampling methods from the universe, to examine teacher candidates' awareness about inclusive education according to their education. In this method, certain people or situations are comprised in the research (Büyüköztürk et al., 2016). In this respect, taking an inclusive education course was taken as a criterion, and only teacher candidates who studied at music, preschool, guidance and psychological counselling, and primary education programs out of 12 active programs in the faculty, were included in the research. Since the third and fourth-grade teacher candidates received this course in these programs and the first and second-grade teacher candidates did not, all grade levels were included in the study in order to make comparisons effectively. Information about the sampling is presented in Table 1.

Table 1

Distribution of the Sample by Variables

Variables	Categories	N	%
Inclusive Education Training	Yes	338	47.7
	No	370	52.3
Gender	Female	570	80.5
	Male	138	19.5

As shown in Table 1, almost half of the teacher candidates had training on inclusive education, but the others did not. In addition, the majority of the participants were female.

The qualitative part of the research involved a study group of 14 teacher candidates selected from four programs based on their voluntary participation and enrollment in the inclusive education course. These candidates were in their third or fourth year of study and were chosen from a total of 708 participants.

Data Collection Tools

The research data were collected with the Awareness Scale for Inclusive Education and Interview Form for Evaluation of Inclusive Education Course. The Awareness Scale for Inclusive Education, which was used to statistically examine teacher candidates' awareness of inclusive education and how this awareness differed according to their educational status and gender, was developed by Kılcan and Şimşek (2021). Validity and reliability studies of the five-point Likert-type scale were carried out, such as presenting the item pool to expert opinion, making corrections in line with their feedback, and subjecting it to pre-application and exploratory factor analysis. The scale consists of five dimensions and 22 items in total: the aim of inclusive education (six items), inclusive education for disadvantaged groups (five items), inclusive education and legislation (four items), achievement in inclusive education (four items), and history of inclusive education (three items). All of these dimensions explain 57,066% of the total variance, which is an acceptable value since it is above 50% at least (Williams et al., 2010). The reliability coefficient Cronbach's Alpha value of the scale is 0.88, and this value is sufficient since it is over 0.70 (Cronbach, 1990; Pallant, 2010). It was 0.96 in our study, so the scale is valid, reliable, and useful in determining awareness for inclusive education (Kılcan & Şimşek, 2021).

The Interview Form for Evaluation of Inclusive Education Course, which was used to better explain the awareness of teacher candidates towards inclusive education, to support and complement the scale data, and to evaluate the learning about inclusive education, was developed by the researchers as semi-structured, so that students can be free to express themselves candidly. The form items were prepared in relation to the scale items, submitted to the opinion of three experts in linguistics, assessment and evaluation, and inclusive education, and exposed to a pilot study (Yıldırım & Şimşek, 2008). The final form included eight open-ended items aiming to explore the awareness of inclusive education and the evaluation of its course in depth.

Data Collection and Analysis

The Inclusive Education Awareness Scale was administered face-to-face to 708 teacher candidates studying in music, preschool, guidance, and psychological counselling, primary school programs at an education faculty in the 2021-2022 academic year, following the approval of the ethics committee. First of all, the teacher candidates were notified about the purpose of the research and ensured the confidentiality of their views. Then, volunteers were approved to participate in the research and fill out the scale. At the same time, semi-structured interviews were conducted with 14 third and four-grade student teachers who received inclusive education courses in order to evaluate the inclusive education course and to examine the effect of this course on awareness of inclusive education. These interviews proceeded in a face-to-face conversation style in a comfortable environment and were recorded upon the participants' permission.

The quantitative data obtained from the Awareness Scale for inclusive Education were analyzed using descriptive statistics to examine the awareness levels of teacher candidates towards inclusive education. The mean scores of teacher candidates on the scale and sub-dimensions were calculated (Nick, 2007). In the interpretation of these scores, the formula of the width of the array/number of groups to be made was used (Tekin, 1996), and it was preferred to show the awareness of teacher candidates towards inclusive education in three categories. The awareness levels of the participants were formed as "low" between 1.00-2.33, "moderate" between 2.34-3.66, and "high" between 3.67-5.00.

Inferential statistics were employed to examine the awareness of inclusive education among teacher candidates, based on their level of education and gender. Therefore, the normal distribution of the data was tested, and the correct analyses were determined (Creswell, 2016). Since the skewness and kurtosis values were between -1.5 and +1.5, the data were normally distributed (Tabachnick & Fidell, 2013), and parametric tests were applied. Namely, the independent t-test was used, and the significance of the difference between the mean scores of two unrelated samples was examined (Büyüköztürk, 2007). Levene's Test (homogeneity of variances) was taken into account in the realization of this test, and interpretations were made accordingly (Ak, 2010).

The data from semi-structured interviews with teacher candidates were subjected to content analysis for detailed and high-level analysis. First, these interviews were recorded and transcribed. Afterwards, these data were analyzed, and key concepts were formed. The data were analyzed in depth, and both common and different views of the participants were determined. Codes and categories were created from similar views. As a result, the findings were presented in tables and exemplified with direct quotations. Meanwhile, the teacher candidates were coded as P1, …, and P14 to apply ethical rules and ensure confidentiality (Ekiz, 2015).

Validity and Reliability

First of all, a valid and reliable scale was used in the quantitative part of the study. While applying this scale, the sample was kept as large as possible in order to generalize the research results, while also ensuring that participation was voluntary (Çıngı, 1994). In addition, the data set of the scale was examined in terms of random

markings and normal distribution before the analysis. During the analysis, the homogeneity of the variances was taken into account, and the reliability coefficient value of the data set was checked (McKillup, 2012).

For the validity and reliability of the qualitative part of the research, the semi-structured interview form was prepared considering the scale. It was subjected to the opinion of three experts. The interviews were conducted in a comfortable environment and recorded (Yıldırım & Şimşek, 2008). In the analysis of the data obtained from the interviews, researcher triangulation was employed. One researcher first analyzed obtained data, then presented to the view of the other researcher. During the analysis process, the findings were compared, discussed, and finally, a consensus was reached (Fraenkel & Wallen, 2008). Finally, the findings obtained from the data were presented in accordance with the perspectives of the participants and supported by direct quotations from their conversations (Maxwell, 1992).

Ethical Procedures

Ethical approval and written permission were obtained from Trabzon University Social and Human Sciences Ethics Committee with the decision dated 13.05.2022 and numbered 2022-5/1.11. The research was carried out following ethical rules at every stage. Participation of the candidates in the research took place on a voluntary basis.

Results

In this section, the findings regarding the awareness of teacher candidates about inclusive education, how this awareness changes according to their educational status, gender, and the evaluation of the inclusive education course are presented.

Awareness Levels of Teacher Candidates for Inclusive Education

The results of the descriptive statistical analysis employed to determine the awareness levels of teacher candidates towards inclusive education are presented in Table 2.

Table 2

Awareness Levels of Teacher Candidates for Inclusive Education

Dimension	N	$\overline{X}$	Ss	Level
Aim of Inclusive Education	708	3.84	.75	High
Inclusive Education for Disadvantaged Groups	708	3.79	.85	High
Inclusive Education and Legislation	708	2.91	1.02	Moderate
Achievement in Inclusive Education	708	3.80	.82	High
History of inclusive education	708	2.77	1.17	Moderate
Total scale	708	3.51	.78	Moderate

As seen in Table 2, the teacher candidates' awareness of inclusive education is at a moderate level ($\bar{x}$=3.51). In addition, the participants' awareness of inclusive education and legislation ($\bar{x}$=2.91) and the history of inclusive education ($\bar{x}$=2.77) was at a moderate level. Their awareness of the aim of inclusive education ($\bar{x}$=3.84),

inclusive education for disadvantaged groups ($\bar{x}$=3.79), and achievement in inclusive education ($\bar{x}$=3.80) is high.

Examination of Teacher Candidates' Awareness Levels for Inclusive Education According to Education and Gender

The results of the independent t-test analysis performed to determine the effect of learning about inclusive education on awareness of this education are presented in Table 3.

Table 3

The Effect of Educational Status of Teacher Candidates on Awareness Levels of Inclusive Education

Dimension	Education	N	$\overline{X}$	Ss	Levene's Test		*sd*	*t*	*p*
					F	*p*			
Aim of Inclusive Education	Yes	338	4.43	.44	10.276	.001	697.679	30.467	.000
	No	370	3.31	.54					
Inclusive Education for Disadvantaged Groups	Yes	338	4.48	.50	.624	.430	706	32.996	.000
	No	370	3.16	.55					
Inclusive Education and Legislation	Yes	338	3.70	.69	.138	.710	706	29.274	.000
	No	370	2.19	.68					
Achievement in Inclusive Education	Yes	338	4.45	.50	4.363	.037	705.468	31.010	.000
	No	370	3.20	.57					
History of Inclusive Education	Yes	338	3.64	.84	.000	.988	706	27.052	.000
	No	370	1.97	.80					
Total Scale	Yes	338	4.20	.41	.002	.969	706	42.825	.000
	No	370	2.87	.42					

*p< .05

As seen in Table 3, the awareness of teacher candidates who have received inclusive education training in all dimensions is significantly higher than those who do not receive education (p<0.05).

The results of the independent t-test analysis performed to determine the effect of gender on awareness towards inclusive education are presented in Table 4.

As shown in Table 4, female teacher candidates demonstrate a significantly higher awareness of inclusive education compared to male teacher candidates (p<0.05). The findings are the same in terms of the aim of inclusive education, inclusive education for disadvantaged groups, and achievement in inclusive education. However, there is no significant difference in the awareness of teacher candidates by gender in terms of inclusive education and legislation and the history of inclusive education.

Table 4

The Effect of Teacher Candidates' Gender on Awareness Levels of Inclusive Education

Dimension	Gender	N	$\overline{X}$	Ss	Levene's Test		*sd*	*t*	*p*
					F	*p*			
Aim of Inclusive Education	Female	570	3.89	.74	1.140	.286	706	3.752	.000
	Male	138	3.63	.72					
Inclusive Education for Disadvantaged Groups	Female	570	3.83	.85	2.483	.116	706	2.495	.013
	Male	138	3.63	.80					
Inclusive Education and Legislation	Female	570	2.92	1.05	8.066	.005	233.900	.519	.605
	Male	138	2.88	.91					
Achievement in Inclusive Education	Female	570	3.84	.83	.957	.328	706	2.913	.004
	Male	138	3.62	.78					
History of Inclusive Education	Female	570	2.78	1.19	6.703	.010	228.453	.648	.518
	Male	138	2.72	1.06					
Total Scale	Female	570	3.54	.80	9.520	.002	228.281	2.541	.012
	Male	138	3.37	.71					

*p< .05

Evaluation of Teacher Candidates for the Inclusive Education Course

In this section, teacher candidates' views on the historical development of inclusive education, the students it considers, its aims, and what can be done to make this education and course more effective are given as an outcome of the inclusive education course. The views of teacher candidates on the historical development of inclusive education are presented in Table 5.

Table 5

The Views of Teacher Candidates on the Historical Development of Inclusive Education

Stages	Participants	Frequency
Dehumanization	P7, P9	2
Exclusion	P7, P9	2
Segregation	P7, P9	2
Normalization	P7, P9	2
Special education	P1, …, P14	14
Mainstreaming	P1, …, P7, P12, P13, P14	10
Integration	P1, P7, P13	3
Inclusive education	P1, …, P14	14

*The codes are ordered according to the historical development of inclusive education.

As seen in Table 5, all of the teacher candidates know that inclusive education has passed through the special education phase. The vast majority of the participants

know that there is a mainstreaming phase, and three of them know about the integration phase. In addition, two participants knew that inclusive education had stages of Dehumanization, Exclusion, Segregation, and Normalization before special education. For example, P7 expressed his views on these stages: "*Firstly, the education of children with special needs was considered. In a certain period, the society was afraid of these individuals and tried to keep them away from the society. In other words, these individuals were excluded and discriminated against. Then, there was a period of protection. During this period, these individuals began to be noticed. Special education began in the 1950s. Afterwards, the transition to inclusive education was made. In this education, children with special needs were educated in the same class with their friends, sometimes full and sometimes part-time. Thus, integration training was carried out, and inclusive education was started.*"

The teacher candidates' views about the students that inclusive education takes into account are presented in Table 6.

As seen in Table 6, all of the teacher candidates know that inclusive education takes into account physically or mentally disabled students. The vast majority of the participants know that this training also includes foreign nationals and socioeconomically disadvantaged students. In addition, some participants know that this training includes students with autism spectrum disorder, Down syndrome, abused, gender discrimination, and learning difficulties. For example, P3's views on the students that inclusive education takes into account are as follows; *"It includes students with physical and mental disabilities, learning difficulties, autism, down syndrome, refugees, racially disadvantaged, gifted, low-income students, losing their parents, victims of violence, abused students, etc."*

Table 6

Views of Teacher Candidates on Students Considered by Inclusive Education

Students	Participants	Frequency
Physically or mentally disabled	P1, …, P14	14
Foreign nationality	P1, P2, P3, P4, P6, …, P14	13
Socioeconomically disadvantaged	P2, …, P10, P12, P13, P14	12
Autism spectrum disorder	P3, P4, P7, P9, P12, P13	6
Down syndrome	P3, P4, P9, P12, P13	5
Abused	P3, P4, P12, P13, P14	5
Gender discrimination	P2, P5, P8, P10, P11	5
Learning difficulty	P3, P4, P12	3
Gifted / talented	P3, P7, P12	3

Teacher candidates' views on the aims of inclusive education are presented in Table 7.

Table 7

The Views of Teacher Candidates on the Aims of Inclusive Education

Views	Participants	Frequency
Ensuring equal opportunity in education	P1, …, P14	14
Integrating all students into society	P2, P3, P9, P12, P13, P14	6
Providing quality education	P1, P6	2

As shown in Table 7, all teacher candidates believe that inclusive education aims to provide equal opportunities in education. Some participants stated that this education also aims to integrate all students into society and to provide quality education. For Example, P1 expresses his views on the aims of inclusive education as *"There certainly shouldn't be a single curriculum. For example, a text should not only be processed by reading but also should be supported with pictures or something else because maybe there are students in the class who cannot hear. In other words, more than one teaching program should be carried out for individual differences. Thus, we involve every student in the process, provide equal opportunities and receive positive feedback from students. In other words, students' success, motivation, and self-confidence increase. In addition, the motivation of the teacher increases, and his teaching becomes better."*

Teacher candidates' views on quality inclusive education are presented in Table 8.

Table 8

Suggestions of Teacher Candidates on Quality Inclusive Education

Suggestions	Participants	Frequency
Organizing seminars on inclusive education for school stakeholders	P1, P2, P4, P5, P7, …, P14	12
Considering individual differences	P1, P2, P5, P6, P11, …, P14	8
Using different methods and techniques	P2, P3, P4, P6, P11, P13	6
Creating an inclusive school culture	P3, P6, P8, P12, P13, P14	6
Arranging schools according to universal design principles	P4, P6, …, P9, P14	6
Identifying students	P8, P11, …, P14	5

As seen in Table 8, most teachers recommend organizing seminars for school stakeholders for quality inclusive education and considering the individual differences of students in schools. Some participants suggested using different methods-techniques in lessons, creating an inclusive school culture, arranging schools according to universal design principles, and identifying students. For example, P13 suggested as, *"When I become a teacher, I first try to identify students. I can identify whose parents are divorced or what problem they have. I create classroom rules with the children. I contact families and cooperate with them. In cases where I need different support, if*

there is a guidance service at the school, I contact them. I differentiate my lessons by planning to include special students and by performing different applications. As for the general school, in-service trainings need to be organized. Teachers should be provided with practical training on current issues. One of these applied trainings should be inclusive education. The outputs of these trainings should also be monitored whether they are reflected in the classroom environment."

The suggestions of the teacher candidates regarding teaching the inclusive education course are presented in Table 9.

Table 9

Suggestions of Teacher Candidates Regarding the Teaching of Inclusive Education Course

Suggestions	Participants	Frequency
Increase hands-on activities	P1, …, P14	14
Compulsory course	P4, P5, P8, P9, P11, P13	6
Increase course hours	P9, P12	2

As seen in Table 9, all teacher candidates suggest that the inclusive education course should include more hands-on activities. Some participants suggested that the course should be compulsory with increased course time. For example, P4 expressed his views as, *"First of all, let me state that I am satisfied with the course and that I am happy that I took it. This elective course may be compulsory. Also, the course should include more practice. So, we have to go to schools and see classes with such students. This allows us to understand how they feel, to see what we can do differently, to improve, and to see what students think about them. I think the grade level is appropriate. But the lesson can be extended to three hours for more practice."*

Discussion and Conclusion

In this study, teacher candidates' awareness of inclusive education was determined at a moderate level, similar to the studies in the literature (Chary & Perumal, 2022; Mumthas & Shamina, 2011). In addition, it was revealed that teacher candidates' knowledge about inclusive education (Akbulut et al., 2021; Barned et al., 2011) and differentiated instruction which provide better education opportunities was limited (Aşiroğlu, 2016; Brevik et al., 2018; Ismajli & Imami-Morina, 2018). In some studies, teachers' awareness of inclusive education was moderate (Abbas & Naz, 2016; Amjad et al., 2020; Maheshwari & Shapurkar, 2015), and they could partially describe this education (Amjad et al., 2020; Bayram, 2019; Fırat, 2021; İlçin, 2022; Ünal & Aladağ, 2020). It was also reported in the literature that teachers had limited information about inclusive education (Akalın et al., 2014; Aykırı, 2017; Ayvacı & Yamaçlı, 2022; Bai & Martin, 2015; Eren, 2019; Forlin, 2013; Hobbs & Westling, 2002; Kahriman-Pamuk & Bal, 2019; Ketenoğlu-Kayabaşı, 2020) and differentiated instruction (Adlam, 2007; Davis, 2013; Gray, 2008; Ismajli & Imami-Morina, 2018; Öztürk & Mutlu, 2017; Pürsün & Efilti, 2017; Siam & Al-Natour, 2016; Smit & Humpert, 2012). However, Alsarawi and Sukonthaman (2021) determined that teacher candidates' knowledge levels about inclusive education are high. In summary, teacher candidates' awareness

and knowledge of these approaches are generally partial, and the result of this research is similar to the literature.

In the study, teacher candidates' awareness inclusive education was significantly higher. It was revealed in the literature that learning about inclusive education increases teacher candidates' awareness of this approach (Eşici & Doğan, 2021; Pingle & Garg, 2015), knowledge (Eşici & Doğan, 2021; Ketenoğlu-Kayabaşı, 2022) and self-efficacy (Romero-Contreras et al., 2013). In addition, some studies revealed that participating in in-service training for inclusive education raises teachers' awareness (Joseph et al., 2013; Kara-Eren, 2021; Öner, 2022) and knowledge level (Kara-Eren, 2021). Some studies revealed that education has positive effects on the application of inclusive education and differentiated instruction (Aydoğan-Yenmez & Özpınar, 2017; Burkett, 2013; De Neve & Devos, 2016; Dixon et al., 2014; Gülay, 2021; Kurnaz & Arslantaş, 2018; Richards-Usher, 2013). However, Kılıç-Avan and Kalenderoğlu (2020) determined that teachers trained for inclusive education found themselves partially competent in implementing this approach. In this context, it can be stated that learning about inclusive education and differentiated education mostly has positive effects on these approaches, and the result of this research supports the literature.

In this study, female teacher candidates' awareness of inclusive education was significantly higher than male teacher 'candidates. Similar findings can be found in research studies in the fields of inclusive education and differentiated education. In many studies, female teachers' self-efficacy regarding inclusive education (Avramidis et al., 2000; Özokcu, 2018; Romi & Leyser, 2006; Vent, 2021; Yılmaz, 2021) and their perception of practice (Bayram, 2019) were higher than male teachers. In addition, some studies (Demirkaya, 2018; Gülay, 2021) determined that female primary teachers had higher perceptions of applying differentiated instruction than male teachers. However, some studies revealed that male teacher candidates (Ahsan et al., 2013; Specht, 2016) and teachers (Emmers et al., 2020) have higher self-efficacy regarding inclusive education than females. In summary, the literature suggests that female teachers and teacher candidates tend to have greater awareness, self-efficacy, and perception of practice towards these approaches compared to their male counterparts. This is likely due to the fact that women are generally more open to the idea of inclusive education (Avramidis et al., 2000), and the results of this research are consistent with those findings.

In the interviews conducted in the research, findings related to the different benefits of learning about inclusive education were obtained. For example, in the study, as the output of this learning, teacher candidates were able to explain the historical development of inclusive education from dehumanization onwards and the students it considers. In fact, in the studies in the literature (Akbulut et al., 2021; Bayram, 2019; Eşici & Doğan, 2020; Kula, 2020), the students that this education takes into account could be defined as a result of learning about inclusive education. Similarly, the interviewed participants who received inclusive education were able to express the aims of this approach and what to do for its qualified realization. It was revealed in the literature that teacher candidates were able to explain the aims of this training (Akbulut et al., 2021; Eşici & Doğan, 2020; Ketenoğlu-Kayabaşı, 2022; Kula, 2020) and what to do for its successful implementation (Eşici & Doğan, 2020; Ketenoğlu-Kayabaşı, 2022; Kula, 2020). In addition, the participants recommended that the inclusive education

course should be application-based, compulsory, and of longer duration. It was suggested in the literature that inclusive education course should be optional or compulsory (Akalın et al., 2014; Akbulut et al., 2021; Ayvacı & Yamaçlı, 2022; Cengiz-Şayan, 2020; Gülay, 2021; Ketenoğlu-Kayabaşı, 2022; Kula, 2020; Serttaş, 2020; Şimşek, 2019), application-oriented (Akbulut et al., 2021; Alsarawi & Sukonthaman, 2021; Chary & Perumal, 2022; Eşici & Doğan, 2020; Mumthas & Shamina, 2011) and the hours of existing courses related to this education should be increased (Akbulut et al., 2021; Bayram, 2019; Şimşek, 2019) in undergraduate programs of education faculties. Thus, the interview findings are similar to the literature and support the contribution of inclusive education learning to awareness of this approach.

Implications

In-service training on inclusive education provided to teachers should be improved. Applied inclusive education should be provided to teacher candidates in all education faculties. New research may be conducted in different education faculties regarding the awareness of teacher candidates towards inclusive education. In these studies, the effect of education, gender, and similar variables on this education can be examined and compared with the results of the studies in the literature.

Statement of Responsibility

Ahmet Gülay; Literature review, construction of data collection tools, data collection from the field, data analysis and reporting. Taner Altun; Contributing to literature review, construction of data collection tools, coordinating and monitoring the data collection and analysis processes, giving feedback, editing content, checking academic writing.

Conflicts of Interest

Authors declare that there is no conflict of interest.

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Appendix

1- Semi-Structured Interviews Form

1. Could you explain what you know about the history of inclusive education?
2. Could you explain, what sort of students are considered in the frame of inclusive education today?
3. Can you explain aims of inclusive education?
4. In line with these purposes, what kind of practices do you intend to implement in your school/class while carrying out your profession?
5. What kind of contributions do you think inclusive education will make to students and teachers as a result of these practices? Can you explain with examples please?
6. What would you recommend for the success of inclusive education in schools affiliated to the Ministry of National Education?
7. What would you recommend making the inclusive education course in your undergraduate education more effective? Can you explain? (What can be added to the content, the way instruction, duration, grade level, etc.)
8. Finally, what could we not mention here but that you would like to add?

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Book Review: Teaching Turkish Grammar to Foreigners

Kitap İncelemesi: Yabancılara Türkçe Dil Bilgisi Öğretimi

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ABSTRACT: In this study, Prof. Dr. Fatma Bölükbaş Kaya's work titled "Teaching Turkish Grammar to Foreigners" is aimed to introduce. This book consists of three main parts. In the first part of the book, information about the concept and types of grammar is given, and the place of grammar in teaching Turkish to foreigners is explained. The author included the section "Should grammar be taught in classes?" with the intention of addressing this inquiry. In the second part of the book, the answer to the question of which grammar subject should be taught at what level is sought. Here, the author is drawing on both the Common European Framework of Reference for Languages and the typological features of Turkish. In the third part of the book, how to teach grammar subjects of all levels is given. In this section, examples are presented by giving information about the meaning of grammatical structures, how to teach, which techniques to apply, and important points to be considered.

Keywords: Teaching Turkish to foreigners, book introduction, teaching grammar.

ÖZ: Bu çalışmada Prof. Dr. Fatma Bölükbaş Kaya'nın "Yabancılara Türkçe Dil Bilgisi Öğretimi" adlı eserinin tanıtımı amaçlanmıştır. Bu kitap üç ana bölümden oluşmaktadır. Kitabın birinci bölümünde dil bilgisi kavramı ve türleri hakkında bilgi verilerek, dil bilgisinin yabancılara Türkçe öğretiminde yeri açıklanmıştır. Yazarın bu bölüme yer vermesinin nedeni, "Derslerde dil bilgisi öğretilmeli midir?" sorusuna cevap aramaktır. Kitabın ikinci bölümünde ise hangi dil bilgisi konusu hangi düzeyde öğretilmelidir sorusunun cevabı aranmıştır. Yazar burada, Diller İçin Avrupa Ortak Öneriler Çerçevesi'ni ve Türkçenin tipolojik özelliklerini temel almıştır. Kitabın üçüncü bölümünde ise tüm seviyelere ait dil bilgisi konularının nasıl öğretileceğine yer verilmiştir. Burada dil bilgisi yapılarının anlamı, nasıl öğretileceği, hangi tekniklerin uygulanacağı ve dikkat edilmesi gereken noktalarla ilgili bilgi verilerek örnekler sunulmuştur.

Anahtar kelimeler: Yabancılara Türkçe öğretimi, kitap tanıtımı, dil bilgisi öğretimi

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Different types of grammar books, including pedagogical, functional, and prescriptive, have been published specifically for teaching Turkish as a foreign language. The aim of all of them is to teach the target language, Turkish and Turkish grammar, effectively.

However, upon examining the literature, it has been noted that no book comprehensively addresses the topics of grammar at all language levels ranging from A1 to C1 while also detailing the instruction of each individual grammar topic. Working as a faculty member at Istanbul Cerrahpaşa University, Prof. Dr. Fatma Bölükbaş Kaya's book titled "Teaching Turkish Grammar to Foreigners" claims to fill the aforementioned gap in the literature. This book has been prepared primarily on the basis of the idea that it is necessary to teach grammar in teaching Turkish as a foreign language. The book delves into the theoretical and practical aspects of teaching Turkish grammar to Foreigners within the scope of teaching Turkish as a foreign language.

The book was published by the Kültür-Sanat Press in 2021. It consists of three sections titled "Foreign Language Teaching and Grammar," "Teaching Turkish to Foreigners and Turkish Grammar," and "Teaching Grammar Subjects."

Bölükbaş Kaya started with the question of what grammar is in the first chapter. She deduced common items based on grammar definitions put forth by different scholars. In this way, presented a concise overview of grammar to the reader. After explaining different definitions of grammar, she gave information about different types of grammar. The author, who includes 14 types of grammar, draws a general picture in the reader's mind by defining each type of grammar and certain features. Afterwards, it reflects why grammar is necessary for foreign language teaching, mainly from the learner's point of view. Based on the literature, it presents the benefits of knowing the grammar of the target language for the learner. Later, the author underlines the importance of the triad of form, meaning, and usage in grammar, which will form a basis for effective language use for the learner. While she supports the literature that focusing on only one of these three does not provide effective language learning, she explains with examples that a method that includes all of them should be adopted. In the last title of the first chapter, some suggestions and explanations about grammar teaching are given by the author for the instructors. This list consists of the following recommendations. Firstly, grammar should be taught as native speakers use it, integrated with other language skills. Secondly, teaching should be done in the target language without trying to teach all that is known. Thirdly, one problem should be focused on the general rules, not the details or exceptions. Fourthly, the examples given should have real-life counterparts. Fifthly, basic sentence patterns should be taught without grammatical explanations. Sixthly, after a subject has been fully taught, it should be moved to another subject. Finally, new grammatical structures and words should be taught through previously learned ones, and students' grammatical errors should be corrected immediately, not left for later. Additionally, it is essential to measure only the intended feature during the process of measurement.

The second part is teaching Turkish to foreigners and Turkish Grammar. This main title is designed over three sub-titles. These topics are Language Levels According to the Common European Framework of Reference for Languages, Subject Ranking in Grammar Teaching, and Grammar Teaching in Turkish as a Foreign Language Books.

In the first title, there is the function of the Common European Framework of Reference for Languages, its place in language teaching, and briefly why it was prepared. Then, the author gives a summary table of the linguistic competences that basic, independent, and competent language users should have. The first title has two sub-titles. These are linguistic competences, another is grammatical proficiency, and grammatical accuracy. It indicates how many components linguistic competences consist of, referring to their place in the Common European Framework of Reference for Languages. In the other chapter, grammar proficiency is defined, and it is explained which categories should be considered according to the European Recommendations Framework for Languages and has included a set of steps for grammatical accuracy.

She specifically states that the subject order in Turkish should be answered by experts in the field. She expressed that both the grammatical areas of the European Recommendations Framework for Languages and the typological features of Turkish should be taken into account.

The second title of the second chapter is "Subject Ordering in Language Teaching," and grammar topics for all levels are shown in the table in the form of summary explanations. The author first describes the typological features of Turkish; presents them in items as phonologic, morphologic, and syntactic. She states that these items should be taken into account in the development of grammar content and strongly emphasizes the importance of the European Recommendation Framework for Languages in setting content. In addition, she states that the achievements here prevent the formation of big differences between institutions in language teaching in general and grammar teaching in particular.

The last title of the second part is “Teaching Grammar in Turkish as a Foreign Language Books.” Textbooks are the primary material used in teaching language in classrooms, and instructors typically rely on them as a guide to teach grammar topics at different proficiency levels. Therefore, Bölükbaş Kaya examined how grammar is included in Turkish as a foreign language books in order to raise awareness for those who teach Turkish as a target language. The author has reached the conclusion that although different approaches are preferred in all of the books she has examined, grammar is included in all of them.

Another remarkable topic in this section is the teaching of grammar in Turkish as a foreign language teaching books. The author, who examined Turkish as a foreign language teaching set in terms of teaching grammar, identified three approaches. First, the sets that do not include grammar in the book and meet this need with a separate grammar book (e.g., Gazi University TÖMER's Turkish Teaching Set), secondly, the sets that give a table about grammar rules in the unit and also the end of the book (e.g., Ankara University TÖMER's New Hittite Set), and the third one is the sets that give explanations about the grammar rules in the unit (e.g., the New Istanbul Set).

Another point that the author draws attention to is that the content of the same subject is arranged differently in the textbooks. By providing examples and justification, this approach helps raise awareness among teachers and creates a foundation for instructors to question their own teaching practices. Another point that Bölükbaş Kaya emphasizes is the difference of terms in grammar subjects in the textbooks. In the field of teaching Turkish as a foreign language, it is stated that the

terms used in the books create difficulties for the learner due to the education and different traditions of the authors of the books. The examples given from the textbooks on this subject embody this situation in the eyes of the user.

The third part is about teaching grammar subjects. The author, who divided the grammar topics into levels, examined the grammar topics at 6 levels from A1 to C1.

To demonstrate, the author who used the verb -mAK structure for the A1 level states that this structure is used to indicate a request. While describing this structure, the subject of nominalisation should not be explained and should start with direct examples. It states that after the usage and information are comprehended, it is necessary to proceed to explanations about the formal features of the structure. The author states that the -mek or -mek form should be used according to the last vowel of the verb to which the suffix -mAk is added. In the negative use of the structure, she emphasizes that the negative suffix should be added to the verb "-iste," not to the suffix "mAk." She emphasizes that this structure should be reinforced by speaking and writing about positive, question, and negative uses.

Here, the author referred to a list using the names of grammatical terms. The author gave brief information about each grammatical structure and gave information about how to explain that structure to the learner. In these explanations, based on her own experiences, it was thought at which points the learner could make mistakes. In this book, the presentation of the lectures and activities applied by the author as an example will ensure that the book is seen as a reliable material source for the instructors who will use the book and those who will do academic studies. The experience of the author, the points that need to be emphasized, and the places that need to be paid attention to.

It was also stated which techniques should be used in teaching. The author proposes the induction technique instead of direct grammar teaching. It recommends that the learner proceeds to the grammar explanation after the examples or speaking and listening and the grammatical subject are intuited. In addition, the in-class activities that will teach the subject are explained in detail and clearly by the author. In this respect, it also serves as a guidebook for activity and material design for instructors. It can be considered a grammar handbook, especially for those who are preparing to become instructors with no experience in this field. After explaining the subject through various activities and language skills practices, the author emphasizes making sure that the subject is understood by the learners. Then, she recommends moving on to grammatical explanations about the formal dimension of the structures.

This book has the feature of being the first book that gives together how to teach grammar topics for all levels, from the perspective of an experienced teacher, how to start the subject, how to continue, what activities and practices will make the subject active and how to teach the structure formally. In this respect, it is expected to form a basis for studies on grammar teaching.

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