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Erzincan Binali Yıldırım University, Faculty of Education, Yalnızbağ Campus, 24100, Erzincan, Türkiye

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## Supervisees' Views on Live Observation-Based Supervision Modality

## Psikolojik Danışmanların Canlı Gözleme Dayalı Süpervizyon Yöntemine İlişkin Görüşleri

Yusuf Sarıkaya<sup>1</sup>  Burak Köksal<sup>2</sup>  Tahsin İlhan<sup>3</sup>  Murat Korkmaz<sup>4</sup> <sup>1</sup> Ph.D., Tokat Gaziosmanpaşa University, Faculty of Education, Tokat, Türkiye<sup>2</sup> Ph.D., Tokat Gaziosmanpaşa University, Faculty of Education, Tokat, Türkiye<sup>3</sup> Prof. Dr., Tokat Gaziosmanpaşa University, Faculty of Education, Tokat, Türkiye<sup>4</sup> Lecturer, Tokat Gaziosmanpaşa University, Artova Vocational College, Tokat, Türkiye

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## \*Sorumlu Yazar

Yusuf Sarıkaya

Tokat Gaziosmanpaşa  
Üniversitesi, Faculty of  
Education, Department of  
Educational Sciences.[yusufsarikaya@gmail.com](mailto:yusufsarikaya@gmail.com)

**Abstract:** Live observation is a technique that allows the supervisor to offer immediate feedback to the supervisee by directly witnessing counseling sessions. Despite its numerous advantages over traditional supervision methods, this approach is seldom put into practice due to its time-consuming nature. Furthermore, there is insufficient research on its suitability in supervision practices, particularly in the context of Türkiye. In this study, the views of the participants on a practice in which live observation and consultation break methods used together were examined. The research involved seven students enrolled in a master's program in Guidance and Psychological Counseling at a university in the Central Black Sea region of Türkiye. Live observation and consultation break methods were incorporated into students' certain sessions as part of their individual psychological counseling practices course. After the supervision process ended, semi-structured individual interviews were conducted to evaluate the students' experiences. The data from the interviews were analyzed using content analysis. The students' opinions were grouped under four themes: development, relationship, live observation practice, and the overall supervision process. The participants stated that the live observation-based supervision practice improved their professional competence and increased their self-awareness. They also stated that they experienced anxiety at the beginning of the practice, but that this anxiety disappeared over time. The views of the participants suggest that the practice of live observation-based supervision strengthens the relationship between client, supervisee, and the supervisor. In general, the results indicate that this practice is a method that can be used in supervision processes.

**Keywords:** Live Observation, supervision, counselor education

**Öz:** Canlı gözlem, süpervizörün psikolojik danışma oturumlarını doğrudan gözlemleyerek psikolojik danışmana anında geri bildirim vermesini sağlayan bir yöntemdir. Geleneksel süpervizyon yöntemlerine göre çeşitli güçlü yanları bulunan bu yöntem zaman alıcı olması nedeniyle nadiren uygulanmaktadır. Ayrıca özellikle Türkiye'deki süpervizyon uygulamalarında kullanılabilirliğine ilişkin yeterli araştırma bulunmamaktadır. Bu çalışmada canlı gözlem ve konsültasyon arası yöntemlerinin birlikte kullanıldığı bir uygulamaya yönelik katılımcıların görüşleri incelenmiştir. Araştırma Orta Karadeniz bölgesindeki bir üniversitenin rehberlik ve psikolojik danışmanlık yüksek lisans programında okuyan yedi öğrenci ile yürütülmüştür. Öğrencilerin bireyle psikolojik danışma uygulamaları dersi kapsamında gerçekleştirdiği oturumlarından bir kısmında canlı gözlem ve konsültasyon arası yöntemleri kullanılmıştır. Süpervizyon süreci sona erdikten sonra öğrencilerin deneyimlerini değerlendirebilmek için yarı yapılandırılmış bireysel görüşmeler yapılmıştır. Görüşmelerden elde edilen veriler içerik analizi ile incelenmiştir. Öğrencilerin görüşleri gelişim, ilişki, canlı gözlem uygulaması ve genel süpervizyon süreci olarak adlandırılan dört tema altında toplanmıştır. Katılımcılar canlı gözleme dayalı süpervizyon uygulamasının mesleki yeterliklerini geliştirdiğini, öz farkındalıklarını artırdığını belirtmektedirler. Ayrıca uygulamanın ilk zamanları kaygı yaşadıklarını ancak zamanla bu kaygının ortadan kalktığını ifade etmektedirler. Katılımcı görüşleri canlı gözleme dayalı süpervizyon uygulamasının danışan, danışman ve süpervizör arasındaki ilişkiyi güçlendirdiğini işaret etmektedir. Bulgular genel olarak bu uygulamanın süpervizyon süreçlerinde kullanılabilecek bir yöntem olduğunu göstermektedir.

**Anahtar Kelimeler:** Canlı gözlem, süpervizyon, psikolojik danışman eğitimiSarıkaya, Y., Köksal, B., İlhan, T. & Korkmaz, M. (2024). Supervisees' views on live observation-based supervision modality. *Erzincan University Journal of Education Faculty*, 26(2), 162-172. <https://doi.org/10.17556/erziefd.1442490>

## Introduction

Supervision is one of the most important components of counselor training. Through the process of supervision, counselor candidates apply theoretical knowledge for the first time in actual counseling sessions. Supervision, defined as a service provided by an experienced supervisor to an inexperienced counselor, involves a hierarchical, evaluative relationship that ensures the professional development of the supervisee and the quality of assistance provided to clients (Bernard & Goodyear, 2019). In parallel with advances in counselor training, supervision has become a distinct discipline within counseling. As a result, various supervision models and methods have been developed to meet the needs of the supervision process, creating a rich area of research that is distinct from the theory and practice of counseling and therapy.

Factors considered in determining the methods and techniques used during the supervision process include the supervisor's theoretical perspective and worldview, the development level of the supervisee, the learning objectives of the supervision process, and various contextual elements such as physical resources, client issues, and time constraints (Borders & Brown, 2005). Supervisors are expected to use various supervision interventions together to meet the learning needs of supervisees, support their professional development, and ensure the well-being of the client. Methods such as self-report, process notes, audiovisual recordings, session transcripts, role-playing, modelling, live observation and live supervision may be used by supervisors. Each method used in supervision has its own characteristics. For example, self-report-based supervision methods are often used where the topic to be discussed in the supervision session is largely

determined by the supervisee. However, it is noted that some supervisees may distort the topic discussed in supervision due to evaluation concerns related to self-report techniques (Noelle, 2003). Techniques based on the analysis of process notes and session transcripts provide important opportunities to examine in detail the topics covered in the sessions, the counseling methods used, and communication patterns (Bernard & Goodyear, 2019; Borders & Brown, 2005). However, these techniques do not provide the opportunity to examine non-verbal messages from clients. Reviewing audio/video recordings allows supervisors to scrutinize clients' non-verbal messages (Aveline, 1992; Haggerty & Hilsenroth, 2011). However, both reviewing audio/video recordings and the previously mentioned techniques (i.e. self-report, process notes, transcripts) result in delayed feedback for supervisees. While methods requiring delayed feedback allow for a more in-depth examination of the counseling process (e.g. communication patterns, underlying meanings of statements) and facilitate discussion with the supervisee (Goldberg, 1985; Noelle, 2003), providing immediate feedback is considered crucial in the supervision process (Borders et al., 2014; Heckman-Stone, 2004). Live supervision and observation-based techniques are considered important for objectively determining the topics to be addressed in supervision, examining all verbal and nonverbal messages from the client, evaluating the supervisee's practice, and providing immediate feedback (Amerikaner & Rose, 2012; Bernard & Goodyear, 2019; Weck et al., 2016).

### **Live Supervision and Live Observation**

Supervision is defined as a dyadic relationship between supervisor- supervisee on the one hand, and a triadic relationship between supervisor-supervisee-client on the other (Borders & Brown, 2005; Brown & Miller, 2002). However, in supervision settings where traditional methods and techniques (e.g., self-report, transcription, voice recordings) are used, clients do not see supervisors, do not meet them, and may not even be aware of their touch on the counseling process. In addition, the supervisors' knowledge about the clients is also very limited. Even in supervision settings where some methods are used very frequently (e.g. self-report), this information is only as much as the supervisee tells. In such a situation, while it is not possible for the supervisee to develop his/her skills at the highest level, it is possible for the clients to be harmed. The easiest way to fill this gap between the supervisor and the client is to employ direct observation techniques. Examining audio and video recordings of counseling sessions is the most frequently used form of direct observation (Amerikaner & Rose, 2012). However, in these techniques, supervisees receive delayed feedback. The few research findings on the timing of feedback suggest that feedback should be given as soon as possible after the counseling session (Heckman-Stone, 2004; Kivlighan et al., 1991; Ray & Altekruze, 2000)

Live supervision and live observation allow supervisees to receive feedback as early as possible during or after the session. Although these concepts are used interchangeably, it has been stated that live supervision and live observation are different techniques (Bernard & Goodyear, 2019). In live supervision, the supervisor monitors the session through a camera system or a one-way mirror and interacts with the supervisee as needed (Champe & Kleist, 2003). In live observation, the session is watched live, but there is no interaction with the supervisee during the session. The process

of handling the session and providing feedback take place immediately after the session ends.

Techniques based on live supervision and live observation emerged within structural and strategic family therapy with the contribution of names such as Jay Haley, Salvador Minuchin, and Braulio Montalvo (Liddle & Halpin, 1978). Since its emergence, it has been the most basic technique used in family therapy training, but it is also used in individual counseling practices (Champe & Kleist, 2003; Kivlighan et al., 1991; Weck et al., 2016). Over time, different forms and techniques of live supervision have been developed. In some of these techniques, the supervisor and the supervisee are in the same room. For example, in the co-therapy technique, the supervisor and the supervisee actively work together, and the supervisor directly intervenes in the session (Bernard & Goodyear, 2019; Clark et al., 2016). In another technique in which the supervisor assumes the role of an observer, the supervisor does not directly intervene in the session, but remains in the room only as an observer and may take notes on the client's nonverbal messages, interventions, etc. (Scaife, 2019). Another aspect of live supervision techniques involves the supervisor observing the session from a separate room. The supervisor watches the session through a one-way mirror or various camera systems and intervenes in various ways. Techniques such as phone-in (Boyle & McDowell-Burns, 2016; Mauzey & Erdman, 1997), walk-in (Hunt & Sharpe, 2008), bug-in-the-ear (Gallant et al., 1991), bug-in-the-eye (Miller et al., 2002), consultation break, or knock-on-the-door (Locke & McCollum, 2001) are examples of these methods.

Live supervision modalities have various advantages and disadvantages. Disadvantages of these methods include being quite time-consuming (Bernard & Goodyear, 2019) and being perceived as distracting and intrusive (Hendrickson et al., 2002). However, research suggests that both supervisors and supervisees find these methods useful and beneficial (Bartle-Haring et al., 2009; Hendrickson et al., 2002). In a study conducted by Wong (1997), it was found that although supervisees initially found live supervision anxiety-provoking in their first applications, their anxiety decreased with experience. Another study found that anxiety and anger experienced during the supervision process were not related to techniques, including live supervision (Mauzey et al., 2001). In this study, supervisees reported that they viewed the live supervision practice as a significant learning experience. In another study, Locke and McCollum (2001) found that live supervision was perceived positively by clients. Although some clients emphasized the distracting aspect of live supervision, they indicated that the benefits outweighed the drawbacks. Additionally, evidence suggests that live supervision supports the supervisee's therapeutic skills (Mauzey & Erdman, 1997; Weck et al., 2016) and strengthens the therapeutic relationship with clients (Kivlighan et al., 1991; Weck et al., 2016).

### **Current Research**

Studies examining the prevalence of live supervision techniques indicates that their usage frequency is relatively low. For instance, in Coll's (1995) study, 16% of the participants reported that they received live supervision, while in another study (Amerikaner & Rose, 2012) this rate was lower. In a very recent study conducted by Koçyiğit (2022) showed that only about 5% of 88 supervisors applied live supervision and live observation techniques in Türkiye. Moreover, case consultation and self-report techniques were



identified as the most commonly employed methods (Amerikaner & Rose, 2012). To sum up, although live supervision practices offer advantages in ensuring client well-being/safety and supporting supervisee skill development, they are not widely adopted. The potential hindrance to their more frequent implementation may be attributed to factors such as the time-consuming nature and the need for resources like one-way mirrors and camera systems (Amerikaner & Rose, 2012; Bernard & Goodyear, 2019).

It is known that interest in live supervision practices is weak in Türkiye and such practices are rarely practiced, while methods such as self-report, case consultation, and session transcripts are much more common (Aladağ & Bektaş, 2009; Aladağ & Kemer, 2016). When a review of the literature, there is no existing research on the perceptions or effectiveness of live supervision in supervision settings in Türkiye. Our study focuses on the perspectives of graduate students who underwent supervision in the individual counseling practices course specifically regarding live observation-based supervision modality. The research question posed was: What are the opinions of graduate students regarding live observation-based supervision? The students conducted their counseling practices with real clients who applied to the university's counseling center. It is considered that the findings of the study can make important contributions to the applicability of live supervision in Turkish supervision settings. Moreover, this research may be of interest to similar centers with limited technological facilities.

## Method

### Research Design

The current study was conducted using a phenomenological approach, one of the qualitative research methods, to explore the experiences of counseling students regarding the live observation practice. The phenomenological approach aims to uncover and interpret the feelings, perceptions, perspectives, and experiences of individuals regarding a particular phenomenon they have experienced (Creswell, 2018).

### Working Group

The selection of participants for the study utilized criterion sampling, a purposive sampling method. In the phenomenological approach, individuals with experience related to the examined phenomenon were intentionally chosen to investigate their perspectives, perceptions, and experiences concerning that phenomenon (Creswell, 2018; Patton, 2014). The criteria for participant selection in this study were based on their involvement in live observation activities. In the context of this research, the participants of the study consist of students who are taking the course of individual counseling practice in the Master's program of Guidance and Psychological Counseling at a university located in the Central Black Sea region. Although there is no strict rule for determining the number of participants in

phenomenological research, it is recommended that the number does not exceed 10 participants (Starks & Brown Trinidad, 2007). This research specifically involved seven master's students, and detailed participant information is presented in Table 1.

### In-the-room Live Observation and Consultation Break

Given that this research is a phenomenological study, adequately describing the context in which the research took place is crucial. Participants, as part of their individual counseling course, conducted a varying number of counseling sessions ranging from 24 to 28, each with three different clients. While conducting their sessions with a Cognitive-Behavioral Therapy (CBT) orientation, participants received traditional supervision weekly, including activities such as reviewing audio recordings, analyzing transcripts, reviewing session plans, examining session summaries, engaging in case discussions, etc. The traditional supervision process was led by the primary author. In addition to traditional supervision, each participant, involving a total of two different clients, utilized live observation and consultation techniques with another supervisor (site supervisor) during two counseling sessions. The process of live observation and consultation breaks was conducted as follows.

1. Before the session began, the supervisor and the supervisee reviewed the session plan and decided when to take a consultation break (e.g., after the first agenda item). As it was thought that unexpected agendas might arise during the sessions, the final decision on when to break was left to the supervisees. There was only one break for consultation during the entire session.
2. During the sessions, the supervisor, client, and supervisee were present in the same room. While the supervisee conducted the process with the client, the supervisor sat in a place out of sight of the client, observed the session live, and took notes. The supervisor did not directly intervene in the counseling process.
3. At the agreed-upon time, the consultation break was taken, the supervisee and the supervisor left the room, and evaluations of the session were conducted in a separate room. Meanwhile, the clients waited in the counseling room to avoid distractions and to make it easier to resume the session after the break.
4. During the consultation break, the supervisee received brief, concrete, and constructive feedback, along with recommendations for the remaining process.
5. After approximately a 5-minute consultation break, the supervisor and supervisee returned to the counseling room, and the session continued.
6. After the session, the supervisor and the supervisee evaluated the entire process in general. The supervisor provided the counselor trainee with short, concrete, and constructive feedback, as in between consultations break.

**Table 1.** Demographics of working group

Participants	Age	Gender	Supervision experience at the undergraduate level	Professional experience
P1	29	Female	None	Present
P2	30	Male	None	Present
P3	24	Female	Present	None
P4	33	Male	Present	Present
P5	24	Female	Present	None
P6	29	Female	Present	Present
P7	24	Female	Present	None

Note: The P's stands for the pseudonyms assigned to the participants.

Live observation-based supervision was conducted with supervisors working at a university counseling center. To ensure consistency among the supervisors, the first author provided five hours of training to the other supervisors. Throughout the study, the research team met weekly, and continually evaluated the live observation processes. The first and third authors taught individual counseling practice courses at the undergraduate and graduate levels. They have also conducted scholarly research on supervision. The other authors of the study have previous supervision experience at the undergraduate level. In addition, they have received training in different theoretical orientations and have conducted almost 1000 hours of individual counseling at the university's psychological counseling center. The general problem areas of the clients who participated in the sessions were relationship problems, anxiety, and academic problems. On the other hand, the presence of a psychiatric diagnosis, severe mood problems, suicidal thoughts, and traumatic cases were excluded.

**Ethical Procedures**

Ethics committee permission was obtained from the relevant university for the research. Graduate students who were research participants were informed and their verbal and written consents were obtained. In the research process, the consent of the clients who participated in the live observation process was obtained in three stages. In the counseling consent form signed by the clients when they first applied to the counseling center, it was stated and verbally explained that live observation could be conducted in some of the sessions. One week before the live observation practice, the client was informed again, and his/her consent was obtained verbally. Finally, just before the start of the live observation session, the client was asked again whether or not they approved for a supervisor to enter the session as an observer. Clients who did not give consent to the practice at any of these stages were not subjected to live observation and were excluded from the study. In this process, only one client did not consent to the live observation practice. Although client opinions were not the subject of this study, written consent was obtained from the clients that the experiences during live observation could be used in the research. To mitigate potential evaluation anxiety influencing research data, interviews with graduate students were conducted only after completing all assessment processes for the individual counseling practices course.

**Data Collection**

In qualitative research, data can be collected through various methods such as interviews, observation, and document analysis. In this study, the researchers used a personal information form to gather demographic information from participants, as well as a semi-structured interview form to explore their experiences of live observation-based supervision. The interview form was developed based on literature review and expert opinions and was tested through a pilot interview. For the draft interview form, two experts, one experienced in counseling and the other in qualitative research, were consulted. Based on the pilot interview, a final interview form was created, consisting of 12 questions. The data was collected through individual interviews conducted via audio and video applications over the internet. Individual interviews were deemed appropriate for the small sample size of the study (Lafrest & Bouchard, 2009). On average, the interviews with the participants lasted for about 40 minutes.

**Data Analysis**

Content analysis is used to identify relationships between words, themes, and meanings in qualitative data (Patton, 2014). Thus, the current study utilized content analysis to ensure that the data collected from interviews formed a coherent whole. The researchers transcribed the interviews and individually examined the interview texts, coding them to identify themes. The codes, sub-themes, and themes created by each researcher were combined and the agreement between the coders was assessed. The inter-coder reliability coefficient, a measure of agreement, was calculated to be 88.80%, which is considered acceptable based on the guidelines provided by Miles and Huberman (1994). Any codes where consensus could not be reached were further reviewed by the researchers in line with the study's objective and existing literature, leading to a final decision on sub-themes and themes. Moreover, a qualitative research expert with proficiency in supervision literature was consulted to validate the identified themes and sub-themes. The results of the content analysis, including the identified sub-themes and themes, are presented in Table 2.

**Table 2.** Themes and sub-themes

Themes	Sub-themes
Development	Professional Development Personal Development
Live observation practice	Expectations Live observation moment Counseling process Immediate feedback
Relationship	Supervisee-client relationship Supervisee-supervisor relationship
The overall supervision process	Suggestions Comparison General evaluation

**Credibility**

In qualitative research, different concepts such as credibility, transferability, confirmability, and trustworthiness are used to ensure the quality of the results (Lincoln & Guba, 1985; Patton, 2014). To address threats to the credibility, verifiability, and reliability of the research, this study employed strategies such as prolonged engagement, expert opinion, member checking, and providing thick descriptions (Creswell & Plano Clark, 2011). Transcriptions of interviews were sent to participants for confirmation, with one participant providing additional thoughts. The long-term interaction between researchers and participants in the counseling center helped creating a safe environment for sincere responses. Direct quotations were used without adding comments to convey the participants' statements in appropriate themes. Expert opinion was sought in creating the interview form and in the content analysis process. Additionally, the characteristics of the research participants and the educational environment were detailed to increase the transferability of the findings. Overall, these strategies aimed to enhance the quality and trustworthiness of the qualitative research results.

**Findings**

As a result of the participants' views on live observation-based supervision modality, four themes and 12 sub-themes were identified. These themes were named as *development*,

*relationship, live observation practice, and the overall supervision process.*

### **Development**

The development theme addresses the impact of live observation-based supervision on graduate student development. Participants evaluated the impact of this practice on their development. Opinions were divided into two sub-themes: professional development and personal development.

#### **Professional Development**

The beneficial effects of live observation supervision on professional growth are noteworthy. Participants emphasized that the practice positively influenced various aspects of their counseling process, including improved counseling skills, more effective use of specific counseling techniques, increased pre-session preparation, improved functional use of body language and tone of voice, and more effective use of reflection and summarizing. To illustrate, one participant articulated this sentiment as follows

*It was the first time my counselling skills were in focus. I had received supervision in a more crowded environment before, but it was not a process where basic counselling skills were questioned. My posture, speech, behaviours, and the way of welcoming the client had not been evaluated previously. In contrast to the previous supervision, these aspects were now under scrutiny. Getting feedback on these matters was important for me because I had not been evaluated on them before. (P5)*

#### **Personal Development**

The use of live observation-based supervision practice has been found to have a positive impact on the personal growth of participants. The participants noted favorable outcomes, including heightened self-confidence, enhanced self-awareness, and increased motivation levels. Here are some statements from the participants concerning their personal development:

*When I reflect on it from a personal development perspective, I delved deeper into myself and discovered something new about me. I can say it brought to light aspects of myself that I wasn't aware of. (P2)*

*I believe counselors' confidence in themselves will grow after this supervision process because they can receive accurate information right away instead of hesitating about whether it's right or wrong. (P7)*

#### **Live Observation Practice**

The second theme emerging from the participants' perspectives is the live observation practice. Participants who had never received supervision based on live-observation before provided evaluations of this practice from various perspectives. Within this theme, there are four sub-themes: expectations, live observation moment, counseling process, and immediate feedback.

#### **Expectations**

When participants learned that the live observation-based supervision practice would be conducted, they reported experiencing anxiety about being evaluated. Being able to adequately demonstrate counseling skills and not knowing how clients would react were seen as the main sources of anxiety. The most common emotion accompanied with anxiety

was curiosity. On the other hand, participants stated that they saw this process as an opportunity to grow and that they thought they could get more live supervision-based support. Some examples of participant statements include:

*I was concerned about both the client and I being affected. I was thinking that I might be so affected that anxiety could take over part of the session. (P1)*

*I was quite worried. The fact that the supervisor was there, evaluating, made me quite anxious. (P2)*

*I was excited and curious about how it would turn out. I wondered if I could fully showcase my counselling skills with the supervisor present. It was a different experience for me, and I thought it would be beneficial. (P4)*

*I can say I was a bit worried. However, I was very happy to have such an opportunity. I thought it would be good both for us and the clients. It offered a different perspective. I thought that maybe the supervisor would notice points that we might overlook or ignore, guiding us. (P5)*

#### **Live Observation Moment**

Participants expressed that live observation was mostly exciting and challenging. Furthermore, there are also opinions about the positive effects of this practice in terms of development, motivation, self-awareness and self-management. In fact, some of the participants' views on this are as follows:

*We need to handle our own emotions and concerns rather than just managing the session. Therefore, even though it was challenging, it turned out to be a pleasant and developmental process. (P1)*

*I was much more nervous at the beginning of the session, and it decreased even more until the break. However, I felt much more relaxed in the second part of the session after having a conversation with my supervisor during the break. (P3)*

*Initially, I was excited, but after about 5 minutes, I returned to the normal counseling mode and was able to conduct it as usual. The supervisor acted as if they weren't in the room at that moment. They were following, observing, and recording, but didn't convey that message. The supervisor's comfort also put me at ease. (P4)*

*In the beginning, it was uneasy due to evaluation anxiety. I inevitably faced difficulties because of my concern about the possibility of my client being influenced by my supervisor. However, it became tolerable for me when I considered the benefits at that moment. (P7)*

#### **Counseling Process**

A sub-theme under the live observation practice is the counseling process. In this context, participants assessed the session dynamics of live observation practice with clients. Participants mentioned that they could navigate through the sessions more efficiently, recover from mistakes, witness a shift in the session dynamics, and experience more productive sessions. The participant perspectives on this matter are outlined as follows:

*After a break, I got the corrections. Examining the evidence really impressed me, and it still does. It broadened my perspective, and I had the chance to delve into other techniques more thoroughly. When I got positive feedback from the supervisor during the consultation break, I approached the rest of the session with more enthusiasm. The overall process was positive. (P7)*

*Actually, there were places where I messed up before getting the feedback. Returning to counseling after that helped me progress in a much better way. On the one hand, it feels like I won't be able to recover, but it also gives me a chance to learn from my mistakes. (P6)*

*I can say it made a difference in the sessions. For instance, I was struggling to find an alternative thought within a session. During the consultation break, my supervisor and I came up with a few alternative thoughts together. When I returned to the session, I saw that discussing these alternatives with the client was more effective. (P3)*

*There were a couple of points I overlooked. In one instance, I was unsure whether to assign behavioral activation homework or not. During the break, I discussed it with my supervisor and decided on this homework. It made a significant difference for the client, and as a result, we increased similar assignments. It altered the course of the sessions. (P2)*

### **Immediate Feedback**

Participants emphasized that the critical element in the live observation practice was immediate feedback. They expressed that immediate feedback serves as a source of motivation, development, information, support, reassurance, and clarification. Participants emphasized that this approach allowed them to provide immediate feedback, identify overlooked areas, and facilitate ongoing learning. Here are some perspectives on immediate feedback:

*My supervisor provided feedback in a motivational way, highlighting the positives and pointing out areas for improvement—things I hadn't done due to excitement. It was beneficial that they communicated this in a positive and constructive manner. After hearing it from my supervisor's perspective, I immediately implemented the suggestions. (P1)*

*The feedback I received during the sessions generally leaned towards encouragement, with comments like, 'You're doing good things, keep it up, move in this direction, and in future sessions, you can explore these areas.' Hearing this in the moment was very encouraging and allowed me to move forward with more confidence. (P4)*

*Constructive feedback reduced my excitement and anxiety, helping me manage the process better. I realized that there were things I needed to change or add. Discussing this with my supervisor helped me proceed more carefully and confidently. It made me see the right and wrong things I was doing at that moment. (P2)*

*I believe the information gained from live supervision is more lasting. I noticed that it was more permanent because we had the opportunity to implement it immediately after a break. (P5)*

### **Relationship**

Another theme that emerged from the participants' opinions is the theme of relationship. In this theme, there are opinions about the supervisee's relationship with both the client and the supervisor. There are two sub-themes within this theme, supervisee-client relationship and the supervisee-supervisor relationship.

#### **Supervisee-Client Relationship**

Participants engaged in a live observation-based supervision practice shared their views on the supervisee-client

relationship, which holds critical significance in the counseling process. Participants stated that this modality did not negatively impact the supervisee-client relationship. Instead, it strengthened it. In this practice, they noted that the involvement of two individuals in the session made the client feel more valued, increased self-confidence, and facilitated greater openness. Only one participant mentioned an increase in the client's anxiety. Participants also emphasized the importance of structuring in the relationship-building process. Here are the participant views regarding the supervisee-client relationship:

*One of my clients was feeling very anxious. I suggested that we could continue later. (P2)*

*I don't think there were many differences in terms of the client, but I felt stuck somewhere, and that seemed to make the client more bored. With live observation, we were able to overcome this blockage more swiftly, and the client also noticed the improvement. (P3)*

*In the initial session, I clearly communicated that another observer would be joining us and that their presence would be beneficial in addressing her concerns. I emphasized that we were working collaboratively as a team to support her. The client perceived this as a positive situation. (P4)*

#### **Supervisee-Supervisor Relationship**

Another sub-theme of the relationship theme is the supervisee-supervisor relationship. The majority of participants emphasize that the implementation of live observation strengthens the supervisee-supervisor relationship. Moreover, the positive and supportive attitude of the supervisor, realistic evaluations, and a neutral stance during the observation phase are highlighted. Participant perspectives on this relationship are as follows:

*My supervisor was a very level-headed person who highlighted the positive aspects and aimed to enhance our skills in that regard. Our relationship didn't change in any way; I can even say it strengthened. (P2)*

*I believe that analyzing the process together in the room strengthened our relationship. He assisted me in assessing myself more realistically, even if I tended to be more critical of myself. It clarified what I needed to do in this process and helped make my self-evaluation more grounded. (P5)*

*My relationship with the supervisor became more candid. Sharing my mistakes contributed to my development, and I had no difficulty consulting him on additional issues. (P7)*

#### **The Overall Supervision Process**

This study combined traditional supervision and live observation practices. While the participants received traditional supervision (e.g. voice recordings, session transcriptions) with the group on a weekly basis, the live observation method was used in some counseling sessions. The participants evaluated the traditional supervision methods and the live supervision methods together and expressed some of their opinions in this context. The general theme of the supervision process consists of the sub-themes of suggestions, comparison and general evaluation.

#### **Suggestions**

This sub-theme includes the participants' suggestions on how live observation could be better implemented. The most frequently mentioned suggestion is to conduct live observation more often. In addition, they made other suggestions such as

conducting practices with headphones instead of live observation, having a video demonstration of how the process will work beforehand, conducting sessions in which different counseling techniques are used, conducting sessions in more complex cases, and having different supervisors participate in the sessions. Participants' suggestions for live observation are as follows:

*Maybe we could've had more live supervisions. My cases were kind of simple, so it would've been good to tackle more complex ones. (P1)*

*I feel like adding more live observations would be beneficial. Having more people join could bring in different perspectives. For instance, if they had given us a video walkthrough before, it would've eased my anxiety. After trying it once, my anxiety dropped a lot. (P3)*

*I noticed live observation works better in sessions with specific techniques rather than in simple ones like psychoeducation. (P5)*

### Comparison

The participants in the supervision process had varying experiences during live observation sessions with their supervisor compared to standard sessions. The participants expressed that in the live observation sessions, they felt more prepared, utilized more techniques, enhanced progress, communicated more accurately with the client, and were able to identify and correct mistakes more quickly. However, in the standard sessions without live observation, they felt more at ease, had the ability to take initiative, and could focus more on the client's emotions. They also mentioned that in the standard sessions, they sometimes deviated from the theory-based protocol and were not fully aware of their mistakes. Overall, the participants had positive experiences with live observation sessions in terms of improvement and effectiveness, but they also appreciated the relaxed and flexible nature of standard sessions. The views of the participants regarding the comparison sub-theme are as follows.

*There were variations in terms of content. I attempted to get more technical to demonstrate my familiarity with the technique introduced by the supervisor. However, in other sessions, my focus shifted to understanding the client better and delving deeper. I can affirm that I took more initiative in these sessions. (P1)*

*In some of the subsequent sessions, I consistently pondered whether I was correct or mistaken in my approach. I wished for the supervisor to be present in the room and sought his support. (P4)*

*I believe that we established more accurate communication with the client who joined the session with the supervisor and me. Honestly, with my other clients, I couldn't quickly identify where I went wrong. I struggled to discern whether the feedback I provided for the client's response was accurate. (P6)*

*From my perspective, this is my field, and having a third person there compelled me to take greater ownership of both my client and my work. I faced more scrutiny because someone else was participating, and I knew I would be evaluated. I conducted more reading and research for this. My preparation was thorough, and in that regard, these sessions provided insights into other sessions in terms of planning. (P7)*

### General Evaluation

The general evaluation sub-theme is part of the overall supervision process theme, and it focuses on the participants' perspectives on the traditional supervision process. This sub-theme includes the participants' views on the entire traditional supervision process (e.g. audio recordings, transcription review, session plan review), which includes live observation and consultation break practices. The participants find this process to be instructive, developmental, and beneficial for building self-confidence. They feel that it reduces self-criticism and enhances their knowledge and skills in counselling. The inclusion of live observation in the supervision process is seen as an exciting, challenging, and experiential learning opportunity. Several examples are provided to illustrate the participants' opinions about the supervision process.

*I had theoretical knowledge, yeah. CBT is mentioned in all the books, or we know that most current books are CBT-oriented. However, practicing with a supervisor was quite different because when you apply it, it gets directly reinforced, and you fully grasp it. (P1)*

*I felt more competent as a result of this process. I used to be more anxious before. There's a significant difference in anxiety between before and after supervision. I believe supervision boosted my motivation, interest, and desire for the counselling process. (P4)*

*The supervision process was highly productive because I hadn't experienced such supervision before. I had the chance to enhance myself as I learned. I discovered many different things that we thought we already knew. (P2)*

*I believe it made a significant contribution to my development. Live observation, group supervision, and sharing transcripts with the group made me recognize both my strengths and the areas I need to improve. In fact, this process also heightened my self-confidence. (P5)*

*I used to believe that my professional competence was low. Now, I definitely think it's much better. It had a substantial impact on our approach to clients. (P6)*

### Discussion

It is important to examine which supervision format is most appropriate in the process of developing counseling skills. This study examined the views and experiences of graduate students on the live observation-based supervision modality. Four themes emerged from the students' opinions. These themes are development, live observation practice, relationships, and the overall supervision process.

The development theme has two sub-themes, individual development and professional development. These sub-themes include perspectives on the impact of live observation and consultation breaks on students' personal and professional lives. In the individual development sub-theme, opinions highlight positive effects such as increased self-confidence, enhanced self-awareness, and higher levels of motivation. These findings are consistent with the results of review studies of live supervision (Maaß et al., 2022; Vezer, 2021). In live supervision, supervisees become more self-aware by observing their thoughts, feelings, and behaviors, which contributes to an increased sense of self-awareness (Hendrickson et al., 2002). In addition, as supervisees acquire the skills and knowledge needed to work more effectively with clients, their confidence in themselves grows.

Another sub-theme that emerged within the overarching theme of development was professional development. Within this sub-theme, participants indicated that live observation practice contributes to various facets of their professional development in the counseling process, such as improving counseling skills, using specific techniques more accurately, increasing pre-session preparation, using body language and tone of voice more functionally, and using reflection and summarizing effectively. During the live supervision process, supervisees can become familiar with various strategies and techniques recommended by supervisors, providing an opportunity to acquire new skills (Jakob et al., 2015). In addition, supervisors can identify the strengths of supervisees and assist them in enhancing existing skills. Supervisors can observe nonverbal cues such as body language, tone of voice, gestures, and facial expressions during live observations and offer suggestions. Brief, constructive, and concrete feedback is provided during consultation breaks to encourage supervisees to use correct techniques, resulting in sustained learning and skill improvement throughout the session (Maaß et al., 2023). In addition, the views on how supervisees learn to use specific techniques more effectively seem to be consistent with previous research. For example, Noelle (2003) suggests that live supervision techniques are more appropriate for approaches that include concrete elements, such as behavioral theories. Supervisors, through methods such as co-therapy, can provide clear and direct feedback on the use of specific techniques and even serve as role models for supervisees. However, it may not be appropriate to use live observation techniques frequently in approaches that require in-depth analysis and discussion of cases.

The second theme identified from the participants' perspective is the theme of live observation practice. Within this theme, there are four sub-themes, expectations, live observation moment, counseling process, and immediate feedback. When examining the theme, it is evident that supervisees experience various emotions such as anxiety, curiosity, and excitement regarding live observation and consultation breaks. In particular, concerns about not fully demonstrating their competence and thoughts about potential negative effects on clients are prevalent. In addition, participants perceive live observation as a challenging, yet developmental and motivating method. It is noteworthy that all participants in this study had not previously participated in live supervision experiences. Therefore, experiencing anxiety about this practice for the first time is considered normal. Consistent with previous studies, similar findings indicate that supervisees often experience anxiety before and initially during live supervision, but note a decrease as they gain experience and confidence (Wong, 1997). In addition, the literature discusses the need for explanations of how live supervision operates and what to expect from supervisors, especially for novice supervisees (Hendrickson et al., 2002; Mauzey & Erdman, 1997).

In reviewing the results, the participants indicated that live observation-based supervision allows them to make faster progress in counseling sessions, correct mistakes, change the course of sessions, and have more productive sessions. In summary, the majority believe that the live observation method has positive impacts on the counseling process. Consistent with these findings, the literature also suggests that live supervision sessions are effective and improve the quality of intervention (Bartle-Haring et al., 2009; Maaß et al., 2022). In the current study, live observation-based supervision was

implemented with consultation breaks during which supervisees and supervisors evaluated the session. Such evaluations typically highlight positive aspects, while also providing information about areas in which the counselor falls short. It is emphasized that these breaks within the session do not disrupt the counseling session and may even result in more perceived benefits to the client (Mauzey & Erdman, 1997; Moorhouse & Carr, 1999). It should be noted, however, that live supervision methods, like almost all supervision methods, can only have positive effects when there is a good supervisory relationship. For example, Holloway (1995) considered the supervisory relationship to be a core component of his systems approach. Similarly, Hendrickson et al. (2002) demonstrated that positive relationships with supervisors in live supervision methods reduce the anxiety of supervisees. The participants' statements emphasizing positive supervisor behaviors also support this situation.

The most effective aspect of the live observation-based supervision modality for supervisees may be the ability to receive immediate feedback. In live supervision methods, it is recommended that such feedback be brief, constructive, supportive, and clear (Mauzey & Erdman, 1997). Participants perceive instant feedback as motivating, supportive, calming, explanatory, and influential. They also state that this modality reveals overlooked areas, provides an opportunity for immediate implementation, informs about counseling methods, and facilitates permanent learning. Previous research suggests that live observation combined with immediate feedback creates a supportive and safe environment (Jakob et al., 2015). Additionally, timely feedback is emphasized as one of the most crucial factors for improving performance and developing expertise (Hattie & Timperley, 2007). During live supervision, the supervisor aims to create a secure and supportive learning environment for the supervisees while helping them enhance their skills and achieve their goals. Immediate feedback provides specific insight into areas where the supervisee may be lacking or in need of improvement, allowing supervisees to quickly make changes in their practice and apply new knowledge. This change can lead to more efficient sessions and increased self-confidence. The opportunity for immediate implementation of what has been learned through feedback allows for experiential and permanent learning for the supervisee. Similar to the findings presented here, supervisees report satisfaction with immediate feedback due to all of these benefits (Maaß et al., 2023).

Participants' opinions indicate that the live observation-based supervision practice contributes to both the supervisee-client and supervisee-supervisor relationships. Supervisees who participated in the study reported that this practice strengthened the supervisee-client relationship. They also stated that the client felt more cared for and disclosed more. These findings are consistent with the finding that the therapeutic alliance is higher in live supervision practices than in delayed video-based supervision (Weck et al., 2016). It is possible that the supervisee who is observed during the live supervision process pays more attention to his/her competencies in order to manage the process well, prepares for the sessions, and makes efforts to build a relationship with the client. In addition, clients may have felt more secure by seeing that more than one person, not just one counselor, was taking care of them. A similar situation in the supervisee-client relationship seems to hold true for the supervisor-supervisee relationship. Participants felt that their relationships with their supervisors were strengthened and that the supervisor's

positive and supportive attitude contributed to this. This finding is consistent with findings that the supervisor's understanding, empathy, and supportive style positively change the supervisor-supervisee relationship in live supervision practices (Wong, 1997).

It has been mentioned in the literature that live supervision practices can generally be perceived as distracting, too intrusive, and can cause confidentiality issues, especially for clients (Bernard & Goodyear, 2019; Scaife, 2019). However, the current study did not find evidence to support these concerns. Previous research indicates that the distracting and intrusive aspect of live supervision practices is not perceived as a significant problem by either clients or supervisees, and that a balance can be struck between the benefits and potential drawbacks of live supervision (Locke & McCollum, 2001; Mauzey & Erdman, 1997). On the other hand, Whisenhunt et al. (1997) found that videotaped supervision raised more confidentiality concerns than live supervision methods.

The findings of the current study revealed that the participants generally found the live observation-based supervision practices useful. Participants suggested that live observation-based supervision practices should be conducted more frequently, that more detailed information about the process should be provided before live supervision, and that the number of supervisors should be increased. They note that live supervision practices may be more appropriate for sessions in which specific techniques (e.g. cost-benefit analysis) are used for complex cases. Given that live supervision practices create a safer environment for the supervisee and the client, the need for more frequent use of live supervision methods seems understandable. Furthermore, in parallel with the research findings, previous studies indicate that counselors prefer challenging cases in live supervision (Todd & Storm, 2014).

Participants have varying opinions regarding the comparison of live observation-based and traditional supervision practices. There are views that suggest that in live observation-based supervision practices, participants engage in more preparation, improve their use of specific counseling techniques, establish more accurate communication with clients, and have more opportunities to notice and correct errors. In contrast, they report feeling more comfortable, taking more initiative, and being more emotion-focused in traditional sessions. However, they also reported making progress based on past, perhaps incomplete, learning and being less aware of their mistakes. These opinions are consistent with the perspective that live supervision practices may hinder the development of autonomy in supervisees (Wong, 1997). The developmental level of the supervisee is critical in determining appropriate supervision techniques (Borders and Brown, 2005; Noelle, 2003). Specifically, more directive techniques may be appropriate for less experienced supervisees, while as experience increases, they may prefer methods that allow for more initiative. Instead, live supervision can be used along with other supervision methods as appropriate based on the specific needs of both the supervisee and the client (Borders et al., 2014).

### Conclusion Recommendations and Limitations

This study examines the experiences of master's level counseling students with live observation-based supervision practices. The findings indicate that this practice contributes to the individual and professional development of supervisees, increases the efficiency of counseling sessions, and

strengthens the client-supervisee-supervisor relationship. The results suggest that live observation-based supervision practices can be used in counselor education in Türkiye. Counselor educators can incorporate live observation techniques more extensively in supervision practices, especially in environments that lack technical equipment such as audio transmission devices, cameras, or one-way mirrored rooms. When deciding on live observation-based methods, the developmental level of the supervisee and the counseling approach can be taken into consideration. Providing information about the live observation procedure can help alleviate the concerns of supervisees.

There are several limitations to the current study. All participants used a CBT-based approach in their sessions, and caution should be taken in generalizing the research findings to other counseling approaches. The implementation of live supervision in this study involved the supervisor being present in the counseling room (live observation) and providing feedback during sessions (counseling break). It is important to note that there are different methods of live supervision in the literature. In this study, the perspectives of master's level counseling psychology students were considered, and the effectiveness of the live observation-based supervision method could be further examined through randomized controlled trials with participants at different developmental levels such as undergraduate, graduate or doctoral level. In addition, studies can be conducted that focus on the perspective of the clients.

### Author Contributions

The first author conducted the overall design of the study and contributed to the writing of all sections. The second author contributed to the literature review, method, findings, and discussion sections, while the third author contributed to the literature review, introduction, and discussion sections through qualitative interview processes. The fourth author contributed to the method section. Live observation applications were conducted by the second and fourth authors, and qualitative analyses were collaboratively conducted by all authors. All authors have read and approved the final version of the study.

### Ethical Declaration

This study was carried out under the approval of the Ethics Committee for Social and Human Sciences Research at Tokat Gazi Osman Paşa University, as confirmed by decision number 09-03 during the meeting held on June 17, 2022.

### Conflict of Interest

The authors declare that there is no conflict of interest with any institution or individual within the scope of this study.

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### References

- Aladağ, M., & Bektaş, D. Y. (2009). Examining individual-counseling practicum in a Turkish undergraduate counseling program. *Eurasian Journal of Educational Research (EJER)*, 37, 53-70



- Aladağ, M., & Kemer, G. (2016). Clinical supervision: An emerging counseling specialty in Turkey. *The Clinical Supervisor*, 35(2), 175-191. <https://doi.org/10.1080/07325223.2016.1223775>
- Amerikaner, M., & Rose, T. (2012). Direct observation of psychology supervisees' clinical work: A snapshot of current practice. *The Clinical Supervisor*, 31(1), 61-80. <https://doi.org/10.1080/07325223.2012.671721>
- Aveline, M. (1992). The use of audio and videotape recordings of therapy sessions in the supervision and practice of dynamic psychotherapy. *British Journal of Psychotherapy*, 8(4), 347-358. <https://doi.org/10.1111/j.1752-0118.1992.tb01198.x>
- Bartle-Haring, S., Silverthorn, B. C., Meyer, K., & Toviss, P. (2009). Does live supervision make a difference? A multilevel analysis. *Journal of Marital and Family Therapy*, 35, 406-414. <https://doi.org/10.1111/j.1752-0606.2009.00124.x>
- Bernard, J. M., & Goodyear, R. K. (2019). *Fundamentals of clinical supervision*. Pearson.
- Borders, L. D., & Brown, L. L. (2005). *The new handbook of counseling supervision*. Routledge. <https://doi.org/10.4324/9781410613202>
- Borders, L. D., Glosoff, H. L., Welfare, L. E., Hays, D. G., DeKruyf, L., Fernando, D. M., & Page, B. (2014). Best practices in clinical supervision: Evolution of a counseling specialty. *The Clinical Supervisor*, 33(1), 26-44. <https://doi.org/10.1080/07325223.2014.905225>
- Boyle, R., & McDowell-Burns, M. (2016). Modalities of marriage and family therapy supervision. In K. Jordan (Ed.), *Couple, marriage and family therapy supervision* (pp. 51-69). New York, NY: Springer.
- Brown, L., & Miller, M. (2002). The triadic intersubjective matrix in supervision: The use of disclosure to work through painful affects. *International Journal of Psychoanalysis*, 83, 811-823. <https://doi.org/10.1516/TDHF-GWPP-4HX7-VM9X>
- Champe, J., & Kleist, D. M. (2003). Live supervision: A review of the research. *The Family Journal*, 11(3), 268-275. <https://doi.org/10.1177/1066480703252755>
- Clark, P., Jeff Hinton, W., & Grames, H. A. (2016). Therapists' perspectives of the cotherapy experience in a training setting. *Contemporary Family Therapy*, 38(2), 159-171. <https://doi.org/10.1007/s10591-015-9358-2>
- Coll, K. M. (1995). Clinical supervision of community college counselors: Current and preferred practices. *Counselor Education and Supervision*. <https://doi.org/10.1002/j.1556-6978.1995.tb00215.x>
- Creswell, J. W. (2018). *Qualitative research methods: Qualitative research and research design according to five approaches*. Political bookstore.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research (2nd ed.)*. Sage.
- Gallant, J. P., Thayer, B. A., & Bailey, J.S. (1991). Preliminary evaluations using bug-in-the-ear feedback in clinical supervision. *Research on Social Work Practice*, 1, 175-186. <https://doi.org/10.1177/104973159100100205>
- Goldberg, D. A. (1985). Process notes, audio, and videotape: Modes of presentation in psychotherapy training. *The Clinical Supervisor*, 3(3), 3-14. [https://doi.org/10.1300/J001v03n03\\_02](https://doi.org/10.1300/J001v03n03_02)
- Haggerty, G., & Hilsenroth, M. J. (2011). The use of video in psychotherapy supervision. *British Journal of Psychotherapy*, 27(2), 193-210. <https://doi.org/10.1111/j.1752-0118.2011.01232.x>
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1) 81-112. <https://doi.org/10.3102/003465430298487>
- Heckman-Stone, C. (2004). Trainee preferences for feedback and evaluation in clinical supervision. *The Clinical Supervisor*, 22(1), 21-33. [https://doi.org/10.1300/J001v22n01\\_03](https://doi.org/10.1300/J001v22n01_03)
- Hendrickson, S. M., McCarthy Veach, P. and LeRoy, B.S. (2002). A qualitative investigation of student and supervisor perceptions of live supervision in genetic counselling. *Journal of Genetic Counseling*, 11(1), 25-49. <https://doi.org/10.1023/A:1013868431533>
- Hunt, C., & Sharpe, L. (2008). Within-session supervision communication in the training of clinical psychologists. *Australian Psychologist*, 43(2), 121-126. <https://doi.org/10.1080/00050060801933402>
- Kivlighan, D. M., Angelone, E. O., & Swafford, K. G. (1991). Live supervision in individual psychotherapy: Effects on therapist's intention use and client's evaluation of session effect and working alliance. *Professional Psychology: Research and Practice*, 22(6), 489. <https://doi.org/10.1037/0735-7028.22.6.489>
- Koçyiğit, M. K. (2022). Challenges and Ethical Issues in Counseling Supervision from Faculty Supervisors' Perspective. *Participatory Educational Research*, 9(5), 305-329. <https://doi.org/10.17275/per.22.116.9.5>
- Laforest, J., & Bouchard, L. M. (2009). Guide to organizing semi-structured interviews with key informant. *Gouvernement du Quebec. Quebec: Gouvernement du Quebec, Ministeres des Communications*.
- Liddle, H. A., & Halpin, R. J. (1978). Family therapy training and supervision literature: A comparative review. *Journal of Marital and Family Therapy*, 4(4), 77-98. <https://doi.org/10.1111/j.1752-0606.1978.tb00543.x>
- Locke, L. D., & McCollum, E. E. (2001). Clients' views of live supervision and satisfaction with therapy. *Journal of Marital and Family Therapy*, 27, 129-133. <https://doi.org/10.1111/j.1752-0606.2001.tb01146.x>
- Maaß, U., Kühne, F., Ay-Bryson, D. S., Heinze, P. E., & Weck, F. (2023). Efficacy of live-supervision regarding skills, anxiety and self-efficacy: a randomized controlled trial. *The Clinical Supervisor*, 1-21. <https://doi.org/10.1080/07325223.2023.2267528>
- Maaß, U., Kühne, F., Poltz, N., Lorenz, A., Ay-Bryson, D. S., & Weck, F. (2022). Live supervision in psychotherapy training-A systematic review. *Training and Education in Professional Psychology*, 16(2), 130-142. <https://doi.org/10.1037/tep0000390>
- Mauzey, E., & Erdman, P. (1997). Trainee perceptions of live supervision phone-ins: A phenomenological inquiry. *The Clinical Supervisor*, 15(2), 115-128. [https://doi.org/10.1300/J001v15n02\\_09](https://doi.org/10.1300/J001v15n02_09)
- Mauzey, E., Harris, M. B. C., & Trusty, J. (2001). Comparing the effects of live supervision interventions on novice trainee anxiety and anger. *The Clinical Supervisor*, 19(2), 109-122. [https://doi.org/10.1300/J001v19n02\\_06](https://doi.org/10.1300/J001v19n02_06)
- Miller, K. L., Miller, S. M., & Evans, W. J. (2002). Computer-assisted live supervision in college counseling centers. *Journal of College Counseling*, 5(2), 187-192. <https://doi.org/10.1002/j.2161-1882.2002.tb00221.x>
- Moorhouse, A., & Carr, A. (1999). The correlates of phone-in frequency, duration and the number of suggestions made in live supervision. *Journal of Family Therapy*, 21(4), 407-



408. <https://doi.org/10.1111/1467-6427.00128>
- Noelle, M. (2003). Self-report in supervision. *The Clinical Supervisor, 21*(1), 125-134.  
[https://doi.org/10.1300/J001v21n01\\_10](https://doi.org/10.1300/J001v21n01_10)
- Patton, M. Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri* (M. Bütün & S. B. Demir, Ed.; 1. bs). PEGEM Akademi.
- Ray, D., & Altekruze, M. (2000). Effectiveness of group supervision versus combined group and individual supervision. *Counselor Education and Supervision, 40*(1), 19-30.<https://doi.org/10.1002/j.15566978.2000.tb01796.x>
- Scaife, J. (2019). *Supervision in clinical practise: A practitioner's guide*. Routledge.  
<https://doi.org/10.4324/9781315544007>
- Starks, H., & Brown Trinidad, S. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative health research, 17*(10), 1372-1380. <https://doi.org/10.1177/1049732307307031>
- Todd, T. C., & Storm, C. L. (2014). *The complete systemic supervisor: Context, philosophy, and pragmatics*. John Wiley & Sons. <https://doi.org/10.1002/9781394259601>
- Vezer, E. (2021). Bug-in-the-eye supervision: A critical review. *Training and Education in Professional Psychology, 15*(3), 250-257.  
<https://doi.org/10.1037/tep0000308>
- Weck, F., Jakob, M., Neng, J. M., Höfling, V., Grikscheit, F., & Bohus, M. (2016). The effects of bug-in-the-eye supervision on therapeutic alliance and therapist competence in cognitive-behavioural therapy: A randomized controlled trial. *Clinical psychology & psychotherapy, 23*(5), 386-396.  
<https://doi.org/10.1002/cpp.1968>
- Wong, Y. L. S. (1997). Live supervision in family therapy: Trainee perspectives. *The Clinical Supervisor, 15*(1), 145-157. [https://doi.org/10.1300/J001v15n01\\_11](https://doi.org/10.1300/J001v15n01_11)

**Examination of Mental Well-Being Levels in Emerging Adulthood in Terms of Grit and Cognitive Flexibility****Beliren Yetişkinlikte Mental İyi Oluş Düzeylerinin Azim ve Bilişsel Esneklik Açısından İncelenmesi**Ayşe Deniz<sup>1</sup>  Nezir Ekinci<sup>2</sup> <sup>1</sup> MA, Psychological Counselor, Karamanoğlu Mehmetbey Üniversitesi, Sosyal Bilimler Enstitüsü, Karaman, Türkiye<sup>2</sup> Assoc. Prof. Dr., Karamanoğlu Mehmetbey Üniversitesi, Eğitim Fakültesi, Karaman, Türkiye**Makale Bilgileri***Geliş Tarihi (Received Date)*

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**\*Sorumlu Yazar**

Nezir Ekinci

Karamanoğlu Mehmetbey  
Üniveristesi Yunus Emre  
Yerleşkesi Eğitim Fakültesi 3.  
Kat No: 316 Merkez Karaman[ekincinezir@gmail.com](mailto:ekincinezir@gmail.com)

**Abstract:** The aim of this study is to examine the levels of mental well-being in emerging adulthood in terms of grit and cognitive flexibility. In the study, it was examined whether grit and cognitive flexibility predict mental well-being levels. A correlational survey model was used in the study. The data of the study were collected with "Warwick-Edinburgh Mental Well-Being Scale", "Cognitive Flexibility Inventory" and "Brief Grit Scale". In the analysis of the data, groups t-test and one-way analysis of variance were performed. Pearson product-moment correlation coefficient was calculated to determine the relationship between the variables. Multiple linear regression analysis was used to determine the extent to which the variables predicted mental well-being. According to the findings of the study, it was observed that there was a positive and moderately significant relationship between students' mental well-being levels and their levels of grit and cognitive flexibility. It was also found that grit and cognitive flexibility predicted mental well-being. It explains 33.5% of the total variance of grit and cognitive flexibility, which are predictor variables. Finally, the findings obtained in the study were discussed in line with the relevant literature and suggestions for both study and practice areas were presented.

**Keywords:** Mental well-being, cognitive flexibility, grit, emerging adulthood

**Öz:** Bu araştırmanın amacı, beliren yetişkinlikte mental iyi oluş düzeylerinin azim ve bilişsel esneklikleri açısından incelenmesidir. Araştırmada azim ve bilişsel esnekliğin mental iyi oluş düzeylerini yordayıp yordamadığı incelenmiştir. Araştırmada ilişkisel tarama modeli kullanılmıştır. Araştırmanın verileri "Warwick-Edinburgh Mental İyi Oluş Ölçeği", "Bilişsel Esneklik Envanteri" ve "Kısa Azim Ölçeği" ile toplanmıştır. Verilerin analizinde, gruplar t-testi ile tek yönlü varyans analizi yapılmıştır. Değişkenler arasındaki ilişkiyi saptamak için pearson momentler çarpımı korelasyon katsayısı hesaplanmıştır. Değişkenlerin mental iyi oluşu ne derece yordadığını belirlemek için ise çoklu doğrusal regresyon analizi kullanılmıştır. Araştırma sonucunda elde edilen bulgulara göre öğrencilerin mental iyi oluş düzeyleri ile azim ve bilişsel esneklik düzeyleri arasında pozitif yönde orta düzeyde anlamlı bir ilişki olduğu görülmüştür. Ayrıca azim ve bilişsel esnekliğin mental iyi oluşu yordadığı görülmüştür. Yordayıcı değişkenler olan azim ve bilişsel esnekliğin toplam varyansının %33,5'ini açıklamaktadır. Son olarak araştırmada elde edilen bulgular ilgili alanyazın doğrultusunda tartışılarak hem araştırma hem de uygulama alanlarına yönelik öneriler sunulmuştur.

**Anahtar Kelimeler:** Mental iyi oluş, bilişsel esneklik, azim, beliren yetişkinlikDeniz, A. & Ekinci, N. (2024). Examination of mental well-being levels in emerging adulthood in terms of grit and cognitive flexibility. *Erzincan University Journal of Education Faculty*, 26(2), 173-183. <https://doi.org/10.17556/erziefd.1404297>**Introduction**

Human existence undergoes various developmental phases, encompassing prenatal, infancy, childhood, adolescence, adulthood, and old age (Doğan & Cebioğlu, 2011). Within this continuum, emerging adulthood, as delineated by Arnett (2000), emerges as a distinctive stage. Characterized by the initiation of adult life pursuits, the cultivation of daily life competencies, and heightened self-awareness, emerging adulthood epitomizes a period where individuals concentrate on self-discovery (Arnett, 2000). Arnett (2000) underscores that, within industrialized societies, the age group of 18-25, predominantly comprised of university students in middle-class nations, typifies the demographic experiencing emerging adulthood. Certain studies propose that the span of emerging adulthood extends from 18 to 29 years old (Eroğlu & Gündoğdu, 2021). The challenges inherent in emerging adulthood, considered the onset of mature responsibilities, can exert adverse effects on individuals' psychological well-being, familial dynamics, occupational endeavors, and educational pursuits (Arnett, 2005). This developmental juncture often coincides with university enrollment, marking a period when numerous students grapple with the complexities of establishing new relationships, meeting academic expectations, and navigating diverse cultural landscapes away from home (Arnett, 2000; Benn et al., 2005). The initial foray

into university life is recognized as a stress-laden event (Dyson & Renk, 2006). The university years, deemed one of the most intricate phases of personal development, align with the concluding stages of adolescence—a biologically and socially transformative transitional period (Özdel et al., 2002). Cleary et al. (2011) posit that university students confront mental health challenges due to financial constraints, separation from family, the transition to university life, and significant life changes. Each life alteration instigates an adaptation process. Throughout the adaptation to university life, individuals navigate multifaceted adjustments across personal, academic, and social dimensions (Baker & Siryk, 1984).

It is asserted that the adjustment to university predominantly involves the capacity to harness one's inherent potential and the nexus between success and academic acquisition (Anderson, 1994). Consequently, during this phase, university students are anticipated to undertake varied developmental tasks pertaining to the cultivation of a positive identity, the establishment of intimate connections, and the acclimatization to both social and academic spheres (Küçükarslan & Gizir, 2014). Potential challenges arising in emerging adulthood, heralded as the commencement of adulthood, can exert adverse effects on an individual's psychological well-being, familial relationships, professional engagement, economic pursuits, and educational standing

(Arnett, 2005). Within this framework, well-being emerges as a pivotal indicator for attaining both social and personal health (Ryff & Singer, 2008). Defined as a holistic concept encompassing overall happiness, life satisfaction, and positive mental health (Dursun, 2012), well-being and health are characterized as a continuous process wherein individuals orchestrate their lives to lead a qualitatively healthier existence. Notably, well-being is construed not merely as the absence of ailment but as the individual's capability to maintain a state of well-being even when confronted with discomfort symptoms (Memnun, 2006). Broadly speaking, the notion of well-being encapsulates an individual's realization of their own potential and life goals, alongside the significance of their relationship with the environment (Ryff & Keyes, 1995). Mental well-being is elucidated as a multifaceted construct encompassing psychological well-being and subjective well-being (Yılmaz, 2022). The World Health Organization (2004) delineates mental well-being as the ability to surmount life stressors, contribute to society commensurate with one's capacities, and possess awareness of one's abilities. Ryff (1989) contends that mental well-being incorporates facets such as self-acceptance, purpose in life, autonomy, environmental mastery, personal growth, and the cultivation of positive interpersonal bonds. Individuals exhibiting elevated mental health are characterized by heightened efficiency, creativity, robust interpersonal relationships, fortified immune systems, and extended longevity (Keldal, 2015). Conversely, another study indicates that individuals with heightened levels of mental well-being exhibit exceptional productivity and resilience, enjoy prolonged lifespans, excel in professional domains, and engage positively in interpersonal interactions (Lyubomirsky et al., 2005).

The enhancement of an individual's well-being is contingent upon fostering belief in one's abilities and self-confidence, thereby fostering a sense of peace, happiness, and the capacity to confront challenges in a resilient manner (Ağaoğlu, 2012). Recent advancements in the realm of social sciences underscore the importance of delving into factors influencing individuals' psychological well-being (Uyar, 2019). The escalating volume of studies dedicated to mental well-being highlights the comprehensive exploration of individuals' strengths alongside their vulnerabilities (Kararımak, 2006). Research on subjective well-being in the literature shows that there is a relationship between subjective well-being and different variables that are gender and age (Eryılmaz & Ercan, 2011), cognitive flexibility, mindfulness, hope (İmroğlu et al., 2021), personality traits (Diener & Lucas, 1999), happiness (Asıcı & İkiz, 2015), academic self-efficacy, grit, intrinsic motivation and psychological resilience (Yıldız & Kardaş, 2021), patience (Doğan, 2017), and self-esteem (Doğan & Eryılmaz, 2013).

Cognitive flexibility holds significant prominence in university life, facilitating young individuals' swift adaptation to their academic environment, fostering a contented existence, and effectively managing stressors (Özbay et al., 2012). The expeditious and facile mental adjustment of individuals to encountered changes is posited to contribute to their overall happiness and well-being. Consequently, the concept of cognitive flexibility, characterized by adept responses to novel stimuli and situations, assumes a central role in this context (Gündüz, 2013). Broadly defined as the ability to generate options, cognitive flexibility emerges as a crucial trait for cognitively adapting to dynamic situations, navigating the challenges posed by unstable conditions, and

effectively responding to changing circumstances (Pierce et al., 2006). Deak (2003) articulates cognitive flexibility as the capability to adapt to unforeseen and unfamiliar events, adeptly synthesizing concepts, and modifying established habits and knowledge to formulate new syntheses and action plans. Studies indicate a positive correlation between cognitive flexibility and various factors, including cognitive skills, belief in social competence, language proficiency, problem-solving aptitude, happiness, tolerance, and self-efficacy (Asıcı & İkiz, 2015; Çelikkaleli, 2014).

Henceforth, it can be asserted that cognitive flexibility holds pivotal significance in augmenting an individual's well-being and safeguarding mental health (Özhan & Boyacı, 2021). Existing literature underscores a correlation between students' well-being and academic accomplishments, emphasizing the influential roles played by both cognitive and non-cognitive factors in achieving success (Hoerr, 2012; Waters, 2011). Studies reveal a noteworthy association between the concept of well-being and the autonomous exertion of determined efforts to attain specific goals (Deci & Ryan, 2002; Sheldon, 2004). When delving into students' academic achievements, the personality trait of grit in achievement emerges prominently. Grit is essentially characterized as the fervor and determination to realize enduring objectives (Duckworth et al., 2007). Students endowed with grit can transform their long-term goals into life pursuits by surmounting adversities to actualize these aspirations (Singh & Jha, 2008). Beyond its impact on success, the study indicates that individuals with elevated levels of grit exhibit heightened happiness, increased positive emotions, greater optimism regarding future endeavors, and a heightened level of hope, with grit functioning as a protective character trait against depression (Proyer et al., 2014; Singh et al., 2008).

Sarıkan (2023) examined the relationship between emotional intelligence, cognitive flexibility and psychological well-being levels in a study. As a result of the study, it was seen that there was a moderate relationship between cognitive flexibility and psychological well-being levels, and a moderate relationship between emotional intelligence and psychological well-being levels. Yanar et al. (2023) concluded that mental well-being is a predictor of academic self-efficacy.

In a study conducted by Yıldız (2019) the primary objective was to investigate the interplay between academic self-efficacy, psychological resilience, intrinsic motivation, and grit in relation to well-being. The study also sought to delineate the extent of influence exerted by these variables on overall well-being. Study findings revealed a statistically significant positive correlation between psychological resilience, grit, self-efficacy, motivation, and well-being. While existing literature has explored individual studies on the levels of grit, cognitive flexibility, and mental well-being—each being variables in this study—a distinctive aspect lies in the absence of research that concurrently incorporates these three variables. Beyond the capacity to find effective solutions when confronted with challenges, this study assumes significance in fostering students' broader and alternative thinking, thereby enhancing efficiency, creativity, and the cultivation of improved interpersonal relationships.

### **Purpose of the Study**

The present study endeavors to scrutinize the intricate interplay among mental well-being, grit, and cognitive flexibility within the demographic of emerging adulthood university students. The primary objective is to discern the

existence of a significant relationship between the levels of grit, cognitive flexibility, and mental well-being among these university students.

Additionally, the study seeks to ascertain whether mental well-being levels in emerging adulthood university students exhibit significant variances based on factors such as academic grade, gender, academic achievement, and perceived socioeconomic status. Furthermore, the study aims to explore the predictive capacity of grit and cognitive flexibility levels in emerging adulthood university students in relation to their mental well-being levels.

In this context, the following hypotheses were developed:

H1: Do the mental well-being levels of emerging adulthood university students differ significantly according to their grade, gender, academic achievement and perceived socioeconomic status?

H2: Is there a relationship between mental well-being, grit and cognitive flexibility of emerging adulthood university students?

H3: Do grit and cognitive flexibility levels of emerging adulthood university students predict their mental well-being levels?

## Method

### Research Model

Utilizing a relational survey model, this study seeks to investigate the correlation between gratitude and hope levels and the levels of depression, anxiety, and stress experienced by university students in emerging adulthood. A relational survey model employed in this study aims to elucidate the existence and extent of the correlation or change between two or more variables (Karasar, 2023).

### Study Group

The study was conducted among students enrolled in various universities across Turkey, forming the study group. Data collection took place during the 2022-2023 academic year, encompassing students from diverse universities, departments, and classes. Participants in the study group were aged between 18 and 24 years, with a total of 493 individuals contributing to the study. Table 1 provides detailed demographic information concerning the study group.

**Table 1.** Descriptive statistical findings of the study group

Factor	Variable	n	%
Gender	Female	349	70.8
	Male	144	29.2
Age	18	40	8,1
	19	53	10,7
	20	102	20,6
	21	123	24,9
	22	96	19,4
	23	42	8,6
Class	24	38	7,7
	1	100	20.3
	2	174	35.3
	3	120	24.3
Grade point average	4	99	20.1
	0-2.49	66	13.4
	2.50-2.99	205	41.6
	3.00-3.49	180	36.5
Socio-economic level	3.50-4.00	42	8.5
	Low	51	10.3
	Middle	418	84.8
	High	24	4.9

## Data Collection Tools

In the study, the assessment of mental well-being scores relied on the "Warwick-Edinburgh Mental Well-Being Scale." Grit scores were determined through the application of the "Short Grit Scale," and cognitive flexibility scores were gauged using the same instrument, the "Cognitive Flexibility Inventory". The study also utilized the "Personal Information Form" to examine students' gender, age, university, grade, department, undergraduate GPA, and perceived socio-economic status.

### Personal Information Form

The personal information form to be included in the study includes information on the participant's gender, age, university attended, department, class, perceived socio-economic level and undergraduate GPA.

### Warwick-Edinburgh Mental Well-Being Scale

The scale, initially developed by Tennant et al. (2007) and later adapted into Turkish by Keldal (2015), comprises 14 items and follows a 5-point Likert scale. Higher scores on this scale indicate a heightened level of mental well-being, with scores ranging from 14 to 70. During the validity studies, participants' ages spanned from 16 to 70 years. Both Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) were employed to establish the construct validity of the scale. The data gathered from the Turkish sample affirmed the single-factor structure of the scale. The construct validity study revealed that the scale items converged into a single dimension, explaining 51% of the total variance. The calculated internal consistency coefficient of the scale was found to be .89, indicating a high level of reliability. In the present study, the Cronbach's Alpha internal consistency reliability coefficient for the scale was independently calculated and yielded a value of .90. These findings collectively suggest that the scale is a reliable and valid measurement tool for assessing mental well-being, as concluded by Keldal in 2015.

### Short Grit Scale

The scale, originally developed by Duckworth and Quinn (2009), underwent adaptation into Turkish by Haktanır et al. The original version comprises 8 items with a 5-point Likert scale and two sub-dimensions, namely consistency of interest and persistence in effort. The adapted Turkish version consists of 6 items, where the maximum score indicates extremely high resilience (5), and the minimum score represents no resilience at all (1). The adaptation study targeted university students. In its original English form, the scale demonstrated Cronbach alpha internal consistency coefficients ranging from .73 to .83. Confirmatory Factor Analysis (CFA) results for the 2-dimensional model of the original scale revealed fit index values, including  $\chi^2$  (19, N = 1,554) = 188.52,  $p < .001$ ; RMSEA = .076 (90%CI = .066-.086), CFI = .96. The scale emphasizes that higher scores indicate a greater level of grit. Upon conducting confirmatory factor analysis for the adapted Turkish version, the fit indices were calculated as ( $\chi^2$ /sd= 1.33, SRMR = .04, GFI = .98, CFI = .99, TLI = .99, RMSEA = .04,) respectively. The scale exhibited a strong fit in a unidimensional structure, with a Cronbach alpha internal consistency coefficient of .71 in this study.

### Cognitive Flexibility Inventory

The cognitive flexibility scale, developed by Dennis and Wal (2010) and validated by Sapmaz and Doğan (2013), consists of 20 items scored on a 5-point Likert scale. The scale assesses cognitive flexibility through three scoring types: total cognitive flexibility score, "control" subscale score, and "alternatives" subscale score, where higher scores signify increased cognitive flexibility. The reliability of the scale, examined via Cronbach's alpha and test-retest methods, yielded coefficients of .90 for the overall scale, .84 for the "control" subscale, and .90 for the "alternatives" subscale. Test-retest reliability coefficients were .75 for the overall scale, .78 for the "alternatives" sub-dimension, and .73 for the "control" sub-dimension. Confirmatory Factor Analysis (CFA) confirmed the two-factor structure, with satisfactory fit indices ( $\chi^2 = 406.98$ ,  $sd = 167$ ,  $\chi^2/sd$ ). This study underscores the scale's reliability and validity in assessing cognitive flexibility, as evidenced by a Cronbach alpha internal consistency coefficient of .90.

### Data Collection

In this study, the requisite permissions were secured for the administration of the data collection scales. The application of these tools was conducted among 493 university students actively enrolled during the 2022-2023 academic year.

### Data Analysis

In the data analysis phase, initial attention was given to missing values and outliers, followed by an examination of a normal distribution assumptions. The study assessed whether the groups exhibited normal distribution by examining skewness and kurtosis values. Skewness values ranged from -.226 to .209, and kurtosis values ranged from -.369 to -.210. The data were deemed to be normally distributed, falling within the range of -1.5 to +1.5 for both kurtosis and skewness, as suggested by Tabachnick and Fidell (2013). Consequently, parametric tests were employed. Descriptive statistical methods, including number, percentage, mean, and standard deviation, were applied for data evaluation. The independent variables encompassed grit, cognitive flexibility, and students' gender, age, university, grade, department, undergraduate grade point average, and perceived socioeconomic level. Mental well-being served as the dependent variable. Data analysis involved independent samples t-test and one-way analysis of variance (ANOVA) to discern the relationship between independent and dependent variables. Pearson Product Moment Correlation coefficient was utilized to determine variable relationships, while multiple linear regression analysis gauged the predictive capacity of variables

for mental well-being, grit, and cognitive flexibility. The analysis utilized the SPSS 25.0 package program, setting a significance level of .05.

### Findings

In this section, the findings obtained as a result of the study and explanations of these findings are given.

The lowest score of university students on the mental well-being scale was 27 and the highest score was 70. The mean value of the mental well-being subscale scores was 50.90. The lowest score obtained by university students from the Cognitive Flexibility Scale was 53 and the highest score was 100. The mean value of the cognitive flexibility scale score is 75.66. The lowest score obtained by university students from the Grit scale is 1.67 and the highest score is 5. The mean value of the grit scale score is 3.33. Skewness values ranged between -.226 and .209 and kurtosis values ranged between -.369 and -.210.

### Findings Related to Mental Well-Being Levels of University Students in Emerging Adulthood by Gender

It was examined whether there was a significant difference between the mental well-being levels of university students in emerging adulthood according to gender and for this purpose, a t-test for independent samples was conducted. The results are presented in Table 3.

In Table 3, no significant difference was found between the mental well-being levels of university students in terms of gender ( $t(491) = -.285$ ,  $p > .05$ ). The mean mental well-being score of female students ( $\bar{x} = 3.63$ ) and the mean mental well-being score of male students ( $\bar{x} = 3.65$ ). Since the mean scores are similar, it can be said that the difference in mental well-being is not due to gender.

### Findings Related to Mental Well-Being Levels of University Students in Emerging Adulthood According to Class Level

Research into whether there exists a significant difference in the mental well-being levels of university students in emerging adulthood based on their grade level was conducted using a one-way analysis of variance (ANOVA). The outcomes of this analysis are presented in Table 4.

Analysis of the Table 4 sets forth that 100 of 493 university students were the 1st year, 174 were the 2nd year, 120 were the 3rd year and 99 were the 4th year. When the arithmetic averages were compared, it was seen that the highest mean mental well-being score was in the 1st grade ( $\bar{x} = 3.74$ ) and the lowest mean mental well-being score was in the 2nd grade ( $\bar{x} = 3.56$ ).

**Table 2.** Descriptive statistics of the study group

Variables	$\bar{X}$	Ss	Minimum	Maximum	Skewness	Kurtosis
Mental Well-Being	3.64	.665	1.93	5	-.226	-.210
Cognitive Flexibility	3.78	.499	2.65	5	.209	-.369
Grit	3.33	.667	1.67	5	-.090	-.256

**Table 3.** T test results applied to mental well-being scores of university students in emerging adulthood by gender

Gender		n	$\bar{X}$	Ss	t	df	p	$n^2$
Mental well-being	Female	349	3.63	.664	-.285	491	.387	.028
	Male	144	3.65	.667				

**Table 4.** Descriptive statistics of mental well-being scores of university students in emerging adulthood by classes

	Class	n	$\bar{X}$	Ss
Mental Well-Being	1	100	3.74	.649
	2	174	3.56	.666
	3	120	3.58	.688
	4	99	3.72	.633
	Total	493	3.64	.665

**Table 5.** One-way analysis of variance results applied to mental well-being scores of university students in emerging adulthood according to their grades

		Sum of squares	Sd	Mean squares	F	P
Mental Well-Being	Between groups	3.216	3	1.072	2.448	.063
	Within groups	214.089	489	.438		
	Total	217.305	492			

**Table 6.** Descriptive statistics of mental well-being scores of university students in emerging adulthood according to academic achievement

		n	$\bar{X}$	Ss
Mental Well-Being	2.49-0	42	3.58	.655
	2.99-2.50	180	3.62	.699
	3.49-3.00	205	3.62	.644
	4.00-3.50	66	3.75	.640
	Total	493	3.64	.665

When Table 5 is analyzed, there is no significant difference in students' mental well-being scores in terms of grade level.

#### Findings on Mental Well-Being Levels of University Students in Emerging Adulthood as Per Their Academic Success

Research on whether there is a significant difference between the mental well-being levels of university students in emerging adulthood according to their academic achievement was conducted by one-way analysis of variance and the results are given in Table 6.

When Table 6 is analyzed, it is seen that 42 of 493 university students have a GPA between 2.49-0, 180 of them have a GPA between 2.99-2.50, 205 of them have a GPA between 2.49-3.00, and 66 of them have a GPA between 4.00-3.50. When the arithmetic averages were compared, it was seen that the highest mean mental well-being score was found in students with a GPA between 4.00 and 3.50 ( $x=3.75$ ) and the lowest mean mental well-being score was found in students with a GPA between 2.49 and 0 ( $x=3.58$ ).

When Table 7 is examined, there is no significant difference in terms of the students' mental well-being ( $F=.833$ ,  $p>.05$ ), since the p values were greater than 0.05.

#### Findings Regarding the Mental Well-Being Levels of University Students in Emerging Adulthood According to Their Perceived Socio-Economic Levels

Whether there is a significant difference between the mental well-being levels of university students in emerging adulthood according to their perceived socio-economic levels was examined by one-way analysis of variance and the results are given in Table 8.

When Table 8 is analyzed, it is seen that 51 out of 493 university students have a low perceived socio-economic level, 418 have a medium perceived socio-economic level and 24 have a high perceived socio-economic level. When the arithmetic averages were compared, it was seen that the highest mean mental well-being score was at the high socio-economic level ( $x=4.24$ ) and the lowest mean mental well-being score was at the low socio-economic level ( $x=3.30$ ).

**Table 7.** One-way analysis of variance results applied to mental well-being scores of university students in emerging adulthood according to their grade point average

		Sum of squares	Sd	Mean squares	F	p
Mental Well-Being	Between groups	1.105	3	.368	.833	.476
	Within groups	216.199	489	.442		
	Total	217.305	492			

**Table 8.** Descriptive statistics of mental well-being scores of university students in emerging adulthood according to perceived socio-economic level

		n	$\bar{X}$	Ss
Mental Well-Being	Low	51	3.30	.709
	Middle	418	3.64	.636
	High	24	4.24	.620
	Total	493	3.64	.665

**Table 9.** One-way variance analysis results applied to mental well-being scores of university students in emerging adulthood according to socio-economic levels

		Sum of squares	Sd	Mean squares	F	p	Significant difference	Effect size
Mental Well-Being	Between groups	14.715	3	7.357	17.795	.001	1<2<3, 1<2	.068
	Within groups	202.590	489	.413				
	Total	217.305	492					

\*\**p* < .01

**Table 10.** Pearson product moment correlation coefficients between variables

Variables	1	2	3
Mental Well-Being	1		
Cognitive Flexibility	.54***	1	
Grit	.46***	.52***	1

\*\*\**p* < .001

**Table 11.** Multiple linear regression analysis of mental well-being

<	R	R <sup>2</sup>	B	Standard error	β	t	p	Binary r	Partial r
Fixed	.58	.34	.756	.189		3.995	.000		
C. F.			.539	.57	.405	9.406	.000	.537	.391
Grit			.253	.043	.254	5.897	.000	.464	.257

Note: C.F.: Cognitive Flexibility.

When Table 9 is examined, a significant difference was found in terms of socio-economic level in the mental well-being ( $F=17.795, p<.05$ ) scores of the students as the *p* values were less than 0.05. the LSD test was conducted to determine the source of this difference. According to the LSD test results, the mental well-being levels of students reporting high socio-economic status were significantly higher than those of students reporting low and medium socio-economic status. In addition, the mental well-being levels of students reporting low socio-economic status were significantly lower than those of students reporting medium socio-economic status.

**Findings Regarding Whether There Is a Significant Relationship Between Cognitive Flexibility, Grit Levels and Mental Well-Being Levels of University Students in Emerging Adulthood**

In order to determine the correlation between the dependent and independent variables regarding whether there is a significant relationship between the mental well-being levels of university students in emerging adulthood and their grit and cognitive flexibility, pairwise correlation coefficients were examined and given in Table 10.

According to Table 10, there is a positive and moderately significant relationship between students' mental well-being scores and their cognitive flexibility scores ( $r=.54, p<.001$ ) and grit scores ( $r=.46, p<.001$ ).

**Findings on Whether Cognitive Flexibility and Grit Significantly Predict Mental Well-Being of University Students in Emerging Adulthood**

Multiple linear regression analysis was performed on the data to determine whether the mental well-being levels of university students in emerging adulthood were significantly predicted by cognitive flexibility and grit and the results are given in Table 11. When Table 11 is analyzed, it is seen that the model constructed according to the results of multiple regression analysis is significant ( $R=.579; R^2=.335; F=123,579; p<.01$ ). When the model was considered, it was seen that cognitive flexibility ( $B=.539, t=9.406, p<.01$ ) and grit ( $B=.253, t=5.897, p<.01$ ) variables, which contributed

significantly, predicted mental well-being significantly. According to this model, it can be stated that students' cognitive flexibility and grit scores explain 33.5% of their mental well-being scores.

**Discussion and Conclusion**

In this section, conclusions and discussions are provided according to the data obtained from the research. First, the findings on whether the mental well-being levels of emerging adulthood students differ according to demographic variables were discussed. Secondly, the findings on the relationship between mental well-being, cognitive flexibility and grit of emerging adulthood students were discussed. Finally, the findings regarding the prediction of cognitive flexibility and grit on mental well-being were discussed.

The study indicates that the mental well-being levels of university students in emerging adulthood do not exhibit significant differences based on gender. The study specifically found no noteworthy distinction in mental well-being levels between male and female participants, with observed mean scores closely aligned. This observation aligns with existing literature, including studies by Avşaroğlu (2017), Demirel & Özhan Elbaş (2019), Diener & Ryan (2009), Duman et al. (2020), Söner & Yılmaz (2018), Şahin (2018) and Üstün (2019) supporting the notion that participants' mental well-being levels do not significantly vary according to gender. However, in the literature, different results in favor of females regarding whether mental well-being levels change in terms of gender (Cenkseven, 2004; Cenkseven & Akbaş, 2007; Özden, 2014; Özen & Gülaçtı, 2012; Ryff, 1989; Ryff & Singer, 2008; Saföz-Güven, 2008; Wood et al., 1989) are also found. The high mental well-being of females can be explained by the fact that they are more open to communication and personal development and express their feelings and thoughts more (Kılınçoğlu, 2020). There are also different results (Fuller et al., 2004; Gündoğdu & Yavuzer, 2012; Gürkan & Gür, 2019; Haring et al., 1984; Tekkurşun Demir et al., 2018; Tennant et al., 2007) in favor of males regarding whether mental well-being levels change in terms of gender. The reason why mental well-being is higher in males can be explained by the fact that males have higher mental well-being scores than females and

that men are less emotional / more prone to logical reactions in the direction of human nature related to gender (Tunc, 2021). In the current study, it is evident that there is no substantial difference in mental well-being levels based on gender, emphasizing the similarity in expectations and responsibilities faced by both male and female university students. Common factors such as economic concerns, academic achievements, family planning, and employment pursuits contribute to the absence of a significant gender-related disparity in their mental well-being levels.

There was no significant difference in the mental well-being levels of university students in emerging adulthood according to their grade level. In the study, it was found that the highest mean mental well-being was found in the 1st grade students and the lowest mean mental well-being was found in the 2nd grade students. Literature includes a study (Özden, 2014) that supports the finding that the depression levels of first grade students are higher than in other grades. There are studies (Chao, 2012; Durand-Bush et al., 2015; Glozah, 2013; Gönener et al., 2017; Seyhan, 2013) in which mental well-being levels do not differ significantly in terms of grade level. According to the findings of this study, mental well-being levels did not differ significantly according to grade level. As a result of the study, the reason why there was no difference between grade level and mental well-being can be expressed as the fact that the subjects studied are not learned at a certain grade level or course curriculum; individuals can encounter them at any age according to their interests and personal development (Kılınçoğlu, 2020).

It was observed that the mental well-being levels of university students in emerging adulthood did not differ significantly according to their GPA. In the study, it was found that the highest mean mental well-being was found in students with a GPA of 4.00-3.50 and the lowest mean mental well-being was found in students with a GPA of 2.49- 0. Gönener et al. (2017) reported that there was no significant difference between mental well-being and perceived academic achievement in a study on the effect of university students' mental well-being levels on their happiness levels. According to the results of this study, although there was no statistically significant differentiation between mental well-being and GPA, it was observed that as students' mental well-being levels increased, their GPAs increased.

It was observed that the mental well-being levels of university students in emerging adulthood differed significantly according to socioeconomic level. In terms of socio-economic level, it was found that the highest mean mental well-being was found in students with a high socio-economic level and the lowest mean mental well-being was found in students with a low socio-economic level. There are studies supporting these findings in the literature (Biswas-Diener, 2002; Black & Krishnakumar, 1998; Cenkseven, 2004; Diener & İlhan, 2009; Kaplan et al., 2008; Kılınçoğlu, 2020; Mao, 2012; Özden, 2014; Zümbül, 2019).

As per the study's findings, a noteworthy correlation was identified between the mental well-being levels of university students in emerging adulthood and their cognitive flexibility. This outcome aligns with the results of a study conducted by Özhan and Boyacı (2021), where they similarly concluded that cognitive flexibility contributes to an elevated level of mental well-being. Supporting this, Demirbilek (2021) asserts that heightened cognitive flexibility corresponds to increased subjective well-being scores. Additionally, Bedir (2023) contends that enhancing cognitive control and flexibility in

athletes positively impacts their mental well-being. İmroğlu et al. (2021) emphasize that immediate adaptation to new situations, awareness of novel approaches, grit in the face of challenges, proactive problem-solving, and receptiveness to new information collectively contribute to an individual's improved well-being.

According to the findings of the study, a significant correlation was found between the mental well-being levels of university students in emerging adulthood and their grit levels. This finding of the study is similar to the findings of the study conducted by Kardaş and Yıldız (2020). In their study, they worked with 600 students, 300 females and 300 males, who were studying in high schools. As a result of this study, it was concluded that grit increases the level of mental well-being. In addition, they found that the grit dimension of grit was a significant predictor of well-being. Yıldız (2019) states that the more grit an individual shows, the healthier emotional life he/she will have, and that grit will bring success and success will increase the psychological well-being of individuals. Deci and Ryan (2002) and Sheldon (2004) state that there is an autonomous, determined effort to achieve certain goals and well-being. According to the findings obtained from the study, it was concluded that cognitive flexibility significantly predicted mental well-being. The findings of this study are in line with the findings of the study conducted by Fu and Chow (2016).

Based on the study's findings, it was determined that cognitive flexibility serves as a significant predictor of mental well-being. These results are consistent with the outcomes of a study conducted by Fu and Chow (2016). Supporting this notion, Özabacı and Parvizi (2022) propose that individuals with a high degree of cognitive flexibility enhance their autonomy by exploring various alternatives and improve the quality of their relationships by providing alternative explanations for human behaviors. Malkoç and Mutlu (2019) observe that individuals displaying high resilience often report elevated levels of psychological well-being. In line with this perspective, Fredrickson (1998) asserts that cultivating more flexible and less rigid thoughts is crucial for an individual to achieve psychological health, leading to a more satisfying life and relationships. Consistent with these views, Aydınay-Satan (2014) concludes that cognitive flexibility significantly influences subjective well-being.

According to the findings of the study, it was concluded that grit significantly predicted mental well-being. This finding of the study is in parallel with the findings of the study conducted by Akbag and Ümmet (2017). Ryan and Deci (2000) state that well-being and intrinsic motivation increase as an individual's autonomy, relationship and competence needs are met. Bayraktutar (2012) states that grit, that is, being determined, requires psychological well-being as well as intrinsic motivation. Falecki (2015) explains students' subjective well-being as showing a high level of grit, being satisfied with social relationships, being constantly positive, and using their maximum potential.

According to the findings obtained in the study and the reviews in the literature, it was seen that there was a positive and significant relationship between cognitive flexibility, grit and mental well-being variables and that cognitive flexibility and grit predicted mental well-being. From this point of view, despite the obstacles and difficulties encountered in the journey of life, it is thought that seeking new ways, producing alternatives, coping with difficult situations and the stress they bring will contribute to mental health. It can also be said that



striving towards certain goals in life and making a determined effort without giving up will make the individual feel good. As a result, in this study, it was found that cognitive flexibility and grit variables significantly predicted mental well-being. This situation indicates that individuals who show quick and easy mental adaptation to the changes faced by students in emerging adulthood and who constantly work to achieve their goals feel happier, experience more positive emotions and are more optimistic about their future lives.

### Recommendations

Qualitative studies can be conducted to reveal other variables affecting mental well-being, cognitive flexibility and grit and to provide in-depth data. According to the results of the research, it was found that the level of mental well-being will increase with the increase in cognitive flexibility level. Psychoeducational studies can be implemented for university students to increase cognitive flexibility.

There are few studies in the literature that address the variables of mental well-being and academic achievement. The relationship between mental well-being and academic achievement can be investigated. This research was conducted without any provincial limitation. The research can also be conducted in a region or a single province. In this study, mental well-being levels in emerging adulthood, perseverance and cognitive flexibility were addressed together. Similar studies can be conducted with high school students, adults or children in addition to university students.

### Author Contributions

This study is derived from Ayşe Deniz master's thesis entitled "Investigation of Mental Well-Being Levels in Emerging Adulthood in terms of Perseverance and Cognitive Flexibility", completed under the supervision of Dr. Nezir Ekinci. All authors have read and approved the final version of the study.

### Ethical Declaration

The purposes and procedure of the current study were granted approval from the ethical committee of the Karamanoğlu Mehmetbey University. (Session Date: 29 November 2022; Session Number: 08-2022/226).

### Conflict of Interest

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

### References

- Ağaoğlu, C. (2012). *Cinsiyetleri farklı üniversite ikinci sınıf öğrencilerinin iyilik hali boyutlarına göre öz yeterlik ve sürekli öfkelerinin incelenmesi*. Yayınlanmamış Yüksek Lisans Tezi, Mersin Üniversitesi, Sosyal Bilimler Enstitüsü, Mersin.
- Akbağ, M., Ümmet, D. (2017). Predictive role of grit and basic psychological needs satisfaction on subjective well-being for young adults. *Online Submission*, 8(26), 127-135.
- Anderson, L. E. (1994). A new look at an old construct: Cross-cultural adaptation. *International Journal Of Intercultural*, 18(3), 293-328. [https://doi.org/10.1016/0147-1767\(94\)90035-3](https://doi.org/10.1016/0147-1767(94)90035-3)
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55(5), 469.

- <https://doi.org/10.1037/0003-066X.55.5.469>
- Arnett, J. J. (2005). The developmental context of substance use in emerging adulthood. *Journal of drug issues*, 35(2), 235-254. <https://doi.org/10.1177/002204260503500202>
- Asıcı, E., İkiz, F. (2015). Mutluluğa giden bir yol: Bilişsel esneklik. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 1(35), 191-211.
- Avşaroğlu, Z. (2017). *Bir dönem boyunca verilen pozitif psikoloji dersinin öğrencilerin mental iyi oluş ve kişisel iyi oluşlarına olan etkisinin incelenmesi*. Yüksek Lisans Tezi, Üsküdar Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.
- Baker, R. W., Siryk, B. (1984). Measuring adjustment to college. *Journal of counseling psychology*, 31(2), 179. <https://doi.org/10.1037/0022-0167.31.2.179>
- Bayraktutar, M. (2012). Hz. Peygamber'in örnekliği bağlamında olaylar karşısındaki azim ve kararlılığı. *Ekev Akademi Dergisi*, 16(50), 71-87.
- Bedir, D. (2023). Sporcularda bilişsel kontrol ve bilişsel esneklik becerilerinin mental iyi oluş üzerine etkisinin incelenmesi. *Research in Sport Education and Sciences*, 25(1), 26-29. <https://doi.org/10.5152/JPESS.2023.22063>
- Benn, I., Harvey, J. E., Gilbert, P. ve Irons, C. (2005). Social rank, interper-sonal trust and recall of parental rearing in relation to homesickness. *Personal Individual Difference*, (38), 1813-1822. <https://doi.org/10.1016/j.paid.2004.11.010>
- Black, M. M., & Krishnakumar, A. (1998). Children in low-income, urban settings: Interventions to promote mental health and well-being. *American Psychologist*, 53(6), 635. <https://doi.org/10.1037/0003-066X.53.6.635>
- Burke, C. S., Pierce, L. G., & Salas, E. (Eds.). (2006). *Understanding adaptability: A prerequisite for effective performance within complex environments*. Emerald Group Publishing.
- Cenkseven, F. (2004). *Üniversite öğrencilerinde öznel ve psikolojik iyi olmanın yordayıcılarının incelenmesi*. Doktora Tezi, Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü, Adana.
- Cenkseven, F., & Akbaş, T. (2007). Üniversite öğrencilerinde öznel ve psikolojik iyi olmanın yordayıcılarının incelenmesi. *Turkish Psychological Counseling and Guidance Journal*, 3(27), 43-65. <https://doi.org/10.17066/pdrd.57116>
- Chao, R. C. L. (2012). Managing perceived stress among college students: The roles of social support and dysfunctional coping. *Journal of College Counseling*, 15(1), 5- 21. <https://doi.org/10.1002/j.21611882.2012.00002.x>
- Cleary, M., Walter, G., Jackson, D. (2011). "Not always smooth sailing": Mental health issues associated with the transition from high school to college. *Issues in Mental Health Nursing*, 32(4), 250-254. <https://doi.org/10.3109/01612840.2010.548906>
- Çelikkaleli, Ö. (2014). Bilişsel Esneklik Ölçeği'nin geçerlik ve güvenilirliği. *Eğitim ve Bilim Dergisi*, 39 (176), 339-346. <http://dx.doi.org/10.15390/EB.2014.3466>
- Deak, G. O. (2003). The development of cognitive flexibility and language abilities. *Advances in Child Development and Behavior*, 31, 271-327. [http://dx.doi.org/10.1016/S0065-2407\(03\)31007-9](http://dx.doi.org/10.1016/S0065-2407(03)31007-9)
- Deci, E. L. ve Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester: University of Rochester Press.



- Demirel, Y., Özhan Elbaş, N. (2019). Sağlık hizmetleri meslek yüksekokulu öğrencilerinin kendini ayarlama düzeyleri ile mental iyi oluş düzeyleri arasındaki ilişkinin incelenmesi. *Journal of Traditional Medical Complementary Therapies*, 2(3), 118-129. <https://www.doi.org/10.5336/jtracom.2019-72277>
- Demirbilek, H. (2021). *Lise öğrencilerinde bilişsel esneklik, öznel iyi oluş, affetme ve öz-şefkat arasındaki ilişkilerin yapısal eşitlik modellemesi ile incelenmesi*. Yüksek Lisans Tezi. Van Yüzüncü Yıl Üniversitesi, Eğitim Bilimleri Enstitüsü, Van.
- Dennis, J. P., Vander Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive therapy and research*, 34(3), 241-253. <https://psycnet.apa.org/doi/10.1007/s10608-009-9276-4>
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social Indicators Research*, 57, 119-169. <https://doi.org/10.1023/A:1014411319119>
- Diener, E., & Lucas, R. E. (1999). 11 personality and subjective well-being. In *Well-being: Foundations of hedonic psychology*, Eds: D. Kahneman, E. Diener, N. Schwarz, p.213-229. Russel Sage Foundation.
- Diener, E., Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal Of Psychology*, 39(4), 391-406. <https://doi.org/10.1177/008124630903900402>
- Doğan, A., Cebioglu, S. (2011). Beliren yetişkinlik: Ergenlikten yetişkinliğe uzanan bir dönem. *Türk Psikoloji Yazıları*, 14(28), 11.
- Doğan, T., & Eryılmaz, A. (2013). Benlik saygısı ve öznel iyi oluş arasındaki ilişkilerin incelenmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 33(33), 107-117. <https://doi.org/10.9779/PUJE434>
- Doğan, M. (2017). Karakter gücü olarak sabır ve psikolojik iyi oluş ilişkisi. *The Journal of Happiness & Well-Being*, 5(1), 134-153.
- Duckworth, A.L., Peterson, C., Matthews, M.D., Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087- 110. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the short grit scale. *Journal of personality assessment*, 91(2), 166-174. <https://doi.org/10.1080/00223890802634290>
- Duman, N., Göksu, P., Köroğlu, C., Talay, A. (2020). Üniversite öğrencilerinde mental iyi oluş ile psikolojik dayanıklılık ilişkisi. *Yaşam Becerileri Psikoloji Dergisi*, 4(7), 9-17. <https://doi.org/10.31461/ybpd.668737>
- Durand-Bush, N., McNeill, K., Harding, M., & Dobransky, J. (2015). Investigating stress, psychological well-being, mental health functioning, and self-regulation capacity among university undergraduate students: Is this population optimally functioning?. *Canadian Journal of Counselling and Psychotherapy*, 49(3) 253-274.
- Dursun, P. (2012). *The role of meaning in life, optimism, hope, and coping styles in subjective well-being*. Unpublished Doctoral Dissertation, Middle East Technical University, Ankara, Turkey.
- Dünya Sağlık Örgütü (2004). Promoting Mental Health; Concepts Emerging Evidence and Practice: *Summary Report*, Geneva: WHO.
- Dyson, R., & Renk, K. (2006). Freshmen adaptation to university life: Depressive symptoms, stress, and coping. *Journal of clinical psychology*, 62(10), 1231-1244. <https://doi.org/10.1002/jclp.20295>
- Eroğlu, M., Gündoğdu, H. (2021). Beliren yetişkinlik dönemindeki bireylerin kişilik özelliklerinin incelenmesi. *Uluslararası Sosyal Bilgilerde Yeni Yaklaşımlar Dergisi*, 5(1), 278-293. <https://doi.org/10.38015/sbyy.946518>
- Falecki, D. (2015). Teacher stress and wellbeing literature review. *Teacher Wellbeing*. Retrieved from <http://www.teacher-wellbeing.com.au/wpcontent/uploads/Teacher-Stress-Wellbeing-Literature-Review-2015.pdf>
- Fredrickson, B. L. (1998). What good are positive emotions?. *Review Of Ggeneral Psychology*, 2(3), 300-319. <https://doi.org/10.1037/1089-2680.2.3.30>
- Fu, F., & Chow, A. (2017). Traumatic exposure and psychological well-being: The moderating role of cognitive flexibility. *Journal of Loss and Trauma*, 22(1), 24-35. <https://doi.org/10.1080/15325024.2016.1161428>
- Fuller, T. D., Edwards, J. N., Vorakitphokatorn, S., & Sermisri, S. (2004). Gender differences in the psychological well-being of married men and women: An asian case. *Sociological Quarterly*, 45(2), 355-378. <https://doi.org/10.1111/j.1533-8525.2004.tb00016.x>
- Glozah, F. N. (2013). Effects of academic stress and perceived social support on the psychological wellbeing of adolescents in Ghana. *Open Journal of Medical Psychology*, 2013. DOI:10.4236/ojpm.2013.24022
- Gönener, A., Öztürk, A., Yılmaz, O. (2017). Kocaeli üniversitesi spor bilimleri fakültesi öğrencilerinin mental (psikolojik) iyi olma düzeylerinin mutluluk düzeylerine etkisi. *Sportif Bakış: Spor ve Eğitim Bilimleri Dergisi*, 4(1), 44-55.
- Gündoğdu, R., & Yavuzer, Y. (2012). Öğretmen adaylarının öznel iyi oluş ve psikolojik ihtiyaçlarının demografik değişkenlere göre incelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 1(23), 115-131.
- Gündüz, B. (2013). Bağlanma stilleri, akılcı olmayan inançlar ve psikolojik belirtilerin bilişsel esnekliği yordamadaki katkıları. *Kuram ve Uygulamada Eğitim Bilimleri*, 13(4), 2071-2085.
- Gürhan, U., & Selen, Gür. (2019). Genç yetişkinlerde mental iyi oluş düzeyinin depresyonla ilişkisinin bazı değişkenlere göre incelenmesi. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi*, 6(6), 516-536.
- Haring, M., Stock, W. A., ve Okun, M.A. (1984). A research synthesis of gender and social class as correlates of subjective well-being. *Human Relations*, 37, 645-657. <https://doi.org/10.1177/001872678403700805>
- Hoerr, T.R. (2012). Hoerr, T.R. (2012). Fostering grit: how do I prepare my students for the real world? Alexandria. VA: ASCD.
- İlhan, T. (2009). *Üniversite öğrencilerinin benlik uyumu modeli: Yaşam amaçları, temel psikolojik ihtiyaçları ve öznel iyi oluş*. Yayımlanmamış Yüksek Lisans Tezi. Gazi Üniversitesi, Ankara.
- İmroğlu, A., Demir, R., & Murat, M. (2021). Psikolojik iyi oluşun yordayıcıları olarak bilişsel esneklik, bilinçli farkındalık ve umut. *Elektronik Sosyal Bilimler Dergisi*, 20(80), 2037-2057. <https://doi.org/10.17755/esosder.859555>
- Kaplan, G. A.; Shema, S. J. ve Legte, C. M. A. (2008). "Socioeconomic determinants of psychological well-being: the role of income, income change, and income

- sources during the course of 29 years." *Annals of epidemiology*, 18(7), 531-537.  
<https://doi.org/10.1016/j.annepidem.2008.03.006>
- Kararınmak, Ö. (2006). Psikolojik sağlık, risk faktörleri ve koruyucu faktörler. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 3(26), 129-142.  
<https://doi.org/10.17066/pdrd.22262>
- Karasar, N. (2023). *Bilimsel araştırma yöntemi* (38. baskı). Nobel Yayınevi.
- Keldal, G. (2015). Warwick-Edinburgh mental iyi oluş ölçeği'nin Türkçe formu: Geçerlik ve güvenilirlik çalışması. *The Journal of Happiness & Well-Being*, 3(1), 103-115. <https://www.doi.org/10.17755/esosder.432708>
- Kılınçoğlu, B. (2020). *Üniversite öğrencilerinde bilinçli farkındalık ile mental iyi oluşun incelenmesi*. Yayınlanmamış Yüksek Lisans Tezi, Başkent Üniversitesi, Sağlık Bilimleri Enstitüsü, Ankara.
- Küçükarslan, M., & Gizir, C. A. (2014). Üniversite öğrencilerinin romantik ilişki inançlarının çeşitli değişkenler açısından incelenmesi. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 5(42), 148-159.  
<https://doi.org/10.17066/pdrd.71651>
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of general psychology*, 9(2), 111-131.  
<https://doi.org/10.1037/1089-2680.9.2.111>
- Mao, Hsiao., Chen, Chien-Yu., Hsieh, An-Tien. (2012). Role ambiguity, employee gender and workplace friendship. Montana: Ammons Scientific. *Psychological Reports*, 110(3), 719-730.  
<https://doi.org/10.2466/01.07.21.PR0.110.3.719-730>
- Özbay, Y., Palancı, M., Kandemir, M., & Çakır, O. (2012). Üniversite öğrencilerinin öznel iyi oluşlarının duygusal düzenleme, mizah, sosyal öz-yeterlik ve başa çıkma davranışları ile yordanması. *Türk Eğitim Bilimleri Dergisi*, 10(2), 325-345.
- Özdel, L., Bostancı, M., Özdel, O., & Oğuzhanoğlu, N. K. (2002). Üniversite öğrencilerinde depresif belirtiler ve sosyodemografik özelliklerle ilişkisi. *Anadolu Psikiyatri Dergisi*, 3(3), 155-16
- Özden, K. (2014). *Üniversite öğrencilerinde psikolojik iyi oluşun psikososyal yordayıcılarının sosyal bilişsel kariyer kuramı açısından incelenmesi*. Yüksek Lisans Tezi. İstanbul Arel Üniversitesi, Sosyal Bilimler Enstitüsü, Psikoloji Anabilim Dalı.
- Özen, Y., & Gülaçtı, F. (2012). Öğretmen adaylarının sosyal beceri ve psikolojik iyi oluş düzeylerinin incelenmesi. *Uluslararası Hakemli Akademik ve Beşerî Bilimler Dergisi*, 1(1).
- Özhan, M. B., Boyacı, M. (2021). Üniversite öğrencilerinde bilişsel esneklik ve iyi oluş (perma) arasındaki ilişki: Bir yapısal eşitlik modellemesi. *Atatürk Üniversitesi Edebiyat Fakültesi Dergisi*, (67), 346-362.
- Parvizi, G., & Özabacı, N. (2022). Üniversite öğrencilerinin psikolojik iyi oluş ve yaşam doyumlarının yordayıcısı olarak bilişsel esnekliğin rolü. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 13(1), 65-81.
- Proyer, R. T., Gander, F., Wellenzohn, S., ve Ruch, W. (2014). Positive psychology interventions in people aged 50–79 years: long-term effects of placebo-controlled online interventions on well-being and depression. *Aging & mental health*, 18(8), 997-1005.  
<https://doi.org/10.1080/13607863.2014.899978>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.  
<https://doi.org/10.1037/0003066X.55.1.68>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal Of Personality and Social Psychology*, 57(6), 1069.  
<https://doi.org/10.1037/0022-3514.57.6.1069>
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of happiness studies*, 9, 13-39.  
<https://doi.org/10.1007/s10902-006-9019-0>
- Saföz Güven, İ. G. (2008). *Fen ve genel lise öğrencilerinin cinsiyet ve sosyometrik statülerine göre öznel iyi oluş düzeyleri, genel sağlık örüntüleri ve psikolojik belirti türleri*. Yüksek Lisans Tezi, Sosyal Bilimler Enstitüsü. Çukurova Üniversitesi, Adana.
- Sapmaz, F., & Doğan, T. (2013). Bilişsel esnekliğin değerlendirilmesi: Bilişsel Esneklik Envanteri Türkçe versiyonunun geçerlik ve güvenilirlik çalışmaları. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 46(1), 143-161.
- Sarıkan, S. (2023). *Üniversite öğrencilerinin duygusal zekâ, bilişsel esneklik ve psikolojik iyi oluş düzeyleri arasındaki ilişkinin incelenmesi*. Doktora Tezi, Necmettin Erbakan Üniversitesi, Eğitim Bilimleri Enstitüsü, Konya.
- Satan, A. A. (2014). Dini inanç ve bilişsel esneklik düzeylerinin öznel iyi oluş düzeyine olan etkisi. *21. Yüzyılda Eğitim ve Toplum Eğitim Bilimleri ve Sosyal Araştırmalar Dergisi*, 3(7), 56-74.
- Seyhan, B. Y. (2013). *Üniversite öğrencilerinin inanç tarzları, denetim odağı ve psikolojik iyi olma hali arasındaki ilişkiler*. Yayınlanmamış Doktora Tezi, Sosyal Bilimler Enstitüsü, Ankara Üniversitesi.
- Sheldon, K. M. (2004). *Optimal human being: An integrated multi-level perspective*. Psychology Press.
- Singh, K., & Jha, S. D. (2008). Positive and negative affect, and grit as predictors of happiness and life satisfaction. *Journal of the Indian Academy of Applied Psychology*, 34(2), 40-45.
- Söner, O., & Yılmaz, O. (2018). Lise öğrencilerinin sosyal medya bağımlılığı ve psikolojik iyi oluş düzeyleri arasındaki ilişki. *Ufuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 7(13), 59-73.
- Şahin, A. (2018). *Üniversite öğrencilerinde bilinçli farkındalık ile yaşam doyumunu ve iyi oluş arasındaki ilişkiler*. Yüksek Lisans Tezi, Üsküdar Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Tekkurşun Demir, G. T, Namlı, S., Hazar, Z., Türkeli, A., & Cicioğlu, H. (2018). Bireysel ve takım sporcularının karar verme stilleri ve mental iyi oluş düzeyleri. *CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi*, 13(1).
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The warwick-edinburgh mental well-being scale: Development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 50-63.  
<https://www.doi.org/10.1186/1477-7525-5-63>
- Tunç, E. (2021). Covid-19 pandemi döneminde öğretmenlerin manevi kaynakları ve mental iyi oluşları. *Türk Manevi Danışmanlık ve Rehberlik Dergisi*, (4), 75-96.



- Uyar, M. (2019). *Beliren yetişkinlik dönemindeki bireylerin psikolojik iyi oluş düzeylerini yordamada bağlanma tarzları ve bilişsel duygu düzenlemenin rolünün incelenmesi*. Yüksek Lisans Tezi, Maltepe Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Üstün, S. (2019). *Sosyal bir topluluk olan amatör çoksesli kadrolarda yer alan bireylerin mental iyi oluş durumları*. Yüksek Lisans Tezi, Sakarya Üniversitesi, Sosyal Bilimler Enstitüsü, Sakarya.
- Waters, L. (2011). A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist*, 28(2), 75-90.  
<https://doi.org/10.1375/aedp.28.2.75>
- Wood, W., Rhodes, N., Whelan, M. (1989). Sex differences in positive well-being: A consideration of emotional style and marital status. *Psychological Bulletin*, 106(2), 249-264.  
<https://doi.org/10.1037/0033-2909.106.2.249>
- Yanar, S., Soyer, A., & Güngör, N. B. (2023). Mental iyi oluşun akademik özyeterliğe etkisi. *Journal of Rol Sport Sciences*, 487-500.  
<https://doi.org/10.5281/zenodo.10030214>
- Yıldız, F. N. (2019). *Ergenlerde öz-yeterlik, motivasyon, azim ve psikolojik dayanıklılığın iyi oluş ile ilişkisi: Bir model sınaması*. Yüksek Lisans Tezi, Van Yüzüncü Yıl Üniversitesi, Eğitim Bilimleri Enstitüsü, Van.
- Yıldız, F. N. Y., & Kardaş, F. (2021). Ergenlerde akademik öz-yeterlik, içsel motivasyon, azim ve psikolojik dayanıklılığın iyi oluş ile ilişkisinin incelenmesi. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, 18(1), 1073-1099. <https://doi.org/10.33711/yyuefd.957391>
- Yılmaz, S. (2022). *Psikolojik danışmanların mental iyi oluş düzeyleri ile psikolojik dayanıklılık düzeyleri arasındaki ilişkide umudun aracı rolü*. Yüksek Lisans Tezi, Gaziantep Üniversitesi, Eğitim Bilimleri Enstitüsü, Gaziantep.
- Zümbül, S. (2019). Öğretmen adaylarının psikolojik iyi oluş düzeylerinde bilinçli farkındalık ve affetmenin yordayıcı rolleri. *Ege Eğitim Dergisi*, 20(1), 20-36.  
<https://doi.org/10.12984/eggefd.481963>

## Relationships Between the Dark Triad and Schwartz's Circumplex of Values on High School Students Lise Öğrencilerinde Karanlık Üçlü ve Schwartz'ın Değerler Çemberi Arasındaki İlişkiler

Mehmet Ertuğrul Uçar<sup>1</sup>  Bilge Konal<sup>2</sup> 

<sup>1</sup> PhD, Aksaray University, Faculty of Education, Aksaray, Türkiye

<sup>2</sup> PhD Student, Eskişehir Anadolu University, Graduate School, Eskişehir, Türkiye

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#### \*Sorumlu Yazar

Mehmet Ertuğrul Uçar

Aksaray Üniversitesi, Eğitim  
Bilimleri Fakültesi, Rehberlik ve  
Psikolojik Danışmanlık Ana  
Bilim Dalı

[ertugrulucar@aksaray.edu.tr](mailto:ertugrulucar@aksaray.edu.tr)

**Abstract:** Values are abstract ideals to be achieved and serve as criteria for individual behavior, choices, and self-evaluation. Schwartz defined 10 universal values in his Theory of Values and created four value groups that group together related values. The Dark Triad consists of negative behaviors such as using others for personal gain, egocentrism, cheating, and manipulating others. The purpose of this research is to test whether Machiavellianism, psychopathy, and narcissism, which are the dimensions of the Dark Triad, predict Schwartz's value groups of conservatism, self-enhancement, openness to change, and self-transcendence through the implicit variable of the Dark Triad. A MIMIC model was developed and tested for this purpose. The MIMIC model is used to determine whether a large number of observed variables predict a latent variable and whether this latent variable causes a large number of cases. The results of the research indicated that Machiavellianism, psychopathy and narcissism predicted the values of power, success and hedonism in the self-enhancement value group through the Dark Triad implicit variable. It was also found to negatively predict the values of universality, benevolence and conformity. Notably, the Dark Triad and its dimensions do not predict conservatism and openness to change.

**Keywords:** Values, machiavellianism, narcissism, psychopathy

**Öz:** Değerler; bireylerin davranışlarına, seçimlerine ve kendilerini değerlendirmelerine ölçüt olan, ulaşılmak istenen soyut ideallerdir. Schwartz, Değerler Kuramı'nda 10 evrensel değer tanımlayarak birbiri ile ilişkili değerlerin gruplandırılmasını içeren dört değer grubu oluşturmuştur. Son yıllarda alan yazında bir kişilik özelliği olarak kavramlaştırılan Karanlık Üçlü; bireysel çıkarlar için diğerlerini kullanma, benmerkezcilik, hilecilik, diğerlerini manipüle etme gibi olumsuz davranış örüntülerinden oluşmaktadır. Bu araştırmanın amacı, Karanlık Üçlü'nün boyutları olan Makyavelizm, psikopati ve narsisizmin karalık üçlü örtük değişkeni üzerinden Schwartz'ın muhafazakarlık, kendini güçlendirme, gelişime açıklık ve kendini aşma değer gruplarını yordayıp yordamadığını araştırmaktır. Bu amaçla MIMIC model oluşturulup test edilmiştir. MIMIC model, çok sayıda gözlenen değişkenin örtük bir değişkeni yordayıp yordamadığı ve bu örtük değişkenin çok sayıda olguya neden olup olmadığını belirlemek amacıyla kullanılmaktadır. Araştırma sonuçlarına göre Makyavelizm, psikopati ve narsisizm; karalık üçlü örtük değişkeni üzerinden kendini güçlendirme değer grubu içinde yer alan güç, başarı ve hazcılık değerlerini yordamaktadır. Diğer yandan araştırmada Makyavelizm, psikopati ve narsisizmin; karalık üçlü örtük değişkeni üzerinden kendini aşma değer grubu içinde yer alan evrensellik, iyilikseverlik ve uyuma değerlerini negatif yönde yordadığı da bulgulanmıştır. Karanlık üçlü ve karalık üçlünün boyutları ise muhafazakarlık ve gelişime açıklık değer gruplarını yordamamaktadır.

**Anahtar Kelimeler:** Değerler, makyavelizm, narsisizm, psikopati

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### Introduction

Individuals' attitudes and behaviors are important in establishing harmonious social relations and developing healthy relationships with their environment. Personality is one of the primary structures that affects behavioral patterns and predicts conformity in social relationships and the feeling of well-being. Consequently, personality traits are considered one of the most significant predictors of behavioral tendencies. This aspect of the concept of personality has rendered it one of the most extensively researched concepts in the field of psychology. In particular, studies of personality conducted between the 1950s and the 2000s focused on the positive characteristics of individuals. However, subsequent studies conducted after the year 2000 have demonstrated that malevolent basic personality traits are increasingly being employed to explain negative behavioral patterns. These studies, which emphasize the functional aspect of personality, demonstrate that some individuals prioritize their interests to a greater extent than others and tend to utilize behaviors perceived as negative within the social context (Jonason & Webster, 2010). The studies define new personality traits that are associated with tendencies to use behavioral patterns that

are considered negative (Jonason & Webster, 2010). Consequently, these personality traits are not aligned with ethical and moral values (Kowalski, 2001) and are indicative of the negative aspects of personality. The aforementioned dark side of the personality is explained by a number of behavioral patterns, including superficial relationships in individuals, tendencies to use others for gain, self-centredness, being power-oriented, social behaviors that can be considered incompatible, negative and antipathetic, tendencies to manipulate others, lying, and cheating. In this context, three basic personality traits that are predicted to be found in human nature are conceptualized: The following three traits have been identified as being predictive of human nature: Machiavellianism, narcissism, and psychopathy (Paulhus & Williams, 2002).

The Machiavellian personality trait is characterized by a tendency to maintain emotional distance from others, a high level of pragmatism, and the use of any means necessary to achieve individual goals (Robbins, 1998). Consequently, individuals exhibiting Machiavellian traits are those who act in a result-oriented manner. They are primarily concerned with the benefit dimension of their decisions, rather than the emotional dimension (Zeigler-Hill & Vonk, 2015).

Conversely, these individuals are not reluctant to disregard moral principles and compromise social relationships in pursuit of their objectives. Individuals prone to Machiavellianism are defined by O'Connor & Athota (2013) as individuals who prioritize their interests above all else, use others to achieve their goals, and emotionally exploit others with manipulative behaviors. These individuals with high impulse control are simultaneously characterized by a lack of emotional warmth, a high level of ambition, and a tendency to manipulate their environment (Gable & Topol, 1991; Geis & Moon, 1981; Jones & McIlwan, 2011; Paulhus, 2009). Nevertheless, these behavioral tendencies do not imply that these individuals are anti-social (Ferris & King, 1996). Conversely, the behaviors exhibited by individuals prone to Machiavellianism are related to their efforts to be perceived as flawless by others. Conversely, this robust stance is an indication of their attempt to conceal their inner vulnerability (Sherry et al., 2006).

For individuals prone to Machiavellianism, behavioral patterns such as lying, cheating, and emotional exploitation, which are not tolerated by society, are considered normal because the most important thing for them is to achieve their own goals (Jones & Paulhus, 2009). Conversely, individuals with Machiavellian tendencies, who are aware that these behaviors are not socially acceptable, tend to employ manipulation by analyzing the negative consequences and potential risks associated with such actions (Bogart et al., 1970). For these individuals, engaging in negative behaviors such as cheating and lying is a normal behavioral pattern (Murdock, 1997) because they perceive the world as a bad place and people as inherently bad. The belief, held by these individuals, that any path to victory against the enemy is acceptable motivates them in this context (Satici, 2019). Machiavellian individuals are able to purify their behavior of emotional influences and follow a logical line while advancing towards their goals. In this context, they consciously benefit from friendships and emotional relationships while directing others, and even do not hesitate to use the emotions of others (Grams & Rogers, 1990; Vangelisti et al., 1991). Consequently, they attempt to influence others, alter circumstances, and engage in deceptive practices without disclosing their true intentions (Özsoy & Ardiç, 2017). Research indicates that individuals with high levels of Machiavellian personality traits exhibit greater personal control over their environment and a higher propensity for risk-taking than those with low levels of Machiavellian personality traits (Allsopp et al., 1991).

In general, individuals with a high level of Machiavellian traits display characteristics such as cunningness, suspicion, oppressiveness, coldness, and a lack of moral values (Ali et al., 2009). Additionally, they are perceived to possess the capacity to devise long-term strategic plans and to prioritize the acquisition of power in interpersonal social competition (Kareshki, 2011; Rauthmann, 2012). For those who machiavellian individuals, the misfortune of others is also a desired outcome. Occasionally, their success is not sufficient to satisfy them. In this context, it is also observed that others employ deceptive tactics to thwart their success (Wilson et al., 1996).

Previously, psychopathy was evaluated as a personality disorder with clinical cases documented in the psychology literature (Jakobwitz & Egan, 2006). However, in later years, it was postulated that psychopathy, as a personality trait, could also manifest to some extent in individuals without

psychopathic tendencies (Cleckley, 1976). When psychopathy is considered a dimension of the Dark Triad, it is defined as a personality trait (subclinical) (Aghababaei & Błachnio, 2015). In summary, the psychopathy personality trait is characterized by several dominant features, including impulsivity, harmfulness, violence, exploitativeness, insensitivity, and immorality (Çözüm-Yaşlıoğlu & Atılğan, 2018; Özsoy & Ardiç, 2017). Consequently, those with psychopathic personality traits are inclined to belittle and ridicule others, lack remorse, be insensitive, exhibit aggressive behavior, be impatient, timid and incompatible, and lack loyalty. Those with a lack of concern for human relations frequently encounter difficulties in forming and maintaining relationships with others. Individuals with psychopathic personality traits tend to have superficial relationships and are unable to demonstrate commitment to others (Özsoy & Ardiç, 2017).

The personality trait of psychopathy is characterized by high impulsivity and low empathy. It is argued that high impulsivity is the most important dynamic of this trait (Paulhus & Williams, 2002). The term "impulsivity" encompasses a range of characteristics, including excitement, pleasure, novelty seeking, risk-taking, carelessness, impatience, and a low estimation of the probability of harm. Additionally, individuals with high levels of impulsivity tend to engage in behavior that is inappropriate for the environment or excessively risky, inadequately planned and generally leads to undesirable consequences (Yazıcı & Yazıcı, 2010). In this context, it is postulated that psychopaths tend to exhibit high levels of impulsivity and make sudden and decisive decisions in inappropriate situations without considering the implications of their actions in detail (Özsoy & Ardiç, 2017).

The concept of narcissism is defined as an exaggerated valuation of one's own image, which is characterized by a number of personality traits, including arrogance, self-centeredness, ostentatiousness, and a lack of empathy (Twenge & Campbell, 2015). Narcissism, defined as the dominance of self-centered attitudes and behaviors in individuals, has been perceived as negative and damaging by some theorists (Kernberg, 1975), while others have associated it with a source of energy, associating it with well-being (Freud, 1914; Kohut, 1971). The findings of the research have demonstrated that the phenomenon can be conceptualized on two levels: pathological and normal narcissism. Previously, the focus was on the fact that narcissism, whose positive aspects were emphasized by psychoanalytic theorists, could reach a pathological disorder in the process (Campbell & Foster, 2007). Accordingly, the primary characteristic feature of pathological narcissism is excessive self-esteem (Toplu Elderoglu & Atılğan, 2018). This is manifested in several ways, including tendencies such as seeing oneself as superior to others, exaggerated self-esteem, lack of empathy, and claiming rights over others. The narcissistic individual, who sees themselves as superior to others, is very confident with an exaggerated self-esteem and does not require the perspectives of others. However, they are subject to comments from the environment that are in opposition to this. Therefore, it is thought that these individuals have low self-esteem internally, contrary to what they reflect in their environment (Kernberg, 1975). Some researchers have associated normal narcissism with the individual's positive perception of self (Pincus & Lukowitsky, 2010). Furthermore, findings from some studies have indicated that normal narcissism can have a positive effect on individuals (Campbell & Foster, 2007).

As outlined by Rozenblatt (2002), normal narcissism enables the individual to derive pleasure from their experiences compared to others, to feel pride in their achievements, and to overcome feelings of shame and anger more easily due to their failures and shortcomings. Consequently, it can motivate and harmonize the individual in their interactions with the external world, aligning their actions with their own values, the expectations of their environment, and the demands of their external context. The findings of the research indicate that these individuals are extroverts, aiming for self-improvement and open to experiences (Twenge et al., 2008). However, it should be noted that although the narcissistic individual is comfortable in social relationships and has a positive self-image, narcissism can lead to detrimental consequences in terms of inaccurate self-knowledge and the maintenance of relationships with the environment (Foster & Campbell, 2007). Contrary to the findings of research, the narcissistic individual believes that he or she is more intelligent, creative, beautiful, and entitled than others. This self-perception makes the narcissistic individual superior to others from the perspective of the narcissistic individual (Twenge & Campbell, 2015). The narcissistic individual, who believes that he is unique, does not consider it valuable to understand others, to empathize, or to establish warm and sincere emotional relationships with others, given his perception of superiority. The existence of others is of value only insofar as it serves to confirm their superiority, to engage with them with interest and admiration, and to advance their interests (Sedikides & Gregg, 2008; Twenge & Campbell, 2015). Narcissistic individuals exhibit a number of distinctive characteristics, including a belief in their uniqueness, extroversion, assertiveness, and a high level of self-confidence. They also tend to display behaviors that are perceived as excessive, such as showing off or seeking attention (Atay, 2010).

Emmons (1987) posits that individuals who exhibit narcissistic tendencies are self-centred and solely preoccupied with their own interests, capable of influencing others for their own benefit. Individuals with low empathy abilities, a desire to be liked, an inflated self-worth, a grandiose attitude, and feelings of superiority are distinguished by a number of distinctive personality traits (Morf & Rhodewalt, 2001).

In this context, Schwartz (1992) posits that 10 fundamental value groups are believed to possess a universal quality, manifesting in all individuals, yet their relative importance may vary according to the individual in question. Consequently, the self-direction value group comprises sub-values such as creativity, freedom, setting one's own goals, and being curious and independent. In this value group, the motivations of acting with independent thought, choosing action, creating, researching, and discovering become particularly prominent (Schwartz, 1992). In self-direction, shaped by the inherent needs of the individual, such as having prestige and dominating and controlling other individuals and resources, the importance of self-esteem, intelligence, and private life is revealed in these patterns (Schwartz, 2014). The activation (stimulation) value group comprises sub-values such as being open to change, having an exciting life, and being brave (Schwartz, 2014). Consequently, the activation (stimulation) value encompasses patterns such as excitement seeking, innovation, and difficulty in life (life challenge) (Schwartz, 1992). The value is not about being threatening to others; rather, it refers to the biological modification and stimulation needed to maintain a favorable, positive level of

interaction with humans and the environment. In the hedonism value group (Schwartz, 2014), which consists of sub-values such as pleasure and enjoyment, the individual's capacity to obtain sensory gratification for themselves and the personal reward of pleasure and emotions is of paramount importance. Consequently, this value group is associated with the pursuit of pleasure and the enjoyment of life (Schwartz, 1992). The success value group encompasses sub-dimensions such as talent, ambition, success, and impact (Schwartz & Boehnke, 2004). In this context, the term "value" is associated with the achievement of personal success through the demonstration of competence and competence in accordance with social standards. Conversely, success value provides social approval by demonstrating competence in terms of cultural standards valid for individuals (Schwartz, 1992). Consequently, it can be posited that the value of success is closely related to the value of self-orientation about patterns such as self-esteem, intelligence, and social recognition (Schwartz, 2014). Power value is defined as the motivation to gain social position and prestige, as well as to establish control and dominance over people and resources (Schwartz, 1992). The sub-dimensions of value include values such as establishing authority, wealth, social power, maintaining one's place in society, and being adopted or recognized by people (Schwartz, 2014). This pattern indicates that the values of power and success previously discussed are focused on social prestige. However, while achievement values emphasize the act of being successful in concrete interactions and its effective demonstration, power values encompass gaining or maintaining a dominant position in the social system in a more general context (Schwartz, 2014). The security value group encompasses a number of sub-values, including continuity of social order, family security, national security, social order, cleanliness, mutual favors or reciprocating favors, and belonging to a group (Schwartz, 2014; Bardi & Schwartz, 2003). The security value, which derives its dynamics from basic individual needs and group needs, serves both individual and social interests in this context (Schwartz, 1992). The values of being healthy and not being harmed by someone are basic individual values, while patterns such as national security correspond to group needs (Sagiv & Schwartz, 2000). The conformity value group comprises a number of sub-values, including courtesy, honor, self-discipline, self-control, discipline, respect, obedience, and honoring the family (Bardi & Schwartz, 2003). The basis of this value lies in the restriction of actions, tendencies, and impulses that may upset or harm others or violate social expectations or norms (Schwartz, 1992). Consequently, conformity values typically manifest as a pattern of self-restraint in the individual's daily interactions with those they are closely acquainted with (Schwartz, 2014). The value of traditionalism encompasses the acceptance of the customs and ideas of one's own culture and religious traditions, as well as the patterns of attachment and respect for them. The values of being humble, moderate, religious, contented, living religiously and spiritually, and respecting traditions are considered sub-values of the traditionalism value group (Schwartz, 2014; Schwartz & Boehnke, 2004). It is widely acknowledged that all societies and groups develop practices, symbols, views, and beliefs regarding the representation of their shared experiences. Traditions often manifest themselves in the form of religious rites, beliefs, and behavioral norms (Schwartz, 1992). The value of benevolence (helpfulness) encompasses a number of sub-values, including helpfulness, honesty, forgiveness,



loyalty, and responsibility (Bardi & Schwartz, 2003; Schwartz, 2014). Consequently, this value group encompasses the protection and enhancement of the well-being of individuals with whom one has frequent personal contact, without the use of coercion. (Schwartz, 1992). The final value group, the universalism value group, encompasses patterns of self-acceptance, acceptance of others, and acceptance of the world. It also encompasses understanding for the benefit of all people and nature, appreciation of people and nature, tolerance towards them, and protection of them (Schwartz, 1992). Consequently, the sub-values of the universalism value group encompass values such as social justice, equality, and freedom of thought, as well as values such as environmental protection, integration/conformity with nature, wisdom, and world peace (Schwartz, 2014; Schwartz & Boehnke, 2004).

It can be observed that the ten fundamental values presented exhibit a dynamic relationship with one another. Consequently, each value interacts with other values, and some values are compatible with each other in this interaction. It is noted that some values exhibit incompatibility (Schwartz, 1992). Consequently, while the values of power and success share common ground in terms of establishing social superiority and being respected, there is a discrepancy between success and hedonism in terms of individual self-interest. Hedonism and stimulation values, desire for emotional stimulation; activation (stimulation), and self-direction are compatible in that the individual is open to change and has an internal motivation for superiority. While self-direction and universalism are often aligned in terms of the trust placed in one's own judgment and the sense of comfort derived from the diversity of life, there can be a conflict between the values of universalism and benevolence in relation to the development of others and the transcending of individual interests. The values of benevolence and conformity, restraint of personal desires and humility; conformity and security, in maintaining order and conformity in relationships; and security and power values have commonalities in controlling relationships and resources and preventing or overcoming threats brought by uncertainty (Schwartz, 1992). In addition to the aforementioned commonalities in values, it is evident that certain patterns of incompatibility exist between values at specific points. Consequently, it can be posited that self-direction and activation values are incompatible with conformity, tradition, and security values. The values of self-direction and activation, which emphasize the independent thoughts and actions of the individual and foresee change and development, are in opposition to the values of conformity, tradition, and security, which include obedience, self-inhibition, and the need to protect traditional practices and the existing situation. It can be observed that a similar dichotomy exists between the values of universalism and benevolence and those of success and power. While universalism and benevolence refer to patterns of equality and ensuring the well-being of all humanity, success, and power values emphasize the individual's focus on his success and superiority over others. Furthermore, the values of hedonism and activation (stimulation) are also incompatible with those of traditionalism. While the individual's desires are important in hedonism and activation values, it is evident that in traditionalist values, patterns of limiting one's desires and being satisfied with what exists become more prominent (Schwartz, 1992).

As illustrated in the preceding section, Schwartz's Theory of Values elucidates the value structure at the individual level

and the dynamic relationships between values. The value structure arises from the pattern that behaviors appropriate to any value have consequences that conflict with some values but are compatible with others. In contrast to this dynamic, Schwartz (1996) proposes an alternative approach to explaining various attitudes and behaviors in his values model. Rather than considering values or value types individually, he suggests that the compatible value types should be explained in a circular arrangement, with the conflicting types placed in areas at opposite poles.



Figure 1. Schwartz's (1994) values model

The circular value model posits that values create an interrelated structure. In accordance with Schwartz (1992), values are also arranged in a hierarchy for the individual, with the relative importance of each value varying. Consequently, when competing values are activated, choices are made in accordance with the more important value for the individual (Steg et al., 2015). The values of benevolence and universality are compatible with each other and constitute the value group of self-transcendence. Additionally, the values of conformity and benevolence are considered to be compatible with each other. In this research, the self-transcendence value group is defined as comprising the values of universality, benevolence, and conformity.

In studies conducted to elucidate the interrelationships between dark triad personality traits and values, it is observed that there is an inverse correlation between the dark triad and the value of conservatism, which encompasses the values of security, conformity, and traditionalism. Conversely, there are positive associations between the value of openness to development, which encompasses hedonism, stimulation, and self-management values (Kajonius et al., 2015). Furthermore, a negative correlation was observed between the dark triad and the value of self-transcendence, which encompasses the values of universalism and benevolence. It was demonstrated that there are robust positive associations between the self-enhancement values, which include the values of success and power (Kajonius et al., 2015). The findings indicate a robust positive correlation between the personality traits of Machiavellianism, psychopathy, and narcissism and values associated with power and success. In this context, the Dark Triad personality traits are negatively associated with self-transcendence values associated with ethical behavior. Conversely, they are positively associated with self-



enhancement values, which reflect the desire to gain individual interest, power, and success. Researchers have posited that individuals with "dark" personality traits also tend to have a "dark" value system. A review of the literature reveals that the relationships between dark triad personality traits and value groups have not been investigated in Turkey. At the same time, no study conducted in our country has yet to reveal the relationship between the dark triad personality traits and Schwartz's value groups of conservatism, self-empowerment, openness to development, and self-transcendence. It appears that elucidating the interrelationships between these value groups, which are either compatible or incompatible with one another, and the dimensions of the dark triad may facilitate a more comprehensive understanding of the dark triad personality traits and values. The dark triad, comprising Machiavellianism, psychopathy, and narcissism, is regarded as a fundamental personality trait. One of the principal criticisms of the Five-Factor Personality Theory, which is currently the most prevalent approach, is that it does not encompass the dark triad personality traits. Dark triad; It is a destructive phenomenon that includes manipulating others, using them for one's own personal pleasure and benefit, egocentrism, arrogance, ignoring the rights of others, lack of respect for the environment, viewing others as low, and lack of empathy, and which tends to increase today. The dark triad is a structure closely related to personality traits and values. To understand this phenomenon clearly, examining the relationships between these personality traits and values; It is anticipated that the research may contribute to the literature and also provide information about the direction and strength of the relationship between these variables.

The principal objective of this research is to ascertain whether the dark triad personality traits are indicative of value groups as defined by Schwartz's circle of values. In order to achieve this main objective, a MIMIC model (multiple causes, multiple indicators) containing the aforementioned variables was created and tested, taking into account theoretical explanations. The MIMIC model is employed to ascertain whether the observed variables predict a latent variable and whether this latent variable is responsible for a significant number of cases. In this context, the dimensions of the dark triad were investigated: Machiavellianism, psychopathy, and narcissism. It was examined whether these dimensions predicted self-enhancement, conservatism, self-transcendence, and openness to change value groups.

The problems related to the research are presented below:

1. The direct effect of the dimensions of the dark triad, Machiavellianism, psychopathy, and narcissism, on the dark triad latent variable is significant.
2. The effect of Machiavellianism, psychopathy, and narcissism on the values of power, success, and hedonism in the self-enhancement value group, through the dark triad implicit variable, is significant.
3. The effect of Machiavellianism, psychopathy, and narcissism on the values of security, conformity, and traditionalism within the conservatism value group, through the dark triad implicit variable, is significant.
4. The effect of Machiavellianism, psychopathy, and narcissism on the values of universality, benevolence, and conformity, which are in the self-transcendence value group, through the dark triad implicit variable, is significant.
5. The effect of Machiavellianism, psychopathy, and narcissism on the values of hedonism, arousal, and

self-orientation within the openness to change value group, through the dark triad implicit variable, is significant.

## Method

The research is descriptive in nature, aiming to elucidate the existing situation. A research study was conducted based on the relational screening model with the objective of examining the relationships between the dark triad personality traits and value groups in individuals during their high school years in Turkey. Survey models are research approaches that aim to describe a past or present situation as it exists (Karasar, 2004). The data were obtained from individuals of different ages, and a cross-sectional research design was employed. The research group was selected by a convenient sampling method among high school students. Given that the individuals to whom the measurement tools will be applied are in adolescence (14-18 years old), the maximum diversity method, one of the purposive sampling methods, was determined to be the most appropriate for the research. In purposive sampling, the researcher determines a sample based on previous theoretical knowledge about the universe, their own knowledge, and the specific purpose of the research (Fraenkel & Wallen, 1993). The rationale behind this sampling method is that, in contrast to a representative sample of a universe, it is preferable to select one or more subsections of the universe as an example, with the aim of identifying the subsection that is most pertinent to the research problem at hand (Sencer & Irmak, 1989). It is posited that this sampling method will yield significant insights into the values of the universe (Büyüköztürk et al., 2008). The data were analyzed using the SPSS 22 and JAPS 17.00 package programs.

## Study Group

The study group comprises 308 high school students enrolled in educational institutions in Middle Anatolia during the 2021-2022 academic year. The data collection instruments utilized in the context of the research were applied to 335 participants. Outliers were identified and removed using two distinct statistical techniques. One-way outliers were cleaned by calculating z scores, while multi-way outliers were cleaned by calculating the Mahalobis distance. Following the removal of extreme values, the analysis of the study was conducted on the remaining 308 participants. The study group comprised 173 women (56.2%) and 135 men (43.8%). The ages of the study group ranged from 14 to 18 years old, with an average age of 16.39 years and a standard deviation of 0.87 years.

## Data Analysis

The statistical analysis of the data obtained from the research was conducted using the SPSS 22.00 and JAPS 17 package programs. The demographic characteristics of the participants were analyzed using frequency and percentage distribution. Z-scores and Mahalanobis distance statistics were employed to eliminate extreme values. Pearson product moment correlation statistics were employed to examine the relationships between variables. MIMIC models were constructed and analyzed in order to ascertain whether the dimensions of the dark triad predict the values within the Value groups. In the model analysis, the data were analyzed in two successive stages. In the initial stage of the analysis, the extent to which the variables in the data set met the model assumptions was evaluated using model fit indices. In the second stage of the

analysis, the model was tested, and the confidence interval was set at 0.05 when analyzing the data.

**Process**

The research involved the collection of data in the form of individual applications and group applications. The data was collected during class hours with the permission and assistance of the course instructor. During the data collection process, the principle of voluntary participation was adhered to. Prior to the distribution of the scales, the participants were informed of the purpose of the research. Those who wished to participate were then given the scales. Furthermore, participants were provided with supplementary explanations when necessary. No identification information was requested from the participants. The data was accessed via a personal information form.

**Data Collection Tools**

**Dark Triad Scale:** developed by Jonason and Webster (2010) to measure Dark Triad tendencies in individuals, the Dark Triad scale, which was adapted into Turkish by Satıcı, Yılmaz, and Kayış (2018), was utilized in the study. The scale encompasses three dimensions: Machiavellianism, psychopathy, and narcissism, and comprises 12 items in total, with four items in each dimension. Participants are requested to indicate the extent to which each item in the scale reflects their situation by assigning a score between 1 (strongly disagree) and 9 (strongly agree). In the study, the Cronbach alpha internal reliability coefficient of the Dark Triad scale was .82, while the Cronbach's alpha coefficients in the dimensions were found to be .78 for the Machiavellianism sub-dimension, .69 for the psychopathy sub-dimension, and .84 for the narcissism sub-dimension. In this study, the Cronbach alpha internal reliability coefficient of the Dark Triad scale was .85, while the Cronbach's alpha coefficients in the dimensions were found to be .79 for the Machiavellianism sub-dimension, .72 for the psychopathy sub-dimension, and .85 for the narcissism sub-dimension.

**Portre Values Scale:** The Portrait Values Survey, developed by Schwartz et al. (2001) and adapted into Turkish by Demirutku and Sümer (2010), consists of 40 items and ten

dimensions: power, success, hedonism, stimulation, self-direction, universality, benevolence, traditionality, conformity, and security is formed. Each item describes an individual in two sentences. Participants are asked to indicate how similar or dissimilar they are to the individual described. The scale is scored between 1 (not at all like me) and 6 (very similar to me). In this study, the Cronbach alpha internal consistency coefficient for the power dimension of the scale was .67 for power, .76 for success, .70 for hedonism, .61 for stimulation, .67 for self-direction, .80 for universality, .62 for benevolence, and .62 for conventionality, .61 for compliance and .55 for security.

**Limitations**

This research is limited to high school students in central Anatolia.

A cross-sectional research design was used in the study. It does not show how the dark triad and values change or develop over time.

**Results**

When the descriptive statistics are examined, it is seen that the highest mean score is at the universality value ( $\bar{X}$ = 30.96). This value; is followed by security ( $\bar{X}$ =24.52) and self-direction ( $\bar{X}$ =20.25) values, respectively. It is seen that the lowest average score is in the power value ( $\bar{X}$ = 12.59). According to the table above, the average scores of the values in the value groups do not seem close to each other. For example, the averages of universality, benevolence, and conformity values in the self-transcendence value group differ from each other. Similarly, the score averages of the power, success, and hedonism values in the self-enhancement value group also appear to be different from each other. In the dark triad personality dimensions, the highest mean score is narcissism ( $\bar{X}$ =18.89); It can be seen that the lowest mean score is in the psychopathy dimension ( $\bar{X}$ = 11.64).

**Table 1.** Descriptive statistics for the dimensions of the dark triad: Machiavellianism, psychopathy, and narcissism, and the values of benevolence, conformity, power, achievement, hedonism, stimulation, self-direction, universality, conventionality, and security

	Mode	Median	Mean	S.D	Variance	Skewness	Kurtosis	Range	Min.	Max.
Machiavellianism	4.00	11.00	12.44	6.94	48.18	0.69	-0.20	32.00	4.00	36.00
Psychopathy	4.00	11.00	11.64	6.04	36.47	0.92	0.65	30.00	4.00	34.00
Narcissism	4.00	19.00	18.89	8.77	77.03	-0.03	-0.94	32.00	4.00	36.00
Benevolence	19.00	19.00	18.85	3.19	10.21	-0.37	-0.15	16.00	8.00	24.00
Conformity	19.00	19.00	18.21	3.46	12.02	-0.55	0.16	18.00	6.00	24.00
Power	14.00	13.00	12.59	3.58	12.88	-0.57	-0.26	15.00	3.00	18.00
Success	22.00	19.00	18.45	4.01	16.11	-0.63	-0.41	17.00	7.00	24.00
Hedonism	18.00	15.00	14.94	2.79	7.79	-0.89	0.17	12.00	6.00	18.00
Stimulation	15.00	15.00	14.64	2.54	6.48	-0.80	0.35	12.00	6.00	18.00
Self-direction	23.00	21.00	20.25	3.00	9.02	-0.90	0.68	16.00	8.00	24.00
Universality	35.00	32.00	30.96	4.11	16.90	-0.99	0.76	20.00	16.00	36.00
Traditionality	17.00	15.00	15.20	3.93	15.51	-0.12	-0.31	20.00	4.00	24.00
Security	25.00	25.00	24.52	3.55	12.60	-0.93	0.94	19.00	11.00	30.00

**Table 2.** Correlations between the dark triad dimensions of Machiavellianism, psychopathy, and narcissism and the total scores of power, achievement, hedonism, security, conformity, conventionality, universality, benevolence, arousal, and self-direction values

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Machiavellianism	1												
2 Psychopathy	.461**	1											
3 Narcissism	.349**	.229**	1										
3 Benevolence	-.273**	-.374**	-.023	1									
4 Conformity	-.351**	-.437**	-.141*	.470**	1								
5 Power	.316**	.276**	.522**	-.121*	-.159**	1							
6 Success	.171**	.116*	.553**	.145*	.132*	.565**	1						
7 Hedonism	.203**	.174**	.399**	.059	-.134*	.420**	.397**	1					
8 Stimulation	.058	.092	.268**	.116*	.006	.234**	.452**	.450**	1				
9 Self-direction	.011	.068	.203**	.144*	.036	.329**	.449**	.334**	.500**	1			
10 Universality	-.194**	-.266**	-.013	.449**	.448**	.001	.150**	.126*	.151**	.288**	1		
11 Traditionality	-.445**	-.374**	-.301**	.373**	.579**	-.299**	-.067	-.118*	-.016	.040	.299**	1	
12 Security	-.219**	-.177**	-.010	.234**	.462**	.081	.265**	.103	.217**	.300**	.441**	.311**	1

**Machiavellianism, Psychopathy and Narcissism; Analyzes on Predicting the Self-enhancement Values of Hedonism, Success and Power through the Dark Triad Latent Variable**

Upon examination of the fit indices of the model, the  $\chi^2$  value was found to be 2.59. A  $\chi^2$  value below 5 indicates that the value is at an acceptable level. It was observed that the GFI and CFI values were higher than 0.90, while the RMSEA values were lower than 0.08. Therefore, these values and data collectively indicate that the model is compatible. The aforementioned values indicate that the dimensions of Machiavellianism, psychopathy and narcissism predict the values of power, success and hedonism, which are included in the self-enhancement value group, through the dark triad personality traits, which are a latent variable.

**Table 3.** Goodness fit indices of the model

Goodness Fit Indices	Value
$\chi^2$ /sd	15.56/6
GFI	.97
CFI	.92
IFI	.97
SRMR	.030
RMSEA	.072

Upon examination of the values presented in the Table 4, it becomes evident that narcissism, one of the dimensions of the dark triad, is a significant predictor of the self-enhancement value group, explaining 11% of the variance in self-enhancement values ( $\beta = .113, p < .05, t=9.091$ ). In other words, a one-unit increase in narcissism is associated with a 113-unit increase in self-enhancement values. Conversely, the table indicates that Machiavellianism ( $\beta = .012, p < .35, t=0.918$ ) and psychopathy ( $\beta = .022, p < .11, t=1.564$ ), which represent the other dimensions of the dark triad, do not appear to be predictive of the self-enhancement value group.

Upon examination of the indicator coefficients table, it was found that a one-unit increase in the dark triad personality trait was associated with a 1.857-unit increase in the power value ( $\beta = 1.857, p < .05, t = 11.231$ ). Conversely, the findings in the table indicate that a one-unit increase in the dark triad personality trait is associated with an increase of 2.040 units in the success value ( $\beta = 2.040, p < .05, t=11.270$ ) and 1.052 units in the hedonism value ( $\beta = 1.052, p < .05, t=8.716$ ).

In the process of evaluating the MIMIC model, the focus is on examining the standardized coefficients. Upon examination of the standardized coefficients, it is evident that the narcissism personality dimension has a positive effect on self-enhancement values, with a coefficient of .677. These values indicate that the narcissistic dimension of the dark triad is associated with self-enhancement values.

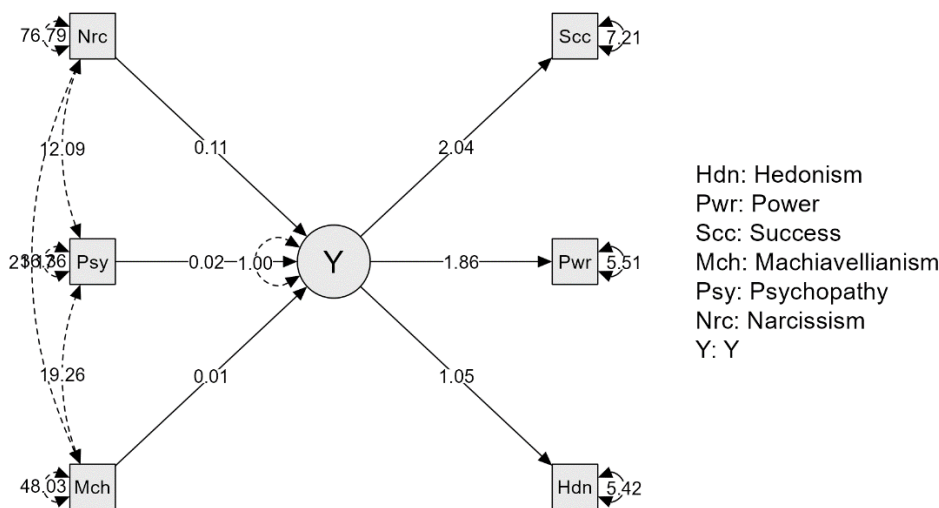
**Table 4.** Predictor Path Coefficients for Machiavellianism, Psychopathy, and Narcissism

Predictor	Estimate	S.E.	z-value	p	95% Confidence Interval			Standardized	
					Lower	Upper	All	LV	Endo
Machiavellianism	0.012	0.013	0.918	0.359	-0.013	0.037	0.056	0.008	0.008
Psychopathy	0.022	0.014	1.564	0.118	-0.006	0.050	0.092	0.015	0.015
Narcissism	0.113	0.012	9.091	< .001	0.088	0.137	0.677	0.077	0.077

**Table 5.** Indicator Coefficient table for indicators of power, success, and hedonism values in the self-enhancement value group

Indicator	Estimate	S.E.	z-value	p	95% Confidence Interval			Standardized	
					Lower	Upper	All	LV	Endo
Power	1.857	0.165	11.231	< .001	1.533	2.181	0.756	2.708	0.756
Success	2.040	0.181	11.270	< .001	1.685	2.394	0.742	2.975	0.742
Hedonism	1.052	0.121	8.716	< .001	0.815	1.288	0.550	1.534	0.550

**Pathplot**



**Figure 2.** MIMIC model of Machiavellianism, psychopathy, and narcissism predicting the self-enhancement values of hedonism, achievement, and power

**Table 6.** R<sup>2</sup> change regarding self- enhancement values indicators

R-Squared	R <sup>2</sup>
Power	0.571
Success	0.551
Hedonism	0.303
Y	0.530

In the MIMIC model, the R<sup>2</sup> table indicates the proportion of variance explained by the latent variable of each observed variable. Upon examination of the aforementioned table, it becomes evident that 57% of the variance in power value, 55% of the variance in success value, and 30% of the variance in hedonism value are predicted by the dark triad dimensions.

**Analyzes the Prediction of Machiavellianism, Psychopathy, and Narcissism on the Self-Transcendence Values of Universalism, Benevolence and Conformity through the Dark Triad Latent Variable**

**Table 7.** Goodness fit indices of the model

Goodness Fit Indices	Value
$\chi^2/sd$	11.50/6
GFI	.99
CFI	.98
IFI	.98
SRMR	.029
RMSEA	.055

Upon examination of the fit indices of the model, the value of the chi-square statistic was found to be 1.91. A value of less

than 2 for the chi-square statistic indicates that the model has a good fit with the data. The GFI and CFI values in the table are above 0.90, and the RMSEA value is below 0.08. Consequently, these values and data demonstrate that the model is compatible with the data. The aforementioned values indicate that the dimensions of Machiavellianism, psychopathy, and narcissism predict the values of universality, benevolence, and conformity, which are included in the self-transcendence value group, through the dark triad, which is a latent variable.

Upon examination of the values presented in the aforementioned table, it can be observed that Machiavellianism, one of the dimensions of the dark triad, is predictive of the self-transcendence value group. This phenomenon explains 4% of the variance in self-transcendence values ( $\beta = -0.042$ ,  $p < 0.05$ ,  $t = -3.397$ ). However, it is evident that the values are negative. This finding can be interpreted as indicating that each unit increase in Machiavellianism is associated with a decrease of 0.042 units in self-transcendence values. Furthermore, psychopathy is also found to predict the self-transcendence value group, with an explanatory power of 9% ( $\beta = -0.093$ ,  $p < 0.05$ ,  $t = -6.294$ ). Nevertheless, the values are observed to be negative once more. This finding can be interpreted as indicating that each unit increase in psychopathy is associated with a 0.093 unit decrease in self-transcendence values. The results indicate that narcissism ( $\beta = .012$ ,  $p < .18$ ,  $t=1.327$ ) does not predict the self-transcendence value group.

**Table 8.** Predictor Path coefficients for Machiavellianism, psychopathy, and narcissism

Predictor	Estimate	S.E.	z-value	p	95% Confidence Interval			Standardized	
					Lower	Upper	All	LV	Endo
Machiavellianism	-0.042	0.012	-3.397	< .001	-0.067	-0.018	-0.239	-0.034	-0.034
Psychopathy	-0.093	0.015	-6.294	< .001	-0.122	-0.064	-0.456	-0.076	-0.076
Narcissism	0.012	0.009	1.327	0.184	-0.006	0.029	0.084	0.010	0.010



**Table 9.** Indicator Coefficient table for indicators of universalism, benevolence, and conformity values in the self-transcendence value group

Indicator	Estimate	S.E.	z-value	p	95% Confidence Interval			Standardized	
					Lower	Upper	All	LV	Endo
Universality	2.007	0.218	9.192	< .001	1.579	2.435	0.602	2.472	0.602
Benevolence	1.750	0.169	10.356	< .001	1.419	2.082	0.676	2.156	0.676
Conformity	2.070	0.180	11.520	< .001	1.718	2.422	0.737	2.550	0.737

Upon examination of the table above, it can be seen that the values are negative. This indicates that a one-unit increase in the dark triad personality trait is associated with a 2.007-unit decrease in the universality value ( $\beta = 2.007, p < .05, t = 9.192$ ). Conversely, the findings in the table indicate that a one-unit increase in the dark triad personality trait is associated with a decrease of 1,750 units in the benevolence value ( $\beta = 1.750, p < .05, t = 10.356$ ) and a decrease of 2,070 units in the compliance value ( $\beta = 2.070, p < .05, t = 11.520$ ).

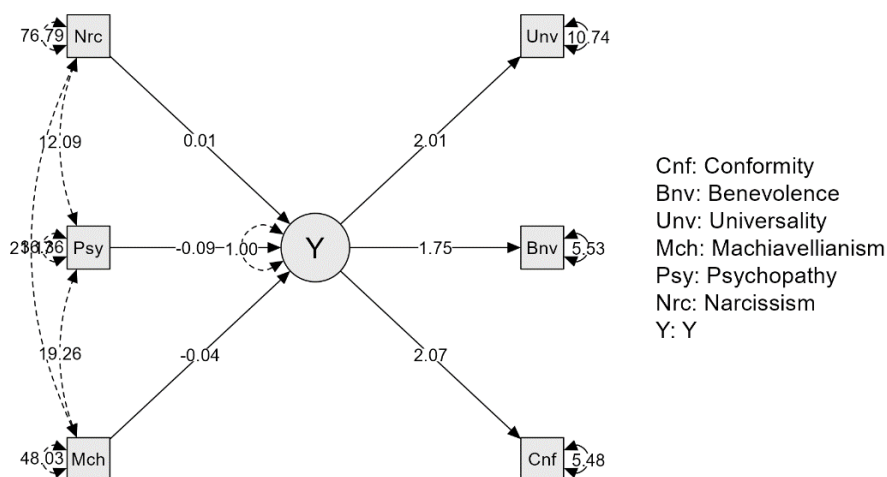
In the process of evaluating the MIMIC model, the examination of the standardized coefficients is a fundamental aspect. Upon examination of the standardized coefficients, it was found that psychopathy was associated with a reduction in self-transcendence values by -0.456, while Machiavellianism was associated with a reduction in self-transcendence values by -0.239. These findings indicate that psychopathy, among the dark triad personality dimensions, is the most predictive of self-transcendence values.

**Table 10.** R<sup>2</sup> change regarding self-transcendence values indicators

R-Squared	R <sup>2</sup>
Universality	0.363
Benevolence	0.457
Conformity	0.543
Y	0.341

Upon examination of the R<sup>2</sup> table in the MIMIC model, it becomes evident that the dark triad dimensions account for a

**Pathplot**



**Figure 3.** Machiavellianism, psychopathy and narcissism; MIMIC model for predicting the self-transcendence values of universalism, benevolence, and conformity

significant proportion of the variance in the conformity, benevolence, and universality values. Specifically, 54% of the variance in conformity value, 46% of the variance in benevolence value, and 36% of the variance in universality value are predicted by the dark triad dimensions.

**Machiavellianism, Psychopathy, and Narcissism; Analyzes on the Prediction of Openness to Change Values, Self-Direction, Arousal and Hedonism, through the Dark Triad Latent Variable**

**Table 11.** Goodness fit indices of the model

Goodness of Fit Indices	Value
$\chi^2$ /sd	23.16/6
GFI	.99
CFI	.92
IFI	.94
SRMR	.046
RMSEA	.096

Upon examination of the fit indices of the model, the value of the chi-square statistic was found to be 3.86. The value of the chi-square statistic is within an acceptable range, as it is below 5. It can be observed that the GFI and CFI values are greater than 0.90, while the RMSEA value is greater than 0.08. The RMSEA value is greater than 0.08, indicating that the model is not compatible.

### **Machiavellianism, Psychopathy and Narcissism; Analyzes on the Prediction of Conservatism Values of Security, Conformity and Conventionality through the Dark Triad Latent Variable**

**Table 12.** Goodness fit indices of the model

Goodness of Fit Indices	Value
$\chi^2$ /sd	31.80/6
GFI	.99
CFI	.86
IFI	.86
SRMR	.046
RMSEA	.119

Upon examination of the fit indices of the model, the value of the chi-square statistic is found to be 5.3. The value of the chi-square statistic is above 5, which indicates that the model does not fit well. The GFI value is 0.99, whereas the CFI value is 0.86. The IFI value was found to be 0.86, and the RMSEA value was 0.119. The RMSEA value exceeding the threshold of 0.08 indicates that the model is incompatible with the data. The aforementioned values indicate that Machiavellianism, psychopathy, and narcissism do not predict the values of traditionalism, security, and conformity within the conservatism value group through the dark triad, which is a latent variable.

#### **Discussion**

The findings of the research indicate that the dimensions of Machiavellianism, psychopathy, and narcissism predict the values of power, success, and hedonism within the self-enhancement value group, through the dark triad, which is a latent variable. These findings are consistent with the results obtained in the study conducted by Kajonius (2015), which revealed a strong positive relationship between the dark triad and power and success values. However, in this research, the MIMIC model was created and tested. Accordingly, the self-enhancement value group consists of power, success, and hedonism values. The narcissism dimension mostly explains the dark triad personality trait. Given that individuals prone to narcissism are extroverts who aim to improve themselves, are open to experiences, are proud of their successes, and more easily overcome feelings of shame and anger due to their failures and shortcomings, it can be predicted that there will be a strong relationship between narcissism and the value of success. Values such as being successful, being ambitious, and being competent come to the fore in the value of success. For narcissistic individuals, success is a quality that is considered very important. The values of social approval, societal recognition, intelligence, and self-esteem are closely aligned with the success value group, which is characterized by narcissistic individuals' inflated self-perceptions and the superiority they ascribe to others. The power value encompasses societal recognition and the acquisition or retention of a dominant position within the social system. These patterns pertaining to the value of power are analogous to the exaggerated need for admiration observed in narcissistic individuals. The value of power, which is explained by the characteristics of establishing authority, gaining social position and prestige, and establishing control and dominance over people and resources, brings the narcissistic individual who wants other people to confirm his superiority extremely close to this value, considering all these contexts. The narcissistic individual seeks to attract others with a compelling interest and admiration, thereby facilitating the achievement of

his interests through the control he establishes over others. The narcissistic individual, who strives to establish power over his environment, also views others as instruments. These characteristics appear to be highly related to the value of power. The results of this study indicate that the narcissism dimension of the dark triad accounts for 57% of the variance in power value and 55% of the variance in achievement value. The narcissistic individual's characteristics of self-perception as superior and unique, excessive confidence, and displays of self-aggrandizement appear to be related to an excessive orientation towards power value. Another noteworthy finding of the study is that 30% of the variance related to hedonism, which is included in the self-enhancement value, is explained by narcissism. Individuals with narcissistic traits tend to enjoy their experiences, are extroverted, express their emotions easily, and are open to experiences. This seems to explain the aforementioned finding regarding the value of self-enhancement. The hedonistic value encompasses the sub-values of pleasure and enjoyment, as well as the pursuit of a life filled with love and happiness. In contrast to the power and success values, which are driven by the desire to establish social superiority, the hedonistic value is primarily driven by the individual's interest in self-gratification. This aligns with the expected pattern observed in narcissistic personalities. However, it is important to note that the black triad personality trait, in contrast to other personalities, perceives these values primarily for pleasure and personal gain.

A significant finding of the study was that the dimensions of Machiavellianism, psychopathy, and narcissism predict the values of universality, benevolence, and conformity, included in the self-transcendence value group, through the dark triad. However, the values related to the Machiavellianism and psychopathy personality dimensions were negative in this context. Furthermore, studies in the literature indicate that there are negative relationships between the dark triad and the values of universality, helpfulness, and conformity (Kajonius et al., 2015). Consequently, the findings of this research are consistent with those of previous studies. The defining characteristics of psychopathy are high impulsivity and low empathy. Those with psychopathic tendencies are often described as lacking remorse, being insensitive, exhibiting aggressive behavior, being impatient, timid and incompatible, and lacking loyalty. These individuals tend to have difficulty forming and maintaining relationships, and their relationships appear to be superficial (Özsoy & Ardiç, 2017). These tendencies regarding psychopathy contrast with the characteristics of the value of conformity, which restricts actions, tendencies, and impulses that may upset others, harm others, or violate social expectations or norms. In addition, the conformity value consists of sub-value dimensions such as kindness, honor, self-discipline, self-control or discipline, respect, obedience, and honoring the family. It is seen that these values are not compatible with psychopathy. Those with psychopathic personality traits are characterized by impulsiveness and a lack of empathy. The value of universality is associated with the motivation to accept oneself, others, and the whole world, to be understanding for the good of all people and nature, to appreciate people and nature, to be tolerant towards them, and to protect them. Consequently, the universality value encompasses values such as social justice, equality, and freedom of thought. Given the maladaptive, aggressive, and antisocial tendencies of psychopathic individuals, it is not surprising that the negative relationship observed in the study is a predictable outcome. The value of

benevolence is comprised of a number of sub-values, including helpfulness, honesty, forgiveness, loyalty, and responsibility. The concept of benevolence is founded upon the protection and enhancement of human relations. Those with psychopathic personality traits tend to have superficial human relationships and are less likely to demonstrate commitment to others. Consequently, these characteristics of psychopathy serve to corroborate the inverse relationship between the value of benevolence and this personality trait. Upon examination of the findings pertaining to Machiavellianism, it becomes evident that individuals exhibiting Machiavellian tendencies tend to maintain emotional distance from others, exhibit a high degree of pragmatism, and employ a wide range of strategies to achieve their individual goals (Robbins, 1998). These characteristics serve to distance such individuals from the values associated with self-transcendence. Behavioral patterns such as a lack of hesitation in ignoring moral rules and damaging social relations for their purposes, lying, resorting to cheating, emotional exploitation, cunning, skepticism, trickery, and the use of the emotions of others are in contrast with the value group of self-transcendence in every context. Consequently, the negative correlation between self-transcendence values and the Machiavellian personality trait observed in the study is consistent with the expected outcome. The narcissism personality trait does not predict the self-transcendence value group.

The findings of this research indicate that Machiavellianism, psychopathy, and narcissism do not predict the values of self-orientation, stimulation, and hedonism in the openness to change value group through the dark triad implicit variable. In some studies, a positive correlation has been observed between hedonism and stimulation values, which are classified as belonging to the openness to change value group, and the dark triad (Persson & Jonason, 2015). In this research, as in the theory, hedonism and stimulation values are considered as openness to change value groups. It is observed that the model compatibility values indicate that the model is not compatible. Nevertheless, the self-direction value within this value group is considered to be compatible with the universality value. Although the value of self-orientation is related to the individual's focus on himself, it includes tendencies such as being curious, being independent in thoughts and feelings, having control over his feelings and thoughts, managing and changing himself. These features are seen to be in contrast with psychopathy, which is explained by impulsivity and aggression. The fundamental motivation of the stimulation or activation value within the openness to development value group is the creation of patterns such as excitement seeking, innovation, and difficulty in life (life challenge) (Schwartz, 1992). Stimulation does not imply a threatening or aggressive approach; it refers to the biological changes and stimulation requirements necessary for maintaining a positive and constructive interaction with humans and the environment. This situation is incongruous with the characteristics of the dark triad, which include the use and exploitation of others in the dimensions of Machiavellianism and narcissism. It is postulated that the relationships between these variables may not have emerged due to the fact that the model was created as a set of multiple indicators and multiple outputs. Conversely, when considered as a value group, the openness to development value group is predicted to have a positive structure in nature. Therefore, it is postulated that the relationship may not have emerged. Upon examination of the research findings, it becomes evident

that Machiavellianism, psychopathy, and narcissism do not predict the values of security, conformity, and traditionalism within the conservatism value group through the dark triad implicit variable. The value of traditionalism, which is within the value group of conservatism, encompasses a number of values, including humility, moderation, religiosity, contentment, a spiritual or religious life, and respect for tradition. These values are in contrast with all the values of the dark triad. In contrast, the value of compatibility, which is in this group of values and is compatible with benevolence, is also in contradiction with the nature of the dark triad. The concept of security value encompasses a number of sub-values, including continuity of social order, family security, national security, social order, cleanliness, mutual favors or reciprocating favors, and belonging to a group (Bardi & Schwartz, 2003; Schwartz, 2014). These values contrast with the dark triad's characteristics of using others for their selfish interests and going beyond all moral norms. It is postulated that the reason why the anticipated relationships between these variables were not identified in the research is that the research was conducted using the MIMIC model.

The narcissism dimension of the dark triad is the most predictive of power, success and hedonism within the self-empowerment value group. The relationship between narcissism and the Self-transcendence value group was not statistically significant. It would be beneficial to investigate the relationship between the dark triad and narcissism values independently.

In this study, the Dark Triad and its subdimensions did not predict hedonism and arousal values. This finding indicates that the perception of hedonism and arousal for the Dark Triad personality trait differs from the definitions provided by Schwartz. It would be beneficial to investigate how hedonism and arousal are perceived in individuals with the dark triad personality trait.

It is necessary to investigate the predictive relationships of the Dark Triad and its subdimensions with 10 values without the MIMIC model. The MIMIC model predicts value groups through the latent variable. It is necessary to investigate the predictive relationships of Machiavellianism, narcissism and psychopathy with each of the 10 values in Turkish culture.

#### Author Contributions

All authors took an equal part in all processes of the article. All authors have read and approved the final version of the study.

#### Ethics Declaration

This study was conducted with the approval decision taken at the Ethics Committee for Human Research in Social Sciences (Protocol No. 2021/07-04) Aksaray University, dated 25.10.2021.

#### Conflict of Interest

The author(s) declare that there is no conflict of interest with any institution or person within the scope of the study.

#### References

- Aghababaei, N., & Błachnio, A. (2015). Well-being and the Dark Triad. *Personality and Individual Differences*, 86, 365-368. <https://doi.org/10.1016/j.paid.2015.06.043>
- Ali, F., Amorim, I. S., & Chamorro-Premuzic, T. (2009). Empathy deficits and trait emotional intelligence in



- psychopathy and Machiavellianism. *Personality and Individual Differences*, 47(7), 758-762.  
<https://doi.org/10.1016/j.paid.2009.06.016>
- Allsopp, J., Eysenck, H. J., & Eysenck, S. B. G. (1991). Machiavellianism as a component in psychoticism and extraversion. *Personality and Individual Differences*, 12(1), 29-41.  
[https://doi.org/10.1016/0191-8869\(91\)90129-Y](https://doi.org/10.1016/0191-8869(91)90129-Y)
- Atay, S. (2009). Narsistik kişilik Envanteri'nin Türkçeye standardizasyonu. *İktisadi ve İdari Bilimler Fakültesi Dergisi*, 11(1), 1-16.
- Bardi, A., & Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. *Personality and Social Psychology Bulletin*, 29 (10), 1207-1220.  
<https://doi.org/10.1177/0146167203254602>
- Bogart, K., Geis, F., Levy, M., & Zimbardo, P. (1970). No dissonance for Machiavellians. *Studies in Machiavellianism*, 4, 236-259.  
<https://doi.org/10.1016/B978-0-12-174450-2.50018-X>
- Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2008). *Bilimsel Araştırma Yöntemleri*, Ankara: Pegem A.
- Campbell, W. K., & Foster, J. D. (2007). The narcissistic self: Background, an extended agency model, and ongoing controversies. In C. Sedikides & S. J. Spencer (Eds.), *The self* (pp. 115–138). Psychology Press.
- Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: Mosby.
- Demirutku, K., & Sümer, N. (2010). Temel değerlerin ölçümü: Portre değerler anketinin Türkçe uyarlaması. *Türk Psikoloji Yazıları*, 13(25), 17-25.
- Emmons, R. A. (1987), "Narcissism: Theory and Measurement", *Journal of Personality and Social Psychology*, 52,(1), 11-17  
<https://doi.org/10.1037/0022-3514.52.1.11>
- Ferris, G. R., & King, T. R. (1996). Politics in human resources decision: A walk on the dark side. *IEEE Engineering Management Review*, 24(3),52-59.  
[https://doi.org/10.1016/0090-2616\(91\)90072-H](https://doi.org/10.1016/0090-2616(91)90072-H)
- Foster, J. D., & Campbell, W. K. (2007). Are there such things as "narcissists" in social psychology? A taxometric analysis of the Narcissistic Personality Inventory. *Personality and Individual Differences*, 43(6), 1321-1332. <https://doi.org/10.1016/j.paid.2007.04.003>
- Fraenkel, J. R., & Wallen, N. E. (1993). *How to Design and Evaluate Research in Education*. New York: Mcgraw-Hill.
- Freud, S. (2007). *Narsizm üzerine ve Schreber vakası* (2. bs., çev. B. Büyükal ve S. M. Tura). İstanbul: Metis Yayınları (Orjinal makalenin yayın tarihi; 1914)
- Gable, M., & Topol, M. T. (1991). Machiavellian managers: Do they perform better? *Journal of Business and Psychology*, 5(3), 355-365.  
<https://doi.org/10.1007/BF01017707>
- Geis, F. L., & Moon, T. H. (1981). Machiavellianism and deception. *Journal of Personality and Social Psychology*, 41(4), 766.  
<https://doi.org/10.1037/0022-3514.41.4.766>
- Grams, W. C., & Rogers, R. W. (1990). Power and personality: Effects of Machiavellianism, need for approval, and motivation on use of influence tactics. *The Journal of General Psychology*, 117(1), 71-82.  
<https://doi.org/10.1080/00221309.1990.9917774>
- Jakobwitz, S., & Egan, V. (2006). The dark triad and normal personality traits. *Personality and Individual Differences*, 40(2), 331-339.  
<https://doi.org/10.1016/j.paid.2005.07.006>
- Jonason, P. K., & Webster, G. D. (2010). The dirty dozen: a concise measure of the dark triad. *Psychological Assessment*, 22(2), 420. <https://doi.org/10.1037/a0019265>
- Jonason, P. K., Webster, G. D., Schmitt, D. P., Li, N. P., & Crysel, L. (2012). The antihero in popular culture: Life history theory and the dark triad personality traits. *Review of General Psychology*, 16(2), 192-199.  
<https://doi.org/10.1037/a0027914>
- Jones, D. N., & Paulhus, D. L. (2009). *Machiavellianism*. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (pp. 102-120). New York: Guilford Press.
- Kajonius, P. J., Persson, B. N., & Jonason, P. K. (2015). Hedonism, achievement, and power: Universal values that characterize the dark triad. *Personality and Individual Differences*, 77, 173-178.  
<https://doi.org/10.1016/j.paid.2014.12.055>
- Karasar, N. (2004). *Bilimsel Arastirma Yontemleri*. Ankara: Nobel Yayıncılık.
- Kareshki, H. (2011). Relation among machiavellianism belief and goal orientations in academic situations. *Procedia-social and Behavioral Sciences*, 12, 414-418.  
<https://doi.org/10.1016/j.sbspro.2011.02.051>
- Kernberg, O. (1975). *Sınır Durumlar ve Patolojik Narsisizm*. (Çev. M. Atakay), Birinci Baskı, Metis Kitabevi.
- Kohut, H. (1971). *Kendiliğin Çözümlemesi*. (Çev. Cem Atbaşoğlu, Banu Büyükkal, Cüneyt İşcan.) İstanbul: Metis Yayınları.
- Kowalski, R. M. (Ed.). (2001). *Behaving badly: Aversive behaviors in interpersonal relationships*. Washington, DC: American Psychological Association.  
<https://doi.org/10.1037/10365-000>
- McIlwain, D. (2011). Young Machiavellians and the traces of shame: Coping with vulnerability to a toxic affect. In C. T. Barry, P. K. Kerig, K. K. Stellwagen, & T. D. Barry (Eds.), *Narcissism and Machiavellianism in youth: Implications for the development of adaptive and maladaptive behavior* (pp. 213–231). American Psychological Association.  
<https://doi.org/10.1037/12352-012>
- Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12(4), 177–196. [https://doi.org/10.1207/S15327965PLI1204\\_1](https://doi.org/10.1207/S15327965PLI1204_1)
- Murdock, M. E. (1997). *The prediction of adjustment in institutionalized juvenile offenders*. University of North Texas.
- O'Connor, P. J., & Athota, V. S. (2013). The intervening role of agreeableness in the relationship between trait emotional intelligence and Machiavellianism: Reassessing the potential dark side of EI. *Personality and Individual Differences*, 55(7), 750-754.  
<https://doi.org/10.1016/j.paid.2013.06.006>
- Özsoy, E., & Ardiç, K. (2017). Examining the effects of the dark triad (narcissism, machiavellianism and psychopathy) on job satisfaction. *Yonetim ve Ekonomi*, 24(2), 391.  
<https://doi.org/10.18657/yonveek.297733>
- Paulhus, D. L., & Williams, K. M. (2002). The dark triad of personality: Narcissism, Machiavellianism, and



- psychopathy. *Journal of Research in Personality*, 36(6), 556-563. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6)
- Pincus, A. L., & Lukowitsky, M. R. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology*, 6, 421-446. <https://doi.org/10.1146/annurev.clinpsy.121208.131215>
- Rauthmann, J. F. (2012). Towards multifaceted Machiavellianism: Content, factorial, and construct validity of a German Machiavellianism Scale. *Personality and Individual Differences*, 52(3), 345-351. <https://doi.org/10.1016/j.paid.2011.10.038>
- Robbins, S.P. (1998) *Organizational Behavior: Concepts, Controversies, Applications*. New Jersey: Prentice Hall Inc. International Edition.
- Rozenblatt, S. (2002), *In Defence of Self: The Relationship of Self-Esteem and Narcissism to Agressive Behavior* (Yayınlanmamış Doktora Tezi), Long Island University, Psychology, USA
- Sagiv, L., & Schwartz, S. H. (2000). Value priorities and subjective well-being: Direct relations and congruity effects. *European Journal Of Social Psychology*, 30(2), 177-198. [https://doi.org/10.1002/\(SICI\)1099-0992\(200003/04\)30:2<177::AID-EJSP982>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1099-0992(200003/04)30:2<177::AID-EJSP982>3.0.CO;2-Z)
- Satıcı, S. A., Kayış A. R., Yılmaz, M. F., & Çapan, B. E. (2018). Dirty Dozen Scale: a study of adaptation to Turkish university students. *Anatolian Journal of Psychiatry*, 19(1), 34-40. <https://doi.org/10.5455/apd.288773>
- Satıcı, B. (2019). Testing a model of subjective well-being: The roles of optimism, psychological vulnerability, and shyness. *Health Psychology Open*, 6(2). <https://doi.org/10.1177/2055102919884290>
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1-65. [https://doi.org/10.1016/S0065-2601\(08\)60281-6](https://doi.org/10.1016/S0065-2601(08)60281-6)
- Schwartz, S. H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues*, 50, 19-45. <https://doi.org/10.1111/j.1540-4560.1994.tb01196.x>
- Schwartz, S. H. (1996). "Value Priorities and Behavior: Applying a Theory of Integrated Value Systems." Pp. 1-23 in *The Psychology of Values: The Ontario Symposium*, Vol. 8, edited by Clive Seligman, James M. Olson, and Mark P. Zanna. Hillsdale, NJ: Erlbau
- Schwartz, S. H. (1999). Cultural value differences: Some implications for work. *Applied Psychology: an International Review*, 48, 23-47. <https://doi.org/10.1111/j.1464-0597.1999.tb00047.x>
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. Online readings in *Psychology and Culture*, 2(1), 2307-0919. <https://doi.org/10.9707/2307-0919.1116>
- Schwartz, S. H. (2014). Rethinking the concept and measurement of societal culture in light of empirical findings. *Journal of Cross-Cultural Psychology*, 45(1), 5-13. <https://doi.org/10.1177/0022022113490830>
- Schwartz, S. H., & Boehnke, K. (2004). Evaluating the structure of human values with confirmatory factor analysis. *Journal of Research in Personality*, 38(3), 230-255. [https://doi.org/10.1016/S0092-6566\(03\)00069-2](https://doi.org/10.1016/S0092-6566(03)00069-2)
- Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology*, 32(5), 519-542. <https://doi.org/10.1177/0022022101032005001>
- Sedikides, C., & Gregg, A. P. (2008). Self-enhancement: Food for thought. *Perspectives on Psychological Science*, 3(2), 102-116. <https://doi.org/10.1111/j.1745-6916.2008.00068.x>
- Sencer, Muzaffer. (1989) *Toplum Bilimlerinde Yöntem*, İstanbul: Beta Basım Yayım Dağıtım.
- Sherry, S. B., Hewitt, P. L., Besser, A., Flett, G. L., & Klein, C. (2006). Machiavellianism, trait perfectionism, and perfectionistic self-presentation. *Personality and Individual Differences*, 40(4), 829-839. <https://doi.org/10.1016/j.paid.2005.09.010>
- Steg, L., Van Den Berg, A. E., & Groot, J. I. M. (2015). *Çevre psikolojisi* (Çev. LK Cicerali ve EE Cicerali). Nobel Akademik Yayıncılık, Ankara.
- Toplu Yaşlıoğlu, D., & Atılğan, Ö. (2018). Karanlık üçlü ölçeği: Türkçeye uyarlama, güvenilirlik ve geçerlilik çalışması. *Mehmet Akif Ersoy Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 5(3), 725-739. <https://doi.org/10.30798/makuiibf.435604>
- Twenge, J. M., & Campbell, K. (2015). *Asrın Vebası: Narsisizm İleti*. (3. Baskı). Çev. Ö. Korkmaz). İstanbul: Kaknüs Yayınları.
- Twenge, J. M., Konrath, S., Foster, J. D., Campbell, W. K., & Bushman, B. J. (2008). Further evidence of an increase in narcissism among college students. *Journal of Personality*, 76(4), 919-928. <https://doi.org/10.1111/j.1467-6494.2008.00509.x>
- Vangelisti, A. L., Daly, J. A., & Rae Rudnick, J. (1991). Making people feel guilty in conversations: Techniques and correlates. *Human Communication Research*, 18(1), 3-39. <https://doi.org/10.1111/j.1468-2958.1991.tb00527.x>
- Wilson, D. S., Near, D., & Miller, R. R. (1996). Machiavellianism: a synthesis of the evolutionary and psychological literatures. *Psychological Bulletin*, 119(2), 285. <https://doi.org/10.1037/0033-2909.119.2.285>
- Yazıcı, K., & Yazıcı, A. E. (2010). Neuroanatomical and Neurochemical Basis of Impulsivity. *Psikiyatride Güncel Yaklaşımlar*, 2(2):254-280
- Zeigler-Hill, V., & Vonk, J. (2015). Dark personality features and emotion dysregulation. *Journal of Social and Clinical Psychology*, 34(8), 692-704. <https://doi.org/10.1521/jscp.2015.34.8.692>

## A Latent Class Analysis Approach to Challenges Experienced by Faculty Members in Online Assessment in Higher Education

### Yüksek Öğretimde Çevrimiçi Değerlendirmede Fakülte Üyelerinin Yaşadığı Zorluklara Yönelik Gizli Sınıf Analizi Yaklaşımı

Emrah Gül<sup>1</sup> 

<sup>1</sup> Ph.D, Hakkari University, Faculty of Education, Hakkari, Türkiye

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##### \*Sorumlu Yazar

Emrah Gül

Hakkari Üniversitesi, Eğitim  
Fakültesi, Eğitim Bilimleri  
Bölümü

emrahgul@hakkari.edu.tr

**Abstract:** Online assessment is the use of computer technologies by faculty members to guide and check learning. Taking the advantage of technology, many universities have used online assessment applications to ensure sustainability in education due to the pandemic and natural disasters. The purpose of the current study is to explore challenges experienced by faculty members in online assessment, using latent class analysis. The descriptive design research was carried out with the participation of 105 faculty members. For the study, the number of latent classes was decided according to the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) and it was observed that the data structure was a good fit for a two-class model. According to the research results, the first class in online assessment applications was considered as the with-difficulty group (58.7 %) and the second as the without-difficulty group (41.3 %). When the conditional probabilities were examined, it was concluded that the observed variables that mostly contributed to the two-class model data structure were as follows, cheating, plagiarism and lack of education policies. It was found that the primary challenges in both groups (with or without difficulty) in online assessment applications were cheating, plagiarism and lack of education policies.

**Keywords:** Challenges in online assessment, latent class analysis, faculty members, higher education

**Öz:** Çevrim içi ölçme ve değerlendirme, öğretim elemanlarının öğrenmeyi yönlendirmek ve denetlemek için bilgisayar teknolojilerini kullanmasıdır. Pandemi ve doğal afetler nedeniyle eğitimde sürdürülebilirliğin sağlanması için birçok üniversite, teknolojinin getirdiği avantajlardan yararlanarak çevrim içi ölçme ve değerlendirme uygulamalarını kullanmışlardır. Betimsel türde tasarlanan bu araştırma 105 öğretim elemanı ile yürütülmüştür. Bu amaç ile geliştirilen ölçme ve değerlendirmeye yönelik zorlukları belirleyen ölçme aracı, öğretim elemanlarına uygulanmış ve sonuçlar örtük sınıf analizi ile incelenmiştir. Araştırmaya Akaike bilgi kriteri (AIC) ve Bayesyen bilgi kriteri (BIC) değerlerine göre örtük sınıf sayısının belirlenmesi ile başlanmış ve veri yapısının iki sınıflı model ile uyumlu olduğu belirlenmiştir. Sınıf sayısı belirlendikten sonra iki sınıflı yapı test edilerek maddelere ait koşullu olasılıklar hesaplanmış ve yorumlanmıştır. Araştırmanın sonuçlarına göre çevrim içi ölçme ve değerlendirme uygulamalarında oluşan sınıflardan birincisinin zorlanan gruba (%58.7) ikincisinin ise zorlanmayan guruba (% 41.3) ait olduğu tespit edilmiştir. Koşullu olasılıklar incelendiğinde, veri yapısının iki sınıflı olmasına en büyük katkıyı sağlayan gözlenen değişkenlerin: kopya çekme, intihal yapma ve eğitim politikalarının eksikliği olduğu sonucuna ulaşılmıştır. Her iki grupta (zorlanan veya zorlanmayan) da çevrim içi ölçme ve değerlendirme uygulamalarında zorlanılan konuların başında kopya çekme, intihal, eğitim politikalarının eksiklikleri olduğu bulunmuştur.

**Anahtar Kelimeler:** Çevrim içi değerlendirmenin zorlukları, gizli sınıf analizi, akademik personel, yüksek öğrenim

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## Introduction

Online assessment applications have become indispensable tools that have long been employed in higher education, but more frequently used for academic assessment by many educational institutions, particularly since the COVID-19 pandemic outbreak. Many countries have started to introduce online education in order to prevent educationally backward systems and to ensure sustainability, which has brought the need for online academic assessment (Bozkurt & Sharma, 2020). Contrary to what is thought, the history of online education is rather recent. Queensland University in Australia and Columbia University had accessible educational programs off the campus in 1890 and the 1920s respectively. According to Williams & Pabrock (1999), online education on the global scale has three steps:

- written materials, radio and videos between 1860 and 1960,
- stereo audio and video podcasts, computer disks for educational purposes between 1960 and 1990,
- hybrid technologies, virtual classes and internet technologies as of 1990 to present

In Turkey, the reason for unaccelerated online education is the common belief that literacy is much more important and that it is unlikely to have teacher-free education. The first distance learning practice in higher education was at the Law Faculty of Ankara University in 1956. Bank staff were trained by letters and completed the distance education program (Demir, 2014). Technological advancements and requirements have shifted online assessment and evaluation process from the traditional pen and paper methods at many educational levels to online forms (Cavus, 2015; Diprose, 2013; Dube, at al., 2009; Stone & Zheng, 2014). With the outbreak of the Covid-19 pandemic, the Turkish universities started online education as of 2019-2020 spring semester. They carried out all courses online as there was no other option for both faculty members and undergraduates to continue courses. Today, online education is not completely ended, 100% of some university courses are performed online. According to Montenegro-Rueda et al. (2021), the management of exams is one of the most important difficulties in online assessment during the Covid-19 pandemic. Cheating, family problems, power outages, and serious problems in accessing technology are the problems encountered in online assessment. Another

difficulty in online assessment is ensuring student motivation and attitude. In the online education process, one of the greatest challenges is undoubtedly the online assessment applications. Online assessment means academic assessment by faculty members or teachers, using various Internet-based measurement tools. It might be described as the distant (online) version of common face-to-face activities used for academic achievement assessment and feedback. The term online assessment is generally confronted together with certain concepts such as electronic assessment (Jordan, 2013) or computer-based assessment (Bull & McKenna, 2003; Sim, at al., 2004). It enables undergraduates to improve their prospective knowledge and skills in distance education systems (Weleschuk, at al., 2019). However, faculty members need training, and they must improve their own assessment systems for the integration of online assessment with distance education system (Bearman, at al., 2020). Online assessment can range from online or electronic assignment submission, test question submission to scoring or individualized testing (Collares & Cecilio-Fernandes, 2019; Wang & Kingston, 2019). It is frequently preferred by undergraduates and faculty members for several reasons. For example, its user-friendly interface provides academic assessment through games and simulations similar to recreational activities in the learning environment (Ridgway, at al., 2004). According to the research by Glamorgan University and Leeds Metropolitan University (Gilbert, at al., 2011), online assessment is also demanded for fast and efficient use (Peterson, 2013; Eljinini & Alsamaraï 2012), effective and instant feedback it offers, as well as increased student performances. In a study, Şenel & Şenel (2021) measured the students' perceptions about assessment quality and concluded that those who were involved in online assessment applications were mostly satisfied with the quality. Despite the above-mentioned benefits, online assessment is reported to have several drawbacks. Many researchers express that, in online assessment, analysis of practical skills, measurement of technical areas and the assessment of the obtained results are challenging (Osman, 2020; Bensaid & Brahimî, 2020). It is clear that online assessment leads to particular problems such as incompetencies of both undergraduates and faculty members in information and communication technologies and Internet and computer inaccessibility of certain groups. However, it also brings numerous benefits such as the display of different types of assignments or assessment and convenient, systematic response by students in exams (Alruwais, at al., 2018). In their study, Elsalem, et al. (2020) reported that 32% of the undergraduates suffered from more stress in exams because of online application. Similarly, it is widely known that faculty members have some difficulties as well. In a study in which the distant assessment perceptions of the faculty member in Faculty of Education were examined, Mirza (2021) found that the faculty members were lacking information on the online application of many assessment methods and did not prefer to use online exams for reasons like validity and reliability. In another study in which the data gathered from 50 different faculties, Guangul, at al. (2020) showed that the greatest challenges in online assessment process were academic dishonesty, technical infrastructure, and learning outcomes content. Some other main problems were the undergraduates' unfamiliarity with the computer, Internet and computer inaccessibility, difficulty in group project assessment and unfamiliarity of the faculty member

with technology (Jordan & Mitchell, 2009; Mitchell, at al., 2003).

The previous studies on distant assessment and evaluation applications have largely focused on undergraduates and instructional practices. In addition, influential factors on technology-based assessment tools usage by faculty members have been studied (Schneberger, at al., 2008; Terzis & Economides, 2011; Terzis, at al., 2013a, 2013b). It is seen that studies on online assessment are mostly those which have shown positive student attitudes (Dermo, 2009; Deutsch, at al., 2012; Fageeh, 2015; Jawaid, at al., 2014; Kumar, at al., 2013). These research, altogether, revealed that despite students' favorable attitudes towards online assessment, faculty members mainly prefer pen and paper assessment. One of the factors to have caused such a difference is considered as faculty member's hesitant behavior in online assessment applications, hence, limited or inadequate use of the applications (Amante, at al., 2019; Bloom, at al., 2018; Fageeh, 2015; Hamsatu, at al., 2016; Jamil, at al., 2012; Rolim & Isaias, 2018).

Although online assessment is a good method for academic assessment, it has led to new concerns about fairness, justice, test security, and test integrity. According to the previous research, there appears to be a need to study the influence of changes on undergraduates and faculty members. Providing online assessment in a safe, fair and valid fashion needs to be comprehensively examined (Middleton, 2022). According to Stiggins (1992), faculty members spend a third of their time on online assessment applications in teaching process. Considering the above-mentioned situation today, it requires spending a lot of time. The applications need to stimulate student motivation for learning. Additionally, assessment applications by faculty members are critical, not only for scoring, but also for permanent learning. When faculty members perform assessment applications online, the amount of time may double. Therefore, they are the ones to experience considerable difficulty in online assessment. The purpose of this study is to classify the challenges that faculty members experience in online assessment.

## Methods

The current research is a descriptive survey model as it aims to classify faculty members according to the challenges they experience in online assessment and to reveal the real conditions (Büyüköztürk, at al., 2012). Survey model studies are to identify actual conditions. In such studies, researchers do not attempt to influence and change conditions (Karasar, 2015). This research was carried out with the participation of 105 faculty members from Hakkari University, with at least one-semester online assessment experience.

## Data Collection

A 25-item measurement tool was designed to explore challenges in online assessment experienced by the faculty members. First, the literature was reviewed, and the greatest relevant challenges were defined. The measurement tool was sent to 3 measurement and evaluation experts and finalized after various editing in the light of the expert feedback. Following this, it was sent to 10 faculty members (four of them work in instructional technologies, three of them work in educational sciences, and three of them are field education) and rearranged in the light of their feedback. As a result, the 25-item questionnaire, which was initially designed and applied in the form of a 5-point Likert scale, was changed into

a 3-point scale, as needed, to have a better latent class analysis interpretation. An online platform was created for survey applications, and the survey link was sent to all participants via e-mail via the university network. Necessary security procedures have been created in the system so that each faculty member can apply the survey only once.

### Data Analysis

#### Validity and Reliability of Measurement Tool

Data validity and reliability was examined before data analysis. Before the explanatory factor analysis (EFA), data suitability for factor analysis was examined using Kaiser-Meyer-Olkin Measure (KMO) and Barlett test. The obtained results strongly suggested that the data was a good fit for EFA ( $\chi^2:1448.450, p<0.00$  ve KMO: .863). It was seen that the 25-item online assessment questionnaire was grouped under two factors, with a rate of 43% explained variance. When the items listed under the relevant factors were examined, the first factor was defined as the faculty member's personal challenges (25%), and the others as those of the undergraduates (22%). The Cronbach's Alpha reliability coefficient of the scale was found as 0.93.

The scale, which was prepared and applied as a 5-point Likert scale, was transformed into a 3-point scale to control the number of calculated parameters and to clearly reveal the number of classes. In order to reveal whether the validity and reliability of the scale was affected by both forms, factor analysis and reliability were recalculated while the scale was in a 3-point structure. For the transformed form, data validity and reliability was examined before data analysis. Before the exploratory factor analysis (EFA), data suitability for factor analysis was examined using Kaiser-Meyer-Olkin Measure (KMO) and Barlett test. The obtained results indicated that the data was a good fit for EFA ( $\chi^2:1235.216, p<0.00$  ve KMO: .821). It was seen that the 25-item online assessment questionnaire was grouped under two factors with a rate of 47% explained variance. When the items listed under the relevant factors were examined, the first factor was defined as the faculty member's personal challenges (22%), and the others as those of the undergraduates (21 %). The Cronbach's Alpha reliability coefficient of the scale was found as 0.91. As a result, the construct validity and reliability of the scale were found to be similar in both cases.

Latent class analysis was employed to classify faculty members according to the challenges they experience in online assessment and to interpret the obtained results. When the definition of a challenge is considered, it is described as facing a difficulty that requires a great mental or physical effort and thus tests one's skills to successfully achieve a task (Cambridge Dictionary, 2023). The term challenge is expressed with the help of resulting observed variables. When such structures are considered in education and psychology, observed variables, discrete variables and error variances are used. The variables are mostly employed when both discrete variable and observed variable are continuous or assumed as such. However, such structures may not be always continuous. According to Bartholomew, at al. (2011) discrete variable models are grouped under four main categories; factor analysis with continuous discrete and observed variable (1), latent profile analysis with continuous discrete variable, discontinuous observed variable (2), item response theory with continuous discrete variable, and discontinuous observed variable (3) and latent class analysis with discontinuous

discrete and observed variables. In the study, the results were interpreted, using latent class analysis because of its benefits and the right data structure for the analysis.

### Latent Class Analysis

Latent class analysis first used by Lazerfeld (1950), particularly to explore the latent structure in attitude scales, aims to show the underlying discrete variables for the data obtained by categorical variables. It is seen in the literature that multi-group latent class analysis is mostly employed in measurement invariance studies (Altıntaş & Kutlu, 2020; Eid, at al., 2003; Moors & Wennekers, 2003; Kankaras & Moors, 2009; Kankaras, at al., 2010; Güngör-Çulha, 2012; Güngör, at al., 2013; Finch, 2015; Yandı, at al., 2017; Doğan-Gül, 2022). In this research, it was used to assess challenges experienced by the faculty members, with the help of the resulting number of classes and response probabilities to each category. In latent class analysis, when the discrete structure is examined, the observed variables are supposed to be conditionally independent (Vermunt & Magidson, 2004). Goodman (1974) explains latent class analysis in equity 1 as follows:

$$\pi_{xyz}^{ABC} = \sum_{t=1}^T \pi_t^X \pi_{xt}^{AIX} \pi_{yt}^{BIX} \pi_{zt}^{CIX} \quad (1)$$

In Equity 1, for a three-category measurement tool for the three observed variables (A, B and C), it is meant to have categories as many as t number and discrete variables as many as X. If the number of latent classes is found as 2 or t equals to 2 (t=2), it is represented as  $\pi_1^x$  and  $\pi_2^x$ .  $\pi_1^x$  and  $\pi_2^x$  refer to the categorical likelihood in the latent class. For example, when there is a two-class measurement tool, then, in the scale, the responses to each item in class 1 or class 2 list the following options: "I agree", "I am undecided" and "I disagree". In the formula mentioned above, the number of latent classes (t) is supposed to be at least two. When the number of latent classes is 1, it means that observed variables are independent.

In the study, software R (R Development CoreTeam, 2007) was used for the latent class analysis. In this open resource software, latent class analysis is performed with the help of pre-structured packages. In the research, packages, poLCA, dplyr and plyr, were used for the latent class analysis. Package poLCA is employed for latent class model and latent class regression model estimation, with multi-scored items (Linzer & Lewis, 2007; R Development CoreTeam, 2007). Package poLCA uses Expectation-Maximization-EM for maximizing the Likelihood function of latent class model parameter estimation (Kankaras, et al. 2010). The algorithm starts with an initial value and continues parameter estimation until it reaches the defined criteria equals (McCutcheon, 1987). The open resource software R defines probabilistic parameter estimation for conditional probabilities and latent class probabilities. It enables interpretations through conditional probabilities of the relevant item response distributions concerning the number of classes, class sizes, and membership in given data. In latent class analysis, the low number of observed and discrete variables offers a clearer interpretation. According to Lin (2006), a measurement model with the lower number of parameters must be preferred for an easy interpretation of the relevant model. When the best model for data is decided, certain statistical treatments might be employed as well as simplicity and uncomplicated interpretability (Collins & Lanza, 2010; Silvia, et al., 2009). It



is for this reason; the research data was applied as designed a 3-point scale for an easier interpretation of the number of estimated parameters.

**Results**

In the research, first, the number of classes was decided. When the class number is 1, it means that observed variables are independent. A one-class local independence model was initially employed, and the number of classes was added 1 more in each sequence to have parameter estimations up to a six-class model, and this process is presented in Table 1.

When all models are examined, the first thing that stands out is the negative degree of freedom. The negative degree of freedom makes it difficult to define the model (McCutcheon, 1987). Therefore, other suggested factors were evaluated in defining the model. In the literature, the Bayesian Information Criterion (BIC) value is the reference for the assessment of the number of classes, as it is not influenced by population size (Kankaras, et al. 2010). The Akaike Information Criterion (AIC), BIC, and the versions of these two criteria are used as the best model indicators. In the research, the model with the minimum value information criterion was chosen and the relevant parameter estimations were interpreted. When Table 1 is examined, it is seen that the minimum BIC value was obtained in the two-class model. In this case, the data was decided to be a good fit for the two-class model. According to Wang et al. (2017), the Entropy value shows how accurately the established model defines the classes. This value is generally expected to be close to 1. This value of 0.8 and above is stated as an acceptable value (Celeux & Soromenho, 1996). The entropy value calculated for the two-class model in this research is 0.954. This value shows that the classification is appropriate for the two-class model.

Following this step, the two-class model was applied for parameter estimations and the parameters were interpreted. When the latent class probabilities for the two-class model are considered, it is seen that the distributions of the participant faculty members were 58% for Class 1 and 41% for Class 2. When the item contents are considered, it is clear that Class 1 was the group relatively with more difficulty in online assessment applications compared to Class 2. This is more clearly shown in figure 1.

When figure 1 is examined, it is seen in the difficulty items that the more likely probability response was “I agree” for the group in Class 1 and “I disagree” for the group in Class 2. It is clear that the majority of the group in the research (58%) had difficulty with online assessment applications. When the conditional probabilities of Class 1 are examined, it is seen that the faculty members in this group had negative attitudes towards online assessment applications. The reason why this

group with the percentage of 58 was independently classified was the observed variable, particularly for plagiarism and cheating. The second group with the percentage of 41 was perceptively found to have more difficulty with the same issues, although it was the one with less difficulty in online assessment applications. On item basis, the two-class models were independently examined for conditional probabilities.

**Findings of the With-difficulty group (Class 1) in Online Assessment Applications**

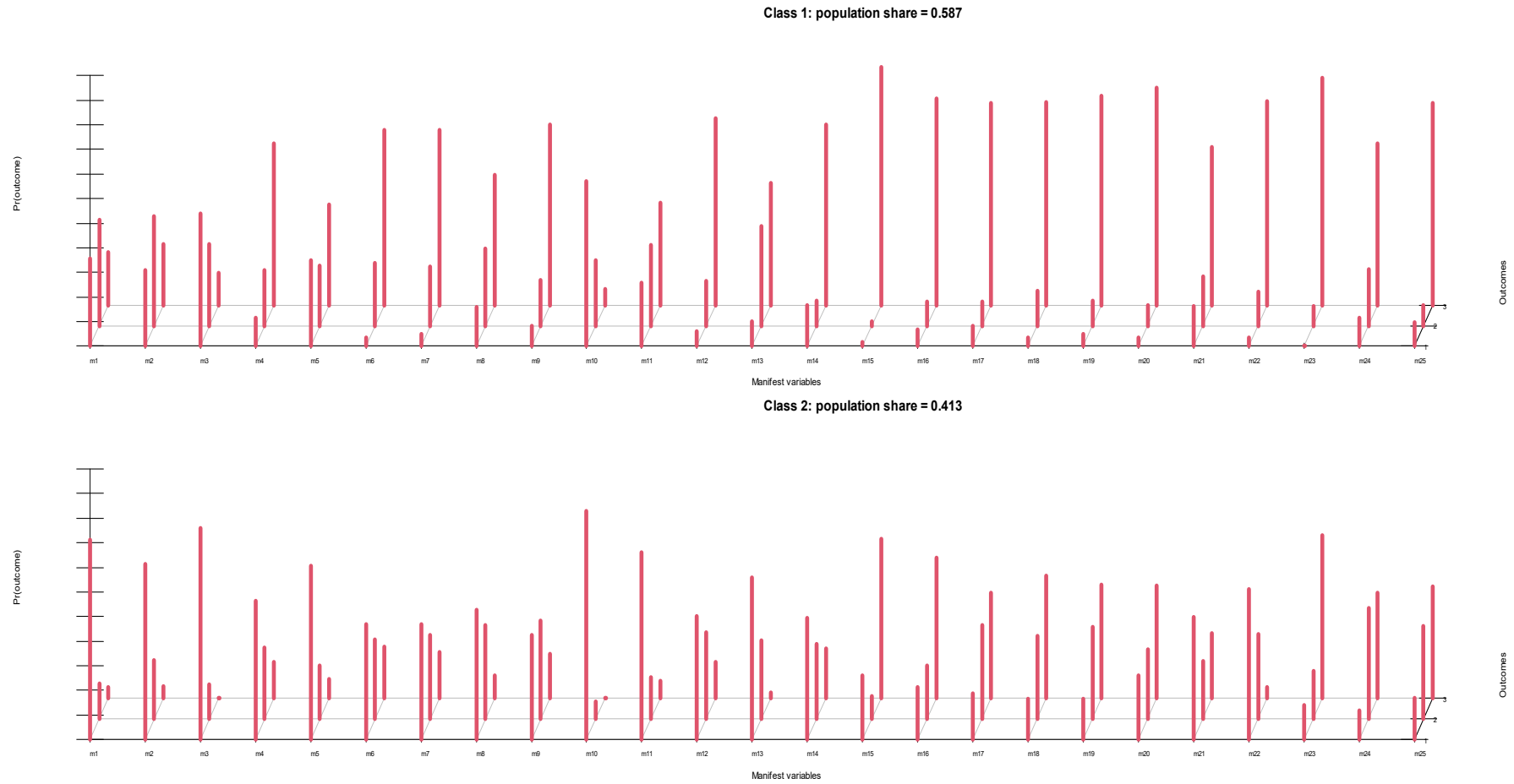
When the results of the with-difficulty group in online assessment applications are examined, it is clear that student cheating behavior and disposition towards plagiarism were found the most challenging. In Table 2, the conditional probabilities of Class 1 are listed.

When Table 2 is examined, it is seen that cheating and plagiarism were the two compelling situations for the faculty members. When the conditional probabilities of cheating are considered, it is clear that 97% of the group in Class 1 had the highest probability to choosing the “I agree” option for cheating and the same applied for 92% of the same group for plagiarism. In a study of the data collected from 50 faculties, Guangul et al. (2020) suggested that the greatest challenge in online assessment process was academic dishonesty. In a study, Momeni (2022) showed the participant faculty member had hesitant or negative attitudes towards online assessment. Another research result here was that the faculty members had the greatest challenges with cheating, plagiarism, Internet access issues, and poor technology-related knowledge. Hence, the above-mentioned research result is parallel to the findings obtained by this study. Figure 2 was designed to present detailed information on the resulting greatest challenges.

When figure 2 is examined, it is seen that the following were some of the greatest challenges in online assessment applications for the participant faculty members; lack of education policies, underinvestment, assignments taken from the Internet, lack of feedback, lack of training, Internet inaccessibility, software and security issues, operating system issues, student motivation, time spent, student adaptation and confusion. In their study, Whitelock, et al., (2006) identified student motivation as the first step in the online assessment cycle, which is in congruent with our research findings. Unfamiliarity with computers, Internet and computer inaccessibility, group project assessment challenges and faculty members' unfamiliarity with technology are known to be the difficulties shown in studies by many researchers (Jordan & Mitchell, 2009; Mitchell, et al., 2003).

**Table 1.** Latent Class Model Estimation in Data Set from One-class Model to Six-class Model

Number of Classes	LL	Res.df	BIC	aBIC	cAIC	Entropi	Error
One-class model	-2371.99	53	4975.73	4817.79	5025.73	-	-
Two-class model	-2107.69	2	4683.48	4364.44	4784.48	0.95	0.15
Three-class model	-1987.30	-49	4684.09	4198.95	4831.09	0.97	0.70
Four-class model	-1949.91	-100	4840.67	4199.43	5043.67	NaN	0.23
Five-class model	-1930.54	-151	5038.31	4235.97	5292.31	NaN	0.14
Six-class model	-1897.08	-202	5207.77	4244.32	5512.77	NaN	0.16

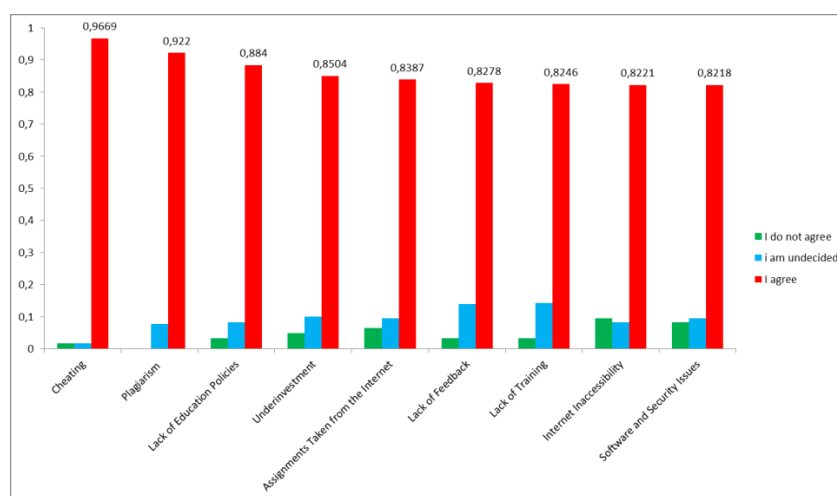


**Figure 1.** Conditional response probabilities of the obtained two-class model



**Table 2.** Conditional probabilities of item responses of class 1 (with-difficulty group)

Challenges	I Disagree	I am Undecided	I Agree
<b>In Online Assessment;</b>			
	<b>Conditional Probabilities (<math>\pi_t^x</math>)</b>		
Cheating	0.0165	0.0165	0.9669
Plagiarism	0.0000	0.0780	0.9220
Lack of Education Policies	0.0333	0.0827	0.8840
Underinvestment	0.0498	0.0998	0.8504
Assignments Taken from the Internet	0.0659	0.0954	0.8387
Lack of Feedback	0.0332	0.1389	0.8278
Lack of Training	0.0331	0.1423	0.8246
Internet Inaccessibility	0.0955	0.0824	0.8221
Software and Security Issues	0.0826	0.0956	0.8218
Operating System Issues	0.0606	0.1822	0.7573
Student Motivation	0.0828	0.1831	0.7341
Time Spent	0.1653	0.1008	0.7340
Student Adaptation	0.0348	0.2537	0.7115
Student Confusion	0.0497	0.2397	0.7105
Limitation of Techniques	0.1161	0.2264	0.6574
Technological Incompetence	0.1160	0.2276	0.6564
Security of Records	0.1618	0.1978	0.6404
Loss of Motivation Over Time	0.1588	0.3119	0.5293
Multiple Exams	0.1002	0.4033	0.4965
Restriction of Faculty Member Freedom	0.2588	0.3273	0.4139
Inflexibility in Scoring	0.3479	0.2448	0.4073
Scoring	0.3086	0.4439	0.2474
Assessment Information	0.3553	0.4296	0.2151
Transparency	0.5366	0.3310	0.1324
Board Pressure	0.6699	0.2639	0.0662



**Figure 2.** Greatest challenges for with-difficulty group

One of the benefits of latent class analysis is that probable reasons are explored by the interpretation of other response options. When the relevant questionnaire items are examined, it is seen that the faculty member was likely to choose the “I am undecided” option in many items, although the chances for the “I agree” option in some items were low. For example, when “scoring” and “assessment information” are examined, despite the low difficulty level, it is seen that the probability response to the “I am undecided” option was high. It is also observed that the conditional probability of the participants in Class 1 in “scoring” was 44% for the “I am undecided” option. This means the faculty members in this group had difficulty in scoring. On the other hand, the same applies to the conditional probabilities of (43%) the responses to “assessment information”. The other items with a high probability of

response to the “I am undecided” option were “loss of motivation over time” and “multiple exams”. In a study, Flavin (2021) concluded that the participant faculty members had negative views on online assessment tools due to the new, multiple approaches towards online assessment, although they used such applications.

**Findings of Class 2 (without-difficulty group) in Online Assessment Applications**

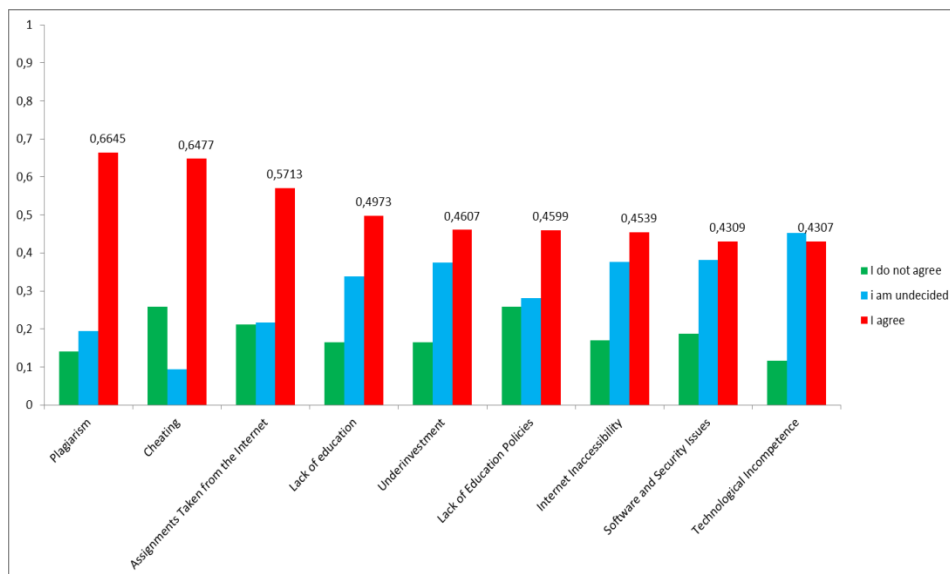
When the results of the without-difficulty group in online assessment applications are examined, it is seen that the greatest challenges were the disposition towards “plagiarism in assignments” and “student cheating behavior”. In Table 3, the conditional probabilities of Class 2 are listed.

**Table 3.** Conditional probabilities of item responses in class 2 (without-difficulty group)

Challenges	I Disagree	I am Undecided	I Agree
<b>In Online Assessment;</b>			
<b>Conditional Probabilities (<math>\pi_t^x</math>)</b>			
Plagiarism	0.1409	0.1946	0.6645
Cheating	0.2584	0.0940	0.6477
Assignments Taken from the Internet	0.2118	0.2169	0.5713
Lack of Training	0.1644	0.3383	0.4973
Underinvestment	0.1642	0.3751	0.4607
Lack of Education Policies	0.2581	0.2819	0.4599
Internet Inaccessibility	0.1698	0.3763	0.4539
Software and Security Issues	0.1881	0.3811	0.4309
Technological Incompetence	0.1173	0.4521	0.4307
Security of Records	0.4986	0.2360	0.2654
Student Adaptation	0.4673	0.3212	0.2115
Time Spent	0.4936	0.3033	0.2031
Student Confusion	0.4697	0.3409	0.1894
Student Motivation	0.4228	0.3978	0.1794
Limitation of Techniques	0.5634	0.2893	0.1473
Operating System Issues	0.5013	0.3522	0.1465
Loss of Motivation Over Time	0.5262	0.3795	0.0943
Inflexibility in Scoring	0.7042	0.2162	0.0796
Restriction of Faculty Member Freedom	0.7601	0.1696	0.0703
Scoring	0.7129	0.2390	0.0481
Assessment Information	0.8111	0.1418	0.0470
Lack of Feedback	0.6105	0.3431	0.0464
Multiple Exams	0.6564	0.3201	0.0235
Transparency	0.8591	0.1409	0.0000
Board Pressure	0.9283	0.0717	0.0000

When Table 3 is examined, it is seen that the two most challenging behaviors for the faculty member were “plagiarism” and “cheating”. When the conditional probabilities for plagiarism are considered, it is clear that 66% of the group in Class 2 had a probability to choose the “I agree” option, whereas the rest (65%) had a probability to choose the “I agree” option for cheating. On the other hand, the responses to the items such as “assignments taken from the Internet”, “lack of training”, “underinvestment” and “lack of education policies”, which were among the most difficult areas for the faculty members, were found to have high conditional probabilities. When compared to the other group (with-difficulty), the low conditional probabilities mean the group

had less difficulty in online assessment applications. When the responses to certain items are examined in detail, it is seen that the responses to the following items focused on both categories: software and security issues (38% I am undecided - 43% I agree) and technological incompetence (45% I am undecided - 43% I agree). This appears to be another finding of the research that shows the participants mostly preferred the “I am undecided” option, despite generally being without-difficulty in online assessment applications. The greatest challenges seemed to be transparency (86%) and board pressure (93%). Figure 3 was designed to present detailed information on the resulting greatest challenges.



**Figure 3.** Greatest challenges for without-difficulty group

When figure 3 is examined, in consideration with the conditional probabilities to the following items, despite the high probability of response to the “I disagree” option, the participants mostly considered the “I am undecided” option; security of records (I disagree: 50% - I am undecided: 24%), student adaptation (I disagree: 50% - I am undecided: 24 %), time spent (I disagree: 49% - I am undecided: 30%), student confusion (I disagree: 47% - I am undecided: 34 %) and student motivation (I disagree: 42% - I am undecided: 40 %). This shows certain confusion in relevant areas.

## Results and Discussion

Online assessment applications have appeared as requirements of the era both in the past and future. According to Stiggins (1992), faculty members spend a third of their time on online assessment applications for teaching, which makes up a great deal of time at work. Contrary to what is thought, online assessment is not a new, but a long-practiced method (Demir, 2014). In this research, challenges in online assessment applications experienced by the faculty members were examined. To this end, the greatest challenges in the literature were defined, and a measurement tool was designed as a result of the expert views and pretesting. Due to the nature of the measured structure, the observed-discrete variables are assumed to be continuous, which can make data interpretation difficult by using the well-known methods. However, they do not always have the continuous structure. As a result, latent class analysis was used to explore challenges experienced by the faculty member and to interpret the obtained data.

For the research, first, the number of latent classes was decided, and the data structure was considered to be a good fit for the two-class model. Following the decision on the number of classes, the two-class model was tested, and the item conditional probabilities were identified and interpreted. According to the obtained results, Class 1 was the with-difficulty group in online assessment applications, whereas Class 2 was the without-difficulty group. The former consisted of 59% of the participant faculty member. According to the result, a majority of the staff had difficulty in online assessment applications. When the conditional probabilities were examined, it was concluded that the observed variables to contribute most to the two-class data structure were as follows; cheating, plagiarism and lack of education policies. In a study, Guangul, et al. (2020) concluded that academic dishonesty was the most critical issue in online assessment. In their qualitative study, Vurdien & Puranen (2022) explored the perceptions of 34 faculty members about online assessment process and the experienced challenges. They pointed out that the most significant drawback, as taught by the faculty members, was the trust issues. For a more-detailed interpretation of the research results, the conditional probabilities of the classes were independently examined. In the groups with or without difficulty, the greatest challenges were similar, but the with-difficulty group highlighted lack of education policies and underinvestment in online assessment, whereas the without-difficulty group emphasized the assignments taken from the Internet and lack of training. According to Oosterhof (2008), if the expected performance and the purpose of evaluation and assessment are clearly expressed, dishonesty level could be minimized. Motivating students for assessment and learning prevents undesired behaviors. It is also ensured by guidance and feedback from faculty members. Khare & Lam (2008) associates dishonesty level with student' academic level. For instance, post-graduate

students, compared to undergraduates, are asserted to have lower dishonesty levels, which is explained by the fact that post-graduates (at least in ideal cases) are mainly motivated by specialization in their relevant study fields and their commitment to meaningful usage in context. Supporting the idea, Khare and Lam (2008) observed that adult students generally prefer to improve their education on their own initiatives and have high chances to deep learning approaches to ensure minimum cheating. In addition, they suggested that whether constructive or summative, online assessment was more suitable for those assuming with autonomy and self-regulation dispositions. Another significant finding of the research is student adaptation and motivation. It is seen that when student motivation increases, the emerging challenges might be easily overcome. In the suggested online assessment cycle, Whitelock et al. (2006) suggests that the first step is motivation. The greatest challenge for undergraduates can be the unfamiliarity with computers or online assessment systems (Way, 2012). The current research has also shown that this problem is one of the greatest challenges. Sa'di, et al., (2021) point out that final exams given by faculty members are not "the beginning and the end of everything". However, many faculty members believe they cannot “electronically evaluate exams”. For most of them, the reason is that the majority of students might be able to cheat during final exams and receive low scores despite all e-monitoring precautions. The failure to demonstrate real performance and especially undeserved high scores mean students are going to graduate with plenty of professional incompetencies. It can be suggested that online exams should be given in careful consideration with short, scientific methods, and that every student must be assigned a random question set in exams (Zhai, et al., 2020). Undergraduates will avoid plagiarism when given further information on academic honesty and on course syllabuses in detail (Lockman & Schirmer, 2020). Various assessment tools will also considerably decrease cheating (Darling-Aduana, 2021). Thus, faculty members and undergraduates must be well-informed about technological infrastructure and employed methods and provided with a sense of trust in systems in related areas.

## Author Contributions

The author declares that no other author has contributed to the study and that he has read and approved the final version of the study.

## Ethical Declaration

This research received approval from the Hakkari University's research ethics committee with the reference number: 20.12.2022-43035.

## Conflict of Interest

The author(s) declare that there is no conflict of interest with any institution or person within the scope of the study.

## References

- Alruwais, N., Wills, G. & Wald, M. (2018). Advantages and challenges of using e-assessment. *International Journal of Information and Education Technology*, 8(1), 34-37. <https://www.ijet.org/vol8/1008-JR261.pdf>
- Altıntaş, Ö. & Kutlu, Ö. (2020). Investigating Measurement Invariance of Ankara University Foreign Students Selection Test According to Latent Class and Rasch

- Model, *Education and Science*, vol.45, no.203, pp.287-308, <http://dx.doi.org/10.15390/EB.2020.8685>
- Amante, L., Oliveira, I. R. & Gomes, M. J. (2019). E-assessment in Portuguese higher education: Framework and perceptions of teachers and students. In A. Azevedo & J. Azevedo (Eds.), *Handbook of research on e-assessment in higher education* (pp. 312–333). IGI Global.
- Bartholomew, P. M., Knott, M. & Moustaki, I. (2011). *Latent variable models and factor analysis a unified approach 3rd edition*. West Sussex: John Wiley & Sons, Ltd.
- Bearman, M., Dawson, P., Ajjawi, R., Tai, J. & Boud, D. (2020). Re-imagining university assessment in a digital world. *The Enabling Power of Assessment*, 7. Retrieved from <https://doi.org/10.1007/978-3-030-41956-1>
- Bensaid, B. & Brahimi, T. (2020). Coping with COVID-19: Higher education in the GCC countries. *Springer Proceedings in Complexity*, 137–153. [https://doi.org/10.1007/978-3-030-62066-0\\_12](https://doi.org/10.1007/978-3-030-62066-0_12)
- Bloom, T. J., Rich, W. D., Olson, S. M. & Adams, M. L. (2018). Perceptions and performance using computer-based testing: One institution's experience. *Currents in Pharmacy Teaching and Learning*, 10(2), 235–242. <https://doi.org/10.1016/j.cptl.2017.10.015>
- Bozkurt, A. & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), 1-6. <https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/447/297>
- Bull, J. & McKenna, C. (2003). *A blueprint for computer-assisted assessment*. Routledge.
- Büyükoztürk, Ş., Kılıç Çakmak, E., Akgün, Ö.E., Karadeniz, Ş. & Demirel, F. (2012). *Bilimsel araştırma yöntemleri*. Ankara: Pegem Yayınları
- Cavus, N. (2015). Distance learning and learning management systems. *Procedia-Social and Behavioral Sciences*, 191(2), 872-877. <https://doi.org/10.1016/j.sbspro.2015.04.611>
- Celeux, G. & Soromenho, G. (1996). An entropy criterion for assessing the number of clusters in a mixture model. *Journal of Classification*, 13(2), 195-212. <https://doi.org/10.1007/BF01246098>
- Collares, C. F. & Cecilio-Fernandes, D. (2019). When I say ... computerised adaptive testing. *Medical Education*, 53(2), 115–116. <https://doi.org/10.1111/medu.13648>
- Collins, L. M. & Lanza, S. T. (2010). *Latent class and latent transition analysis with application in the social, behavioral, and health sciences*. New Jersey: John Wiley and Sons, Inc.
- Darling-Aduana, J. (2021). Authenticity, engagement, and performance in online high school courses: Insights from micro-interactive data. *Computers & Education*, 167, 104175. <https://doi.org/10.1016/j.compedu.2021.104175>
- Demir, E. (2014). Uzaktan eğitime genel bir bakış. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, (39) <https://dergipark.org.tr/tr/download/article-file/55935>
- Dermo, J. (2009). e-Assessment and the student learning experience: A survey of student perceptions of e-assessment. *British Journal of Educational Technology*, 40(2), 203–214. <https://doi.org/10.1111/j.1467-8535.2008.00915.x>
- Deutsch, T., Herrmann, K., Frese, T. & Sandholzer, H. (2012). Implementing computer-based assessment A web-based mock examination changes attitudes. *Computers & Education*, 58(4), 1068–1075. <https://doi.org/10.1016/j.compe du.2011.11.013>
- Diprose, M. (2013). Learning and assessment credibility: The design of examination strategies in a changing learning environment. *Knowledge Management & E-Learning: An International Journal*, 5(1), 104-116. <https://doi.org/10.34105/j.kmel.2013.05.008>
- Doğan-Gül, Ç. (2022). *TIMSS-2015 araştırmasının dil ve cinsiyete göre ölçme değişmezliğinin gizil sınıf analizi ile incelenmesi*. (Yayımlanmamış doktora tezi). Ankara Üniversitesi, Ankara, Türkiye.
- Dube, T., Zhao, Z. & Ma, M. (2009). *E-assessment and design methodology management*. <http://eprints.hud.ac.uk/id/eprint/23208>
- Eid, M. & Diener, E. (2001). Norms for affect in different cultures: Inter- and intraindividual differences. *Journal of Personality and Social Psychology*, 81, 869-885. <https://doi.org/10.1037/0022-3514.81.5.869>
- Eljinini, M. & Alsamarai, S. (2012). The impact of e-assessments system on the success of the implementation process,” *Mod. Educ. Comput. Sci.*, vol. 4, no. 11, pp. 76–84. <https://doi.org/10.5815/ijmecs.2012.11.08>
- Elsalem, L., Al-Azzam, N., Jum’ah, A., Obeidat, N., Sindiani, A. & Kheirallah, K. (2020). Stress and behavioral changes with remote E-exams during the Covid- 19 pandemic: A cross-sectional study among undergraduates of medical sciences. *Elsevier*, 60, 270-280. <https://doi.org/10.1016/j.amsu.2020.10.058>
- Pageeh, A. I. (2015). EFL student and faculty perceptions of and attitudes towards online testing in the medium of Blackboard: Promises and challenges. *The JALT CALL Journal*, 11(1), 41–62. <https://doi.org/10.29140/jaltc all.v11n1.183>
- Finch, H. (2015). A comparison of statistics for assessing model invariance in latent class analysis. *Open Journal of Statistics*, 5, 191-210. <https://www.doi.org/10.4236/ojs.2015.53022>
- Flavin M., (2022). A Disruptive Innovation perspective on students’ opinions of online assessment. *Research in Learning Technology*, 2021, 29: 2611 <http://dx.doi.org/10.25304/rlt.v29.2611>
- Gilbert, L., Whitelock, D. & Gale, V. (2011) “Synthesis report on assessment and feedback with technology enhancement,” *Southampton*.
- Goodman, L. A. (1974). Exploratory latent structure analysis using identifiable models, *Biometrika*, 61(2), 215-231. <https://doi.org/10.2307/2334349>
- Guangul, F. M., Suhail, A. H., Khalit, M. I. & Khidhir, B. A. (2020). Challenges of remote assessment in higher education in the context of COVID-19: a case study of Middle East College. *Educational Assessment, Evaluation and Accountability*, 32(4), 519–535. <https://doi.org/10.1007/s11092-020-09340-w>
- Güngör, D., Korkmaz, M. & Somer, O. (2013). Çoklu-Grup Örtük Sınıf Analizi ve Ölçme Eşdeğerliği. *Türk Psikoloji Dergisi*, 28 (72), 48-57. <https://www.tpd.com.tr/tr/yayinlar/dergiler/1031828/tpd1300443320130000m000061.pdf>
- Güngör-Çulha, D. (2012). *Örtük sınıf analizlerinde ölçme eşdeğerliğinin incelenmesi*. (Yayımlanmamış doktora tezi). Ege Üniversitesi, İzmir, Türkiye.
- Hamsatu, P., Yusufu, G. & Mohammed, H. A. (2016). Teachers' perceptions and undergraduate students'



- experience in e-exam in higher institution in Nigeria. *Journal of Education and Practice*, 7(23), 158–166. <https://files.eric.ed.gov/fulltext/EJ1112920.pdf>
- Heritage, M. (2007). Formative assessment: What do teachers need to know and do? *Phi Delta Kappan*, 89(2), 140-145. <https://doi.org/10.1177/003172170708900210>
- Jamil, M., Tariq, R. H. & Shami, P. A. (2012). Computer-based vs paper-based examinations: Perceptions of university teachers. *Turkish Online Journal of Educational Technology*, 11(4), 371–381. <https://files.eric.ed.gov/fulltext/EJ989302.pdf>
- Jawaid, M., Moosa, F. A., Jaleel, F. & Ashraf, J. (2014). Computer based assessment (CBA): Perception of residents at Dow University of Health Sciences. *Pakistan Journal of Medical Sciences*, 30(4), 688. doi: <http://dx.doi.org/10.12669/pjms.304.5444>
- Jordan, S. & Mitchell, T. (2009). E-assessment for learning? The probability of short-answer free-text questions with tailored feedback. *Br. J. Educ. Technol.*, vol. 40, no. 2, pp. 371–385, Mar. 2009. <https://doi.org/10.1111/j.1467-8535.2008.00928.x>
- Jordan, S. (2013). E-assessment: Past, present and future. *New Directions in the Teaching of Physical Sciences*, (9), 87-106. <https://doi.org/10.29311/ndtps.v0i9.504>
- Kankaras, M. & Moors, G. (2009). Measurement equivalence in solidarity attitudes in Europe. Insights from a multiple group latent class factor approach. *International Sociology*, 24(4), 557-579. <https://doi.org/10.1177/0268580909334502>
- Kankaras, M., Moors, G.B.D. & Vermunt, J.K. (2010). *Testing for measurement invariance with latent class analysis*. In E. Davidov, P. Schmidt, & J. Billiet (Ed.), *Cross-cultural analysis. Methods and applications* (ss. 359-384). Taylor & Francis Group: Routledge.
- Karasar, N. (2015). *Araştırmalarda Rapor Hazırlama* (19. Basım). Nobel Yayınları, ISBN: 978-605-5426-15-6, İstanbul, 152 s.
- Khan, S. & Khan, R. A. (2019). Online assessments: Exploring perspectives of university students. *Education and Information Technologies*, 24, 661–677 <https://doi.org/10.1007/s10639-018-9797-0>
- Khare, A. & Lam, H. (2008). Assessing student achievement and progress with online examinations: some pedagogical and technical issues. *International Journal on E-Learning*, 7(3), 383–402. <https://www.learntechlib.org/primary/p/23620/>.
- Kumar, L. R., Bedra, A. & Karkera, R. (2013). Perception of medical students on e-assessment conducted through Yengage portal. *Archives of Medicine and Health Sciences*, 1(1), 61. <https://doi.org/10.4103/2321-4848.113577>
- Lazerfeld, P. F. (1950). *The logical and mathematics foundations of latent structure analysis. in measurement and prediction* (ed. Stouffer at all.) Princeton University Press.
- Lin, H. T. (2006). A comparison of model selection indices for nested latent class models. *Monte Carlo Methods and Applications*, 12(3), 239-259. <https://www.doi.org/10.1515/156939606778705164>
- Linzer, D. A. & Lewis, J. (2007). polCA: Polytomous Variable Latent Class Analysis. R. *JSS Journal of Statistical Software*, VV(II), <https://www.sscnet.ucla.edu/polisci/faculty/lewis/pdf/poLCA-JSS-final.pdf>
- Lockman, A. S. & Schirmer, B. R. (2020). Online instruction in higher education: Promising, research-based, and evidence-based practices. *Journal of Education and E-Learning Research*, 7(2), 130–152. <https://doi.org/10.20448/journal.509.2020.72.130.152>
- McCutcheon, A. L. (1987). *Latent class analysis*. Sage University Papers Series.
- Middleton, K. V. (2022). Considerations for Future Online Testing and Assessment in Colleges and Universities. *Educational Measurement: Issues and Practice*, 41, 1, 51–53. <https://doi.org/10.1111/emip.12497>
- Mirza, H. (2021). University Teachers' Perceptions of Online Assessment during the Covid-19 Pandemic in Lebanon, *American Academic & Scholarly Research Journal*, 13(1). <https://aasrc.org/aasrj/index.php/aasrj/article/view/2064/1187>
- Mitchell, T., Aldridge, N., Williamson, W. & Broomhead, P. (2003). Computer based testing of medical knowledge. Presented at the 7th Computer Assisted Assessment Conference.
- Momeni, A. (2022). Online Assessment in Times of COVID-19 Lockdown: Iranian EFL Teachers' Perceptions, *International Journal of Language Testing*. Vol. 12, No. 2, October 2022. <https://files.eric.ed.gov/fulltext/EJ1363125.pdf>
- Montenegro-Rueda, M., Luque-de la Rosa, A., Sarasola Sánchez-Serrano, J.L. & FernándezCerero, J. (2021). Assessment in Higher Education during the COVID-19 Pandemic: A Systematic Review. *Sustainability*, 13, 10509. <https://doi.org/10.3390/su131910509>
- Moors, G. & Wennekers, C. (2003). Comparing moral values in western european countries between 1981 and 1999. A multigroup latent-class factor approach. *International Journal of Comparative Sociology*, 44(1):155-172. <https://doi.org/10.1177/002071520304400203>
- Oosterhof, A., Conrad, R. M. & Ely, D. P. (2008). *Assessing learners online*. New Jersey: Pearson.
- Osman, M. E. (2020). Global impact of COVID-19 on education systems: The emergency remote teaching at Sultan Qaboos University. *Journal of Education for Teaching*, 46(4), 463-471. <https://doi.org/10.1080/02607476.2020.1802583>
- Peterson, D. (2013). Five steps to better tests. Questionmark White Paper. Retrieve from <https://www.questionmark.com/test-design-and-delivery-overview/>
- R Development Core Team (2007). *R: a language and environment for statistical computing, r foundation for statistical computing*, Vienna, Austria. ISBN 3-900051-07-0.
- Ridgway, J., McCusker, S. & Pead, D. (2004). “Literature review of e-assessment,” *Bristol*. <http://www.futurelab.org.uk/resources/publications-reports-articles/literature-reviews/Literature-Review204>
- Rolim, C. & Isaias, P. (2018). Examining the use of e-assessment in higher education: Teachers and students' viewpoints. *British Journal of Educational Technology*, 50(4), 1785–1800. <https://doi.org/10.1111/bjet.12669>
- Sa'di, R. A., Abdelraziq, A. & Sharadgah, T. A. (2021). E-Assessment at Jordan's Universities in the Time of the COVID-19 Lockdown: Challenges and Solutions. *Arab World English Journal (AWEJ)* Special Issue on Covid 19 Challenges (1) 37-54. DOI: <https://dx.doi.org/10.24093/awej/covid.3>

- Schneberger, S., Amoroso, D. L. & Durfee, A. (2008). Factors that influence the performance of computer-based assessments: An extension of the technology acceptance model. *Journal of Computer Information Systems*, 48(2), 74–90. <https://doi.org/10.1080/08874417.2008.11646011>
- Şenel, S. & Şenel, H. C. (2021). Remote Assessment in Higher Education during COVID-19 Pandemic. *International Journal of Assessment Tools in Education*, 8 (2), 181-199 . DOI: 10.21449/ijate.820140
- Silvia, P. J., Kaufman, J. C. & Pretz, J. E. (2009). Is creativity domain-specific? Latent class models of creative accomplishments and creative self-descriptions. *Psychology of Aesthetics, Creativity, and the Arts*, 139-148. [https://libres.uncg.edu/ir/uncg/f/P\\_Silvia\\_Is\\_2008.pdf](https://libres.uncg.edu/ir/uncg/f/P_Silvia_Is_2008.pdf)
- Sim, G., Holifield, P. & Brown, M. (2004). Implementation of computer assisted assessment: Lessons from the literature. *ALT-J*, 12(3), 215-229. <https://doi.org/10.3402/rlt.v12i3.11255>
- Stiggins, R.J. (1992) High quality classroom assessment: what does it really mean? *Educ Meas Issues Pract* 11(2):35–39. <https://doi.org/10.1111/j.1745-3992.1992.tb00241.x>
- Stone, D. E. & Zheng, G. (2014). Learning management systems in a changing environment. In *Handbook of research on education and technology in a changing society* (pp. 756-767). IGI Global. <https://www.doi.or/10.4018/978-1-4666-6046-5.ch056>
- Terzis, V. & Economides, A. A. (2011). Computer based assessment: Gender differences in perceptions and acceptance. *Computers in Human Behavior*, 27(6), 2108–2122. <https://doi.org/10.1016/j.chb.2011.06.005>
- Terzis, V., Moridis, C. N. & Economides, A. A. (2013a). Continuance acceptance of computer-based assessment through the integration of user's expectations and perceptions. *Computers & Education*, 62, 50–61. <https://doi.org/10.1016/j.compe du.2012.10.018>
- Terzis, V., Moridis, C. N., Economides, A. A. & Mendez, G. R. (2013b). Computer based assessment acceptance: A cross-cultural study in Greece and Mexico. *Journal of Educational Technology & Society*, 16(3), 411–424. <https://www.jstor.org/stabl e/jeduc techs oci.16.3.411>
- Vermunt, J. K. & Madigson, J. (2004). *Local Independence*. In A. B. M.S. Lewis Beck, *The Sage Encyclopedia of Social Sciences Research Methods*. 732-733.
- Vurdien, R. & Puranen, P. (2022). *Teacher attitudes toward online assessment in challenging times*. In B. Arnbjörnsdóttir, B. Bédi, L. Bradley, K. Friðriksdóttir, H. Garðarsdóttir, S. Thouéšny, & M. J. Whelpton (Eds), *Intelligent CALL, granular systems, and learner data: short papers from EUROCALL 2022* (pp. 370-374). <https://doi.org/10.14705/rpnet.2022.61.1486>
- Wang M.-C., Deng Q., Bi X., Ye H. & Yang W. (2017). Performance of the entropy as an index of classification accuracy in latent profile analysis: A Monte Carlo simulation study. *Acta Psychologica Sinica*, 49(11), 1473-1482. <https://doi.org/10.3724/SP.J.1041.2017.01473>
- Wang, W. & Kingston, N. (2019). Adaptive testing with a hierarchical item response theory model. *Applied Psychological Measurement*, 43(1), 51–67. <https://doi.org/10.1177/01466 21618 765714>
- Way A. (2012). “The use of e-assessments in the Nigerian higher education system,” *Turkish Online J. Distance Educ.*, vol. 13, no. 1, pp. 140–152,
- Weleschuk, A., Dyjur, P. & Kelly, P. (2019). Online assessment in higher education. *Taylor Institute for Teaching and Learning Guide Series*. <https://taylorinstitute.ucalgary.ca/sites/default/files/TI%20Guides/Online%20Assessment%20Guide-2019-10-24.pdf>
- Whitelock, D. M., Mackenzie, D., Whitehouse, C., Ruedel, C. & Rae, S. (2006). *Identifying innovative and effective practice in e-assessment: findings from seventeen UK case studies*. In: Danson, Myles ed. *Proceedings of the 10th CAA International Computer Assisted Assessment Conference*. Loughborough, UK: Professional Development, Loughborough University, pp. 505–511.
- Williams, M. L. & Pabrock, K. (1999). *Distance Learning: The Essential Guide*. Thousand Oaks. CA: Sage Publications. Inc. (2008).
- Yandı, A., Köse, İ. A. & Uysal, Ö. (2017). Farklı Yöntemlerle Ölçme Değişmezliğinin İncelenmesi: Pisa 2012 Örneği. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 2017; 13(1): 243-253. <https://doi.org/10.17860/mersinefd.305952>
- Zhai, X., Haudek, K., Shi, L., Nehm, R. & Urban-Lurain, M. (2020). From substitution to redefinition: A framework of machine learning-based science assessment. *J. Res. Sci. Teach*, 57(9), 1430-1459. <https://doi.org/10.1002/tea.21658>



## Yapılandırmacı Öğretim Programına Uygun Olarak Hazırlanmış Çalışma Yapraklarıyla Üçgenler Konusunun 8'inci Sınıflara Öğretimi

### Teaching Triangles Subject to 8th Graders with Worksheets Prepared in Accordance with Constructivist Learning Approach

Seda Zengin<sup>1</sup>  Ahmet Işık<sup>2</sup> 

<sup>1</sup> Dr., Şehit Mutlu Can Kılıç Ortaokulu, Etimesgut, Ankara, Türkiye

<sup>2</sup> Prof. Dr., Gazi Üniversitesi, Eğitim Fakültesi, Ankara, Türkiye

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##### \*Sorumlu Yazar

Seda Zengin

Şehit Mutlu Can Kılıç Ortaokulu,  
Ankara  
sedazengin89@hotmail.com

**Öz:** Bu çalışmanın amacı, yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla geometri öğrenme alanında yer alan üçgenler konusunun 8'inci sınıflara öğretiminin incelenmesidir. Araştırmada, nicel veri toplama yöntemlerinden yarı deneysel desen tercih edilmiştir. Araştırma, Ankara İli Etimesgut ilçesinde bulunan bir devlet ortaokulunun 8'inci sınıf öğrencileriyle yapılmıştır. Araştırmanın çalışma grubu 58 öğrenciden (28 kontrol grubu ve 30 deney grubu) oluşmaktadır. Araştırmada öğrencilere üçgenler konusu öğretilirken deney grubuna yapılandırmacı öğretim programına uygun olarak hazırlanmış, çalışma yapraklarıyla öğretim yapılmış ve kontrol grubuna ise genel öğretim yöntemleri ile öğretim yapılmıştır. Öğrencilerin başarıları ise araştırmacı tarafından geliştirilen "Üçgenler Başarı Testi" ile analiz edilmiştir. Sonuçta, 8'inci sınıf öğrencilerinin akademik başarılarının deney grubu lehine farklılaştığı görülmüştür. Bu sonuca göre öğrencilerin üçgenler konusundaki başarılarının artmasında, yapılandırmacı öğretim yöntemine uygun olarak hazırlanmış çalışma yapraklarıyla öğretimin genel öğretimden daha etkili olduğu söylenebilir.

**Anahtar Kelimeler:** Yapılandırmacı öğrenme yaklaşımı, geometri öğretimi, çalışma yaprakları

**Abstract:** The aim of this study is to examine the teaching of the triangles topic in the geometry learning domain to 8th graders with worksheets prepared in accordance with the constructivist curriculum. A quasi-experimental design, one of the quantitative data collection methods, was implemented. The research was conducted with 8th grade students at a state secondary school in Etimesgut district of Ankara province. The study group of the research consisted of 58 students (28 control group and 30 experimental group). In the study, while teaching the subject of triangles to the students, the experimental group was taught with worksheets prepared in accordance with the constructivist teaching programme and the control group was taught with general teaching methods. The achievements of the students were analysed with the "Triangles Achievement Test" developed by the researcher. As a result, it was seen that the academic achievement of 8th grade students differed in favour of the experimental group. According to this result, it can be concluded that teaching with worksheets prepared in accordance with the constructivist teaching method is more effective than general teaching in increasing students' achievement in the subject of triangles.

**Keywords:** Constructivist learning approach, geometry teaching, worksheets

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#### Giriş

Gelişmekte olan öğretim programlarıyla öğrenciyi merkeze alan yaklaşım materyal ve teknoloji kullanımını önemli bir gereklilik haline gelmiştir. Sadece geleneksel yöntemlerle öğretilen ve materyallerle desteklenmeyen dersler matematik dersini daha soyut ve öğrenilmesi zor hale getirmektedir (Özçelik, 2015). Matematik eğitimi ile ilgili yapılan araştırmalarda, genel olarak matematiğin soyut yapısı dolayısıyla eğitim öğretim sürecinde meydana gelen zorlukların giderilmesi için uygun yolların bulunması ve bu yolla yapılan araştırmalarla, öğrencilerin matematik dersinde başarılı olmalarının ve matematiğe karşı olumlu tutum geliştirmelerinin sağlanması amaçlanmaktadır (Işık ve Konyalıoğlu, 2005, İnci Kuzu ve Kutlu, 2022). Soyut olan matematiksel ifadelerin öğretiminde bu ifadeler görselleştirilerek somut araç-gereçleri haline getirilmesi sayesinde, öğrencilerin hayal dünyası genişlemekte, keşfedici ve özgür olarak düşünebilme becerileri geliştirilmektedir (Kuzu, 2021). Öğrenciler; duyu organlarının bütününe hitap edecek, bilişsel ve bedensel katılımlarını destekleyecek bir eğitime ve öğretime ihtiyaç duymaktadırlar. Bu nedenle öğrencilerin bireysel yetenek ve becerilerinin, ihtiyaçları doğrultusunda geliştirilmesi hedeflenmelidir (Bulut, 2004).

Öğrencilere, bilgilerini ve deneyimlerini kullanarak olayları anlamlandırabilecekleri ve böylece zihinlerinde yeni bilgiler oluşturabilecekleri öğrenme imkânları ve ortamları sağlanmalıdır (Baki, 2008).

Öğrenciler, yapılandırmacı öğrenmede kendi deneyimlerinden hareket ederek kendi bilgilerini oluşturmaktadırlar. Bu nedenle eğitim faaliyetlerinde aktif olmalı ve kendi öğrenmelerinin sorumluluğunu almalıdırlar. Matematik derslerinde öğrenciler, öğretmenin anlattığı bilgileri doğrudan zihinlerine yerleştiremezler. Bu nedenle kendi bilgilerini üretebilecekleri, aktif olabilecekleri ve bilgiyi zihinlerinde yapılandırabilecekleri etkinliklere yer verilmelidir (Özdemir, 2012). Öğrencilerin öğrenmeye hazır olmaları ve ön bilgileri ile bunları kullanarak bilgiyi zihinlerinde yapılandırma şekilleri, eğitim-öğretimin gerçekleştirildiği ortam öğrenmelerinde rol oynayan faktörlerden bazılarıdır.

Yapılandırmacı öğrenme ortamında genel ve özel hedefler öğretmen ve öğrenci tarafından birlikte belirlenir. Öğretmen; gözlemci, rehber ve kontrol edici konumundadır. Öğretmen, öğrencinin; yürütücü/üst bilişini, kendini düzenlemesini, analiz yapmasını, yansıtmasını ve farkında olmasını teşvik etmek için imkânlar yani etkinlikler, araç-gereçler ve ortamlar sağlar (Murphy, 1997). Öğretmen, geleneksel öğretimdeki rolünün aksine bilgi veren değil, öğrenme ortamını düzenleyen

bir rehberdir. Bu nedenle sınıfta tartışma ortamı oluşturarak öğrencileri düşünmeye yönlendirmeli ve öğrencilerde araştırma merakı uyandıracak sorular sormalıdır. Tek cevaplı sorular yerine düşündürücü ve araştırmaya yönlendirici sorular sorulmalıdır (Brooks & Brooks, 1993).

Öğretmen, yapılandırmacı öğrenme ortamında öğrencilerin öğretim yöntemlerini etkili bir şekilde kullanmalarına, dersi yönlendirmelerine ve ders içeriğini değiştirmelerine izin verir. Açık uçlu sorularla öğrencilerin düşündürücü tartışmalar yapmasını teşvik eder. Sınıflandırınız, analiz ediniz ve yapınız gibi bilişsel terimleri bu ortamlarda kullanmaya özen gösterir (Yager, 1991). Bu ortamlar, öğrencilerin kendi düşüncelerini kullanarak kavramlar hakkında yorum ve değerlendirme yapabilecekleri, yani öğrenme sürecine aktif olarak katılabilecekleri ortamlar olmalıdır (Demircioğlu vd., 2004). Bu ortamların sağlanması için çeşitli malzemelere ihtiyaç duyulmaktadır (Atasoy & Akdeniz, 2006). Bu düşünceyle hareket eden yapılandırmacı öğrenme yaklaşımına göre öğretmenler, sınıfta öğrencilerin aktif olmalarını sağlayacak aktiviteler düzenlemelidirler (Şişman, 2007).

Öğrenme ortamına yönelik olarak hazırlanan çalışma yapıları da öğrencilerin aktif olması gerektiği amacına hizmet etmektedir. Çalışma yapıları; kendi sorularını sormaları, sorulardan sonuçlar çıkarmaları ve kendi kurallarını oluşturmalarına yönelik öğrencileri isteklendirmekte ve böylece öğrencilere kendi öğrenmelerini oluşturma fırsatı sunmaktadır (Şişman, 2007). Çalışma yapıları; öğrencilerin aktif olmalarını sağlayan, kavramsal gelişimlerini destekleyen, bireysel ya da grup halinde yapılabilen öğretim yöntemlerinden biridir (Demircioğlu vd., 2004). Çalışma yapıları; öğretim sırasında kullanımının kolay olması, içeriğin kazandırılmak istenen kavramlara göre düzenlenmesi ve dersi monotonluktan kurtarması yönleriyle son yıllarda sıklıkla kullanılan bir materyaldir (Demirel vd., 2001). Anderson (1995), çalışma yapılarını, her konu sonunda öğretmenin pekiştirme amacıyla öğrencilere verdiği ev ödevi niteliğindeki kitaplar olarak tanımlarken; Hopkins (2000) ise çalışma yaprağını, bir tür günlük plan olarak görmektedir (akt. Ceyhan & Türnüklü, 2002).

Çalışma yapıları; öğrencilere yönergeler aracılığıyla ne yapacaklarını anlatan, öğrencilerin bilgilerini zihinlerinde yapılandırmalarına yardım eden, tüm sınıfın aktif katılım göstermesini sağlayan ve eğitim için gerekli olan materyalleridir (Atasoy ve Akdeniz, 2006). Çalışma yapılarının; öğrencileri derste aktif hale getirdiği, bilgiye kendi başlarına ulaşmalarını sağladığı ve kavram yanlışlarını en aza indirdiği ileri sürülmektedir (Demircioğlu ve Atasoy, 2006). Öğretmen ise çalışma yapılarıyla öğretim yapılan ortamda, öğrencilere sorular sorarak ve etkinliklere rehberlik ederek öğrenme ortamını düzenler (Özdemir, 2006, Çinkı, 2007).

Çalışma yapılarının birçok faydası bulunmaktadır ve öğrenme ortamlarına önemli katkılar sağlamaktadır. Çalışma kâğıtları yardımı ile öğrenciler; zihinlerindeki sözel ve görsel anlamları bütünleştirirler ve böylece kavramların anlamlarını düşünme imkânı bulurlar. İçerik dönük veya pasif duran öğrenciler, çalışma yapılarındaki etkinliklere verdikleri cevaplar sayesinde öğretmenin dikkatini çekebilirler. Öğretmen ise çalışma yapıları aracılığıyla öğrencilerin sahip olduğu kavram yanlışlarını ortaya çıkarabilir ve kavram yanlışlarını giderme konusunda yine çalışma yapılarından yararlanabilir (Toumasis, 1995).

Yazlık (2020), çalışmasında ilköğretim matematik öğretmeni adaylarının Cabri yazılımı yardımıyla çalışma

yapıları tasarlama sürecine ve bu çalışma yapılarının geometri öğretiminde kullanılmasına ilişkin görüşlerini incelemek istemiştir. Araştırmanın neticesinde öğretmen adayları çalışma yapılarının kullanımının kavramları somutlaştırma, keşfetme, dikkat çekme, kalıcı ve kolay öğrenme gibi avantajları olduğunu ifade etmişlerdir. Kaş (2010) yaptığı çalışmada, çalışma yapıları kullanılarak yapılan öğretimin 8. sınıf öğrencilerinin cebir problemlerini çözüme ve cebirsel düşünme becerilerine etkisi araştırılmıştır. Öğretim çalışmaları sonrasında, çalışma yapıları ile yapılan öğretimin öğrencilerin cebirsel problem çözüme ve cebirsel düşünme becerilerine olumlu etki yaptığı görülmüştür. Bu etki cebirsel problem çözüme becerisinde geleneksel öğretim yöntemine göre daha anlamlı bulunmuştur. Işık ve Özdemir (2014), 7. sınıflarda olasılık konusunun öğretiminde çalışma yapılarının etkili olup olmadığını araştırmıştır. Deney grubuna çalışma yapılarıyla öğretim yapılırken kontrol grubuna geleneksel öğretim yöntemleri uygulanmıştır. Öğretim sonucunda iki gruba da hazırlanan son test uygulanmış ve sonuçları karşılaştırılmıştır. Deney grubunun lehine anlamlı bir fark elde etmiştir. Benzer şekilde Işık ve Çelik (2017) yaptıkları araştırmada öğrenci başarısını, çalışma yapıları ile cebirsel denklemlerin öğretiminde diğer öğretim yöntemleriyle yapılan öğretime göre daha fazla artırdığı sonucuna ulaşmıştır.

Bu çalışmada üçgenler konusunun seçilmesinin nedeni ise öğrencilerin bu konuda yaşamış oldukları problemlerdir. Örneğin, Türnüklü, Engin ve Aydoğdu (2017) yapmış oldukları çalışmada 8. Sınıf öğrencilerinin üçgenler konusunda problem cümlesi kurmada ciddi eksiklikleri olduğunu belirtmişlerdir. Öğrencilerin kurmuş oldukları cümlelerin problem olmayan cümleler ve matematiksel olmadığı sonucuna ulaşmışlardır. Üçgenler konusu oldukça zorlanışlardır. Genel olarak eğitim öğretim ortamında da geometri öğretim sırasında da öğrenciler kuralları ezberleyerek sorulara uygulamaya çalışmaktadırlar. Ders esnasında bu kuralların oluşma şartları açıklansa da yine de çoğu kural ezberleme yoluna başvurmaktadırlar. Bu da konunun içselleştirilmemesine sebep olmaktadır.

Matematik Eğitiminde kullanılan çalışma yapılarının oldukça etkili olmasına rağmen, özellikle geometri alanında çalışma yapılarıyla ilgili herhangi bir çalışmaya rastlanmamıştır. Bu yüzden bu çalışmayla öğrencilerin zorlandıkları geometri konularını yapılandırmacı yaklaşıma uygun olarak hazırlanmış çalışma yapılarıyla daha anlamlı öğrenmeleri ve genel olarak matematiği anlamaları sağlanmaya çalışılmıştır. Bu nedenle bu çalışmada öğrencilerin öğrenmekte zorlandıkları üçgenler konusu, yapılandırmacı yaklaşıma uygun olarak geliştirilen çalışma yapıları kullanılarak işlenmiştir. Böylece eğitim ve öğretim ortamı daha verimli hale getirilmeye çalışılarak öğrencilerin derse aktif katılımı sağlanmıştır.

Diğer taraftan öğretmenlerin bir kısmı; formülleri, kuralları ve yöntemleri uygun şekilde kullanabilmeyi matematikte başarı olarak görmektedir. Oysa öğrencilerin yaşamlarında başarılı ve üretken olabilmeleri; kuralları ve formülleri ezberlemek veya uygulamakla değil, matematiksel anlayışlarını ve matematiksel düşüncelerini geliştirmekle mümkün olabilmektedir. Bu başarı da matematikte kavramların anlaşılmasına ve ilişkilere önem verilmesiyle sağlanabilir (Baki, 2008). Tüm bu nedenlerden dolayı Milli Eğitim Bakanlığı, öğrenci merkezli öğrenme faaliyetlerine önem vermektedir. Yeni öğretim yaklaşımlarına göre öğrenci

merkezli öğretim yöntemleri kullanılmaktadır. Anlatılarak, yapılarak ve yaşayarak edinilen bilgilerin daha kalıcı olduğu bilinmektedir. Bu nedenle öğretim ortamlarında öğrencilerin aktif oldukları ve bilgiyi kendi zihinlerinde yapılandırdıkları çalışmalara ihtiyaç vardır (Bakaç, 2014). Bu ortamların sağlanmasında ve çalışmaların yapılmasında araştırmamıza konu olan çalışma yapraklarının etkinliği yüksektir.

Yapılandırmacı öğretim programına uygun bir şekilde hazırlanmış çalışma yapraklarıyla üçgenler konusunun sekizinci sınıflara öğretiminin incelenmesi bu çalışmanın amacını oluşturmaktadır. Araştırmanın problem cümlesi ise “8’inci sınıf üçgenler konusunun; yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla öğretildiği deney grubu ile genel öğretimin uygulandığı kontrol grubunun başarıları arasında anlamlı bir farklılık var mıdır?” şeklinde oluşturulmuştur. Araştırmanın problemi doğrultusunda aşağıda yer alan sorulara cevap aranmıştır.

1. Deney ve kontrol grubunun ön test puanları arasında anlamlı bir farklılık var mıdır?
2. Deney ve kontrol grubunun ön test ve son test puanları arasında anlamlı bir farklılık var mıdır?
3. Deney ve kontrol grubunun son test puanları arasında anlamlı bir farklılık var mıdır?

## Yöntem

### Araştırmanın Modeli

Bu çalışmada nicel veri toplama yöntemlerinden yarı deneysel desen tercih edilmiştir. Ortaokul 8’inci sınıf öğrencilerine üçgenler konusu öğretilirken; deney grubuna yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla öğretim yapılmış ve kontrol grubuna ise genel öğretim yöntemleri ile öğretim yapılmıştır. Böylece deney grubunun ve kontrol grubunun üçgenler konusundaki akademik başarıları arasındaki farkın anlamlı olup olmadığına bakılmıştır. Ayrıca, geometri konusunun öğretiminin kolaylaştırmak, öğrenmede kalıcılığı sağlamak ve öğrenci etkileşimini artırmak araştırma süreci boyunca hedeflenmiştir.

Oluşturulmuş olan deney ve kontrol gruplarına, T.C. Millî Eğitim Bakanlığı Matematik Öğretim Programı (2018) Geometri ve Ölçme Alanı içerisinde yer alan üçgenlere yönelik kazanımlar uygulanmıştır. Bu kazanımlar şunlardır:

- Üçgenlere yönelik kazanımlar
1. Üçgende kenarortay, açıortay ve yüksekliği inşa eder.

2. Üçgenin iki kenar uzunluğunun toplamı veya farkı ile üçüncü kenarının uzunluğunu ilişkilendirir.
3. Üçgenin kenar uzunlukları ile bu kenarların karşısındaki açılar ölçülerini ilişkilendirir.
4. Yeterli sayıda elemanın ölçüleri verilen bir üçgeni çizer
5. Pisagor bağıntısını oluşturur, ilgili problemleri çözer.

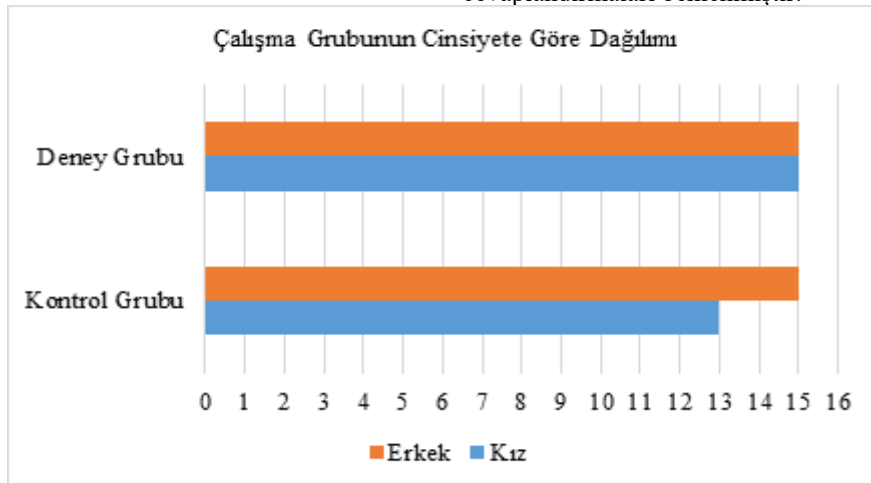
## Çalışma Grubu

Bu araştırma; Ankara İli Etimesgut ilçesinde bulunan bir devlet ortaokulunun 8’inci sınıf öğrencileriyle yapılmıştır. Araştırmanın çalışma grubu toplam 58 öğrenciden (30 öğrenci deney grubu ve 28 öğrenci kontrol grubu) oluşmuştur. Araştırma, 2017-2018 eğitim-öğretim yılının 1. Döneminde gerçekleştirilmiş olup, öğrencilerin araştırmaya gönüllü katılımları sağlanmış ve öğrenci velilerinin sözlü ve yazılı onamları alınmıştır. Çalışma grubunu oluşturan öğrencilerin cinsiyetlerine göre dağılımı Görsel 1’de verilmiştir.

Görsel 1’de görüldüğü gibi çalışma grubu toplamda 58 öğrenciden oluşmaktadır. Deney grubunda yer alan 30 öğrencinin 15’i kız ve 15’i erkektir. Kontrol grubunda yer alan 28 öğrencinin ise 13’ü kız ve 15’i erkektir. Erkek öğrencilerin kız öğrencilerden daha fazla olduğu görülmektedir.

## Veri Toplama Araçları

Bu çalışmada, araştırmacıların geliştirmiş olduğu ‘Üçgenler Başarı Testi’ veri toplama aracı olarak kullanılmıştır. Üçgenler Başarı Testi oluşturulurken; 8. sınıf matematik dersi öğretim programları, matematik dersi kitabı, matematik öğretim programında yer alan geometri öğrenme alanı ile ilgili kazanımlar dikkate alınmıştır. Her kazanımdan altı soru hazırlanarak dört seçenekten oluşan çoktan seçmeli 30 soru hazırlanmıştır. Bu sorular; konu ile ilgili 8’inci sınıf matematik kitapları, matematik çalışma kitapları, sınavlarda konu ile ilgili çıkmış sorular, konu üzerine yapılmış araştırmalar ve tezler, araştırmalarda kullanılmış sorular ve diğer soru kaynakları incelenerek hazırlanmıştır. Kapsam geçerliliğini sağlayabilmek için kazanımların hepsinden soru olmasına özen gösterilmiştir. Hazırlanan sorular, bir uzman tarafından incelenmiş ve ayrıca 11 ortaokul matematik öğretmenin görüş, öneri ve incelemelerine başvurulmuştur. Ankara ili Etimesgut ilçesinde bulunan bir devlet okulunun lise 9’uncu sınıfında öğrenim gören 31 öğrenciye, 20 maddeden oluşan test pilot çalışma olarak uygulanmıştır. Bu öğrencilere 45 dakikalık süre verilerek soruları bu süre içerisinde cevaplandırmaları beklenmiştir.



Görsel 1. Çalışma grubunun cinsiyete göre dağılımı

Bu işlemlerden sonra her bir maddenin zorluk ve ayırt edicilik indeksleri madde analizi için hesaplanmıştır. Güvenirlik hesaplamasında Cronbach Alpha katsayısı .706 bulunmuş ve ayırt edicilik indeksi negatif olan 1., 2. ve 12. maddeler ile .20'den küçük ayırt edicilik indeksine sahip 11. ve 16. maddeler testten çıkarılmıştır. Beş soru azaltılarak tekrar yapılan analizlerde Cronbach Alfa katsayısı .826 olarak hesaplanmıştır. Bu sonuç, Üçgenler Başarı Testi'nin yüksek düzeyde güvenilirliğe sahip olduğunu göstermektedir. Çıkarılan maddelerin, testin kapsam geçerliliğini zedelememesi için teste 2015 yılı TEOG sınavında çıkmış olan ve güvenilir olduğu kabul edilen bir soru dâhil edilmiştir. Bu soru eklendikten sonra güvenilirliği ölçmek amacıyla KR-20 ve KR-21 katsayıları hesaplanmış; KR-20 güvenilirlik katsayısı .836 ve KR-21 güvenilirlik katsayısı .814 bulunmuştur. Bu sonuç maddeler arasındaki iç tutarlılığın ve Testin güvenilirliğinin yüksek olduğunu göstermektedir.

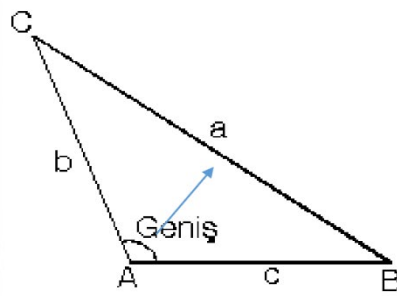
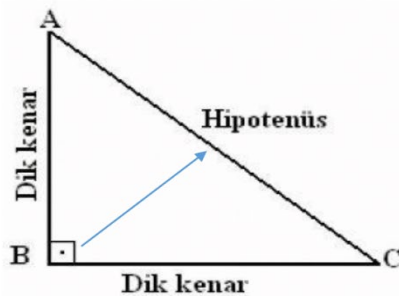
### Verilerin Toplanması

Araştırmanın uygulaması; çalışma yaprağının tanıtılması ve ön test- son test süreci de dâhil toplam 17 ders saati sürmüştür. Uygulama öncesinde, araştırmacı tarafından deney ve kontrol grubunda yer alan öğrencilere geliştirilen 'Üçgenler Başarı Testi' uygulanmıştır. Ön test için öğrencilere bir ders saati yani 40 dakika süre verilmiştir. Deney ve kontrol grubunun ön test puanları arasında anlamlı bir farklılığın olmadığı görülmüştür. Ön test sonrasında; deney grubuna yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla, kontrol grubuna ise genel öğretim yöntemleriyle 15 ders saati öğretim yapılmıştır. 15 ders saatinin sonunda hem deney hem de kontrol grubuna 'Üçgenler Başarı Testi', son test olarak uygulanmıştır.

Deney grubu ile öğretime başlamadan önce deney grubu için çalışma yapraklarının ne olduğunu gösteren tanıtıcı bir sunum hazırlanmıştır. Başka bir konu için hazırlanan çalışma yaprakları örnek olarak öğrencilere bu sunumda tanıtılmıştır. Çalışma yaprakları hazırlanırken öğrencilerin dikkatini çekebilmek için görselliğe önem verilmiş; ancak abartıya kaçmamaya özen gösterilmiştir. Deney grubu ile öğretim sürecine geçildiğinde, çalışma yapraklarının öğrenci sayısı kadar renkli çıktısı alınmış ve öğrencilere dağıtılmıştır. Öğrencilerden etkinlikleri yönergeler doğrultusunda yapmaları istenmiş ve ders interaktif olarak işlenmiştir. Uygulama için iki tane 8'inci sınıf seçilmiş ve uygulama bu sınıflarda 12 hafta süreyle yürütülmüştür. Toplamda 9 çalışma yaprağı hazırlanmış olup, örnek olarak 6'ncı çalışma yaprağı aşağıda belirtildiği gibi hazırlanmıştır.

### Çalışma Yaprağı 6

**Yönerge:** Bu çalışma yaprağı iki bölümden oluşmaktadır. Öncelikle aşağıda verilen adımları takip ederek, Üçgenin açıları ve kenarları arasındaki ilişkiyi anlamaya çalışalım. Çıkarığımız sonuçları tartışalım.



Görsel 2. Üçgenin açıları ve kenarları arasındaki ilişki

### Kullanılacak Malzemeler: Karton, makas, raptiye

1. Boyu 10 ve 15 cm, genişliği 0,5 cm olan kartondan iki dikdörtgen şeklinde parça keselim.
2. Bu parçaların birer uçlarını raptiye ile sabitleyelim.
3. Kestiğimiz parçaların diğer uçlarını A ve B diyerek işaretleyelim.
4. A ve B noktaları arasındaki uzaklığı belirleyiniz.
5. Raptiyenin bulunduğu köşedeki açı büyüdüğünde A ve B noktaları arasındaki uzunlukta ne gibi bir değişiklik oluyor? Araştırmamız.
6. Açıyı küçülttüğümüzde A ve B noktaları arasındaki mesafede ne gibi değişiklikler oluyor? Araştırmamız.
7. Açının büyüklüğü ile karşısında bulunan kenarın uzunluğu arasında bir ilişki var mıdır? Tartışınız.

### Verilerin Analizi

Araştırmanın alt problemlerine ait veriler Bağımsız ve Bağımlı Örneklemeler T Test kullanılarak analiz edilmiş ve analiz için SPSS paket programı kullanılmıştır. Analize geçmeden önce verilerin normal dağılım sergileyip sergilemediği kontrol edilmiştir. Eğer veriler normal dağılıma uyuyorsa "Bağımsız Örneklemeler t Testi", veriler normal dağılmıyorsa "Mann Whitney U Testi" kullanmak gerekmektedir. Normal dağılımın bir özeliği mod, medyan ve ortalamanın eşit değerler almasıdır. Deney grubunun ön test puanlarının aritmetik ortalaması 24.40, medyanı 24; kontrol grubunun ön test puanlarının aritmetik ortalaması 21.21, medyanı 21 olarak bulunmuştur. Verilere göre mod, medyan, aritmetik ortalama değerlerinin hemen hemen birbirine benzediğini söyleyebiliriz. Ayrıca normal dağılımı test etmek için kullanılan "Kolmogorov Smirnov" ve "Shapiro Wilk" testlerinden elde edilen analiz sonuçlarındaki (sig.) sütunu bize normallik konusunda bilgi verir. Bu anlamlılık değerinin (sig.) yorumlanması;

Sig.>0.05 ise dağılım normal

Sig.<0.05 ise dağılım normal değildir, şeklindedir (Kilmen, 2015, s. 132).

Bu testlerden elde edilen sonuçlarda ise deney grubunun Kolmogorov Smirnov testinden elde edilen sig. değeri 0.078 ( sig.>0.05) ve Shapiro Wilk testinden elde edilen sig. değeri 0.132 ( sig.>0.05) olarak bulunmuştur. Kontrol grubunun Kolmogorov Smirnov testinden elde edilen sig. değeri 0.129 ( sig.>0.05) ve Shapiro Wilk testinden elde edilen sig. değeri 0.129 ( sig.>0.05) olarak bulunmuştur. Sonuç olarak ulaştığımız mod, medyan ve aritmetik ortalama benzerliği ve normallik testlerinden elde ettiğimiz normallik değerlerinden yola çıkarak verilerin normal dağılıma uygun olduğunu ve bağımsız t testi uygulanabileceğini söyleyebiliriz. Elde ettiğimiz tüm sonuçlar Tablo 2'de gösterilmiştir.

**Tablo 4.** Deney ve kontrol grubunun Üçgenler Başarı Testi ön test ve son test sonucu

Gruplar	Testler	n	$\bar{x}$	ss	sd	t	P	İşlemler
Deney	Ön Test	30	24,40	9,83	29	12,042	<b>.000</b>	Çalışma yapraklarıyla öğretim yöntemi
	Son Test	30	69,20	18,95				
Kontrol	Ön Test	28	21,21	8,56	27	10,128	<b>.000</b>	Genel öğretim yöntemi
	Son Test	28	55,93	19,39				

**Tablo 2.** Verilerin Normal Dağılıma Uygun Olduğunu Gösteren Veriler

Grup	Medyan	Aritmetik ortalama	Kolmogorov-Smirnov (sig.)	Shapiro-Wilk (sig.)
Deney	24	24,40	0,078	0,132
Kontrol	21	21,21	0,129	0,129

Araştırmada yer alan verilerin normal dağılım gösterdiği görülmüştür. Araştırmada etki büyüklükleri, harmanlanmış standart sapma ve Cohen's d değeri ile hesaplanmıştır. Cohen'e (1988) göre Cohen d sonuçları; .20 ise küçük etki, .50 ise orta etki, .80 ise büyük etki olarak kabul edilmektedir. Araştırmada kullanılan Üçgenler Başarı Testi ve çalışma yaprakları, T.C. Millî Eğitim Bakanlığı Matematik Öğretim Programı (2018) Geometri ve Ölçme Alanı içerisinde yer alan üçgenlere yönelik kazanımlarla sınırlandırılmıştır.

### Bulgular

Araştırmanın, "Deney ve kontrol grubunun ön test puanları arasında anlamlı bir farklılık var mıdır?" şeklinde ifade edilen birinci soru cümlesi, Bağımsız Örneklem T Test ile analiz edilmiş ve analiz sonuçları Tablo 3'te verilmiştir.

**Tablo 3.** Deney ve kontrol grubunun Üçgenler Başarı Testi ön test sonucu

Test	Gruplar	n	$\bar{x}$	ss	Sd	T	p
Ön Test	Deney	30	24,40	9,83	56	1,312	.195
	Kontrol	28	21,21	8,56			

Tablo 3'te verilen analiz sonuçlarına göre deney ve kontrol grubunun Üçgenler Başarı Testi ön test ortalama puanları arasında anlamlı bir farklılığın olmadığı görülmektedir ( $p>.05$ ). Bu sonuç, deney ve kontrol grubunda yer alan öğrencilerin uygulama öncesinde üçgenler ile ilgili kazanımlarda birbirine yakın bilgilere sahip olduklarını göstermektedir.

Araştırmanın, "Deney ve kontrol grubunun ön test ve son test puanları arasında anlamlı bir farklılık var mıdır?" şeklinde ifade edilen ikinci soru cümlesi, Bağımlı Örneklem T Test ile analiz edilmiş ve analiz sonuçları Tablo 4'te verilmiştir.

Tablo 4'te verilen analiz sonuçlarına göre deney grubunun ( $t= 12,042$ ) ve kontrol grubunun ( $t= 10,128$ ) Üçgenler Başarı Testi ön test ve son test ortalama puanları arasında bir farklılığın olduğu görülmektedir ( $p<.05$ ). Aritmetik ortalamalar arasındaki fark deney grubunda 44,80 puan ve kontrol grubunda 34,72 puan olup bu fark, her iki grupta da son test lehinedir. Etki büyüklüğü hesaplamasında; deney grubunun harmanlanmış standart sapması 14,84 ve Cohen d değeri 3,01 olarak bulunurken; kontrol grubunun harmanlanmış standart sapması 14,71 ve Cohen d değeri 2,36 olarak bulunmuştur. Bu değerler her iki grubun da etki düzeyinin yüksek olduğunu göstermektedir (.80 büyük etki).

Sonuç olarak hem yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan

öğretim hem de genel öğretim yöntemiyle yapılan öğretim, öğrencilerin akademik başarılarını artırmıştır. Ancak yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan öğretimin etkisinin ( $d= 3,01$ ), genel öğretim yöntemiyle yapılan öğretimin etkisinden ( $d= 2,36$ ) daha yüksek olduğu görülmektedir. Bu sonuca göre yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan öğretimin, genel öğretim yöntemiyle yapılan öğretimden daha etkili olduğu söylenebilir.

Araştırmanın, "Deney ve kontrol grubunun son test puanları arasında anlamlı bir farklılık var mıdır?" şeklinde ifade edilen üçüncü soru cümlesi, Bağımsız Örneklem T Test ile analiz edilmiş ve analiz sonuçları Tablo 5'te verilmiştir.

**Tablo 5.** Deney ve kontrol grubunun Üçgenler Başarı Testi son test sonucu

Test	Gruplar	n	$\bar{x}$	ss	Sd	T	p
Son Test	Deney	30	69,20	19,22	56	2,342	<b>.011</b>
	Kontrol	28	55,93	19,39			

Tablo 5'te verilen analiz sonuçlarına göre deney grubunun ve kontrol grubunun Üçgenler Başarı Testi son test ortalama puanları arasında bir farklılığın olduğu görülmektedir ( $t= 2,342$ ;  $p<.05$ ). Grupların son test aritmetik ortalamaları arasındaki fark 13,27 puan olup bu fark deney grubu lehinedir. Etki büyüklüğü hesaplamasında, harmanlanmış standart sapma 19,16 ve Cohen d değeri 0,70 olarak bulunmuştur. Sonuçta deney grubunun son test ortalama puanının, kontrol grubunun son test ortalama puanından daha yüksek olduğu belirlenmiştir. Bu sonuca göre yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan öğretimin, genel öğretim yöntemiyle yapılan öğretime göre öğrencilerin akademik başarılarını daha fazla artırdığı söylenebilir.

### Tartışma ve Sonuç

Araştırmada, deney grubunun ve kontrol grubunun üçgenler konusu ön test ve son test başarı düzeyleri, son test lehine farklılaşma göstermiştir. Ayrıca deney grubunun ve kontrol grubunun üçgenler konusu son test başarı düzeyleri, deney grubu lehine farklılaşma göstermiştir. Yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan öğretimin ve genel öğretim yöntemiyle yapılan öğretimin, 8'inci sınıf öğrencilerinin üçgenler konusundaki akademik başarılarını artırdığı görülmüştür. Ancak yapılandırmacı öğretim programına uygun olarak hazırlanmış çalışma yapraklarıyla yapılan öğretimin etkisinin, genel öğretim yöntemiyle yapılan öğretimin etkisinden daha yüksek olduğu bulgusuna ulaşılmıştır. Bu sonuca göre 8'inci sınıf üçgenler konusu kazanımlarına yönelik olarak ve yapılandırmacı öğretim programına uygun bir şekilde hazırlanmış çalışma yapraklarıyla yapılan öğretimin, genel öğretim yöntemiyle yapılan öğretimden daha etkili olduğu ve öğrencilerin akademik başarılarını daha fazla artırdığı söylenebilir. Çalışma yapraklarıyla sınıf ortamı tekdüze



olmaktan uzaklaşıp etkileşimli bir sınıf ortamına dönüşmüştür bu da akademik başarıyı artırmakta olumlu katkı sağlamıştır. Kuzu (2021), yaptığı çalışmada soyut olan matematiksel ifadelerin öğretiminde bu ifadeler görselleştirilerek somut araç-gereçleri haline getirilmesinin öğrencilerin düşünme becerilerinin geliştirdiğinden bahsetmişti. Benzer olarak çalışmamızda yer alan çalışma yapraklarının içeriklerindeki somut örneklerle öğrenciler çok yönlü düşünerek kendi öğrenmelerine katkı sağlamışlardır.

Alan yazında, yapılandırmacı yaklaşıma uygun olarak hazırlanmış çalışma yapraklarıyla yapılmış birçok araştırmanın sonucu ile bu çalışmanın sonuçları örtüşmektedir. Kaş (2010) cebir problemleri, Aktepe (2012) 7'nci sınıflarla cebirsel denklemler, Özdemir (2012), 7'nci sınıflarla olasılık, Besler (2009) 8'inci sınıflarla permütasyon ve olasılık, Zehir (2010) İlköğretim Matematik Öğretmenliği öğrencileriyle lineer dönüşümler, Işık ve Çelik (2017), cebirsel denklemler konularını çalışma yapraklarıyla çalışmışlar ve araştırmalarının sonucunda deney grubu ile kontrol grubu arasında deney grubu lehine anlamlı bir farklılığın olduğunu görmüşlerdir. Ayrıca çalışma yapraklarının öğrenmede kalıcılığı olumlu etkilediğini rapor etmişlerdir. Bu sonuçların aksine 3'üncü sınıf matematik dersine yönelik yapmış olduğu çalışmada Chung (2004), yapılandırmacı öğrenme yaklaşımına dayalı öğretim ile geleneksel öğretim arasındaki farkı incelemiş ve deney grubu ile kontrol grubunun son test puanları arasında anlamlı bir farklılığa ulaşamamıştır.

Yaptığımız çalışmada çalışma yapraklarının akademik başarıya olan pozitif etkisinin yanında aynı zamanda öğrencilerin matematik ve geometri öğretimine karşıda olumlu tutum geliştirmişlerdir. Ders esnasında oldukça aktif ve mutlu bir şekilde derse katılmışlardır. Çalışma yapraklarının içeriğinde bulunan problem çözümlerinde daha kolay fikir ürettikleri gözlenmiştir. Martin ve arkadaşları (2005) çalışmalarında, yapılandırmacı öğrenme yaklaşımına uygun olarak geometri derslerinde yapılan etkinlikler ile kanıt ve neden bulma becerileri arasındaki ilişkiye bakmışlar ve yapılandırmacı öğrenme yaklaşımına uygun olarak geometri derslerinde yapılan etkinlikler ve öğrenci etkileşimi arttıkça kanıt ve neden bulma becerilerinde artış olduğu sonucuna ulaşmışlardır. Demircioğlu ve arkadaşları (2004) ve Akkaya ve Durmuş (2015) araştırmalarında, kavram yanlışlarını belirlemede ve gidermede çalışma yapraklarının etkili olduğunu saptamışlardır. Moore (2005) çalışmada, öğrencilerin gerçek dünyadaki karmaşık problem çözüme projelerine aktif olarak katılmasının öğrenciyi motive ettiğini, öz güvenini ve başarısını artırdığını tespit etmiştir. Diğer taraftan Kroesbergen, Luit ve Maas (2004), matematik dersinde başarısı düşük olan öğrencilerde geleneksel ve yapılandırmacı öğretim yöntemlerinin etkisini araştırmışlar ve matematik başarısı düşük olan öğrencilerde geleneksel öğretimin yapılandırmacı öğretime göre daha etkili olduğunu bulmuşlardır. Demircioğlu ve Kaymakçı (2010) ise tarih öğretmenlerinin çalışma yaprakları ile ilgili olumlu tutumlar sergilediklerini; fakat çalışma yapraklarının kullanım alanlarına yönelik yeterli bilgiye sahip olmadıkları için öğretim faaliyetlerinde çalışma yapraklarını tercih etmediklerini belirtmişlerdir.

Çalışmamızda yer alan çalışma yaprakları, sınıf ortamına renk kattığı, öğrencilerin ilgilerini çekip merak uyandırdığı için öğrenme ortamımızı olumlu yönde etkilemiştir. Hazırlanan etkinliklerle öğrenciler derse aktif olarak katılmışlardır. Bütün bu durumlarda öğrenme ortamını etkileşimli hale getirip öğrenmenin daha kolay

gerçekleşmesine katkı sağlamıştır. Nakiboğlu (2020), çalışmada kimya öğretmen adaylarının lise öğrencilerinin çalışma yapraklarını doldururken son derece hevesli, sıkılmamış ve keyifle dolu olduklarını gözlemlemişlerdir. Kimya öğretmen adaylarının bilgisayar kullanımıyla ilgili sorunlarından dolayı çalışma yaprakları hazırlamada zorluk yaşadıkları ancak çalışma yapraklarını uygulamada sorun yaşamadıkları sonucuna varılmıştır.

### Öneriler

Bu çalışmada, yapılandırmacı öğretim programına uygun bir şekilde hazırlanmış çalışma yapraklarıyla yapılan öğretiminin, genel öğretim yöntemiyle yapılan öğretimden daha etkili olduğu ve öğrencilerin akademik başarılarını daha fazla artırdığı sonucuna varılmıştır. Ayrıca öğrencilerin, renkli çalışma yaprakları ile aktif bir şekilde ders işlemekten çok hoşlandıkları görülmüştür. Elde edilen bu olumlu sonuçların yanı sıra çalışma yaprakları ile uygulama yapmak, renkli çalışma kâğıtları gibi materyallerin kullanılması nedeniyle maliyetli olmaktadır. Bu nedenle öğretmenler, çalışma yapraklarını çoğaltma konusunda okul yönetiminin desteğine ihtiyaç duymaktadırlar. Çalışma yapraklarının bilgisayar destekli yazılımlar kullanılarak hazırlanması ise çalışma yapraklarını oluşturmada ve uygulamada önemli kolaylıklar sağlayacaktır. Gökçe, Aydoğan- Yenmez ve Özpınar (2006) yaptıkları çalışmada GeoGebra kullanılarak öğretmenlerin öğretim sürecinde ve öncesinde uzman yardımı almaksızın doğrudan uygulayabilecekleri çalışma yapraklarının geliştirilmesinin bilgisayarı öğretim ortamlarında etkin biçimde kullanmak isteyen öğretmenlere katkı sağlayacağını belirtmişlerdir.

Yazlık (2020), ilköğretim matematik öğretmeni adaylarının Cabri yazılımı yardımıyla çalışma yaprakları tasarlama sürecine ve bu çalışma yapraklarının geometri öğretiminde kullanılmasına ilişkin görüşlerinin incelenmesi amacıyla yaptığı çalışmada, çoğu katılımcının meslek hayatlarında Cabri yazılımı ile tasarlanan çalışma yapraklarını, kavramları somutlaştırma, keşfetme, dikkat çekme, kalıcı ve kolay öğrenme gibi özelliklerinden dolayı kullanmak istediklerini, diğer katılımcıların ise zaman sıkıntısı, sınıfların kalabalık olması, donanım eksikliği, yazılımın kullanımının zor ve ücretli olması gibi nedenlerle kararsız kaldıklarını belirtmiştir. Bu tür bilgisayar destekli yazılımlarla öğretmen adaylarının lisans eğitiminde tanıştırılmasının faydalı olacağı düşünülmektedir.

Yapılandırmacı öğrenme yaklaşımına uygun olarak hazırlanan çalışma yaprakları, öğrencilerin bilgiyi zihinlerinde yapılandırmalarını sağlamaktadır. Her öğrencinin; bilgiyi edinme, edindiği bilgiyi kavramsallaştırma ve zihinlerinde yapılandırma süreçleri farklı olması nedeniyle öğrencilerin hazır bulunuşlukları ve akademik başarı düzeyleri de çalışmalarda göz önünde bulundurulmalıdır. Bu nedenle benzer öğrenme hızına ve ön bilgi düzeyine sahip gruplardan oluşmuş sınıflarda çalışma yapraklarıyla uygulamaların yapılması, zaman tasarrufu sağlayacak ve uygulamaları daha verimli hale getirecektir.

### Yazar Katkı Oranı

Makalenin tüm süreçlerinde yazarlar eşit oranda rol almışlardır.

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## Kaynaklar

- Akbayır, K. (2016). Matematik dersinde materyal kullanımına ilişkin ilköğretim öğretmenlerinin görüşleri. *Akademik ve Sosyal Araştırmalar Dergisi*, 4(33), 169-182. <https://doi.org/10.16992/ASOS.6493>
- Akkaya, R. & Durmuş, S. (2015). İlköğretim 6.sınıf öğrencilerinin cebir öğrenme alanındaki kavram yanlışlarının giderilmesinde çalışma yapılarının etkililiği. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, (27), 7-26.
- Aktepe, E. (2012). 7. sınıflarda cebirsel denklemlerin yapılandırmacı öğretim yaklaşımına uygun hazırlanmış çalışma yapılarıyla öğretiminin öğrenci başarısına etkisi (Yayınlanmamış yüksek lisans tezi). Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum.
- Atasoy, Ş. ve Akdeniz, A.R. (2006). Yapılandırmacı öğrenme kuramına uygun geliştirilen çalışma yapılarının uygulama sürecinin değerlendirilmesi. *Milli Eğitim Dergisi*, 35(170), 1-17. <https://dergipark.org.tr/tr/pub/milliegitim/issue/36942/422512>
- Bakaç, E. (2014). İlköğretim fen ve teknoloji öğretim programının Kanada ve Finlandiya öğretim programlarıyla karşılaştırılması. *Journal of Research in Education and Teaching*, 3(1), 1-17.
- Baki, A. (2008). *Kuramdan uygulamaya matematik eğitimi* (4. Baskı). Ankara: Harf Eğitim Yayıncılık.
- Besler, B. (2009). 8. Sınıf matematik dersi "Permutasyon ve Olasılık" konusunun öğretiminde yapılandırmacı yaklaşıma uygun olarak hazırlanmış çalışma yapılarının öğrenci başarısına etkisi (Yayınlanmamış yüksek lisans tezi). Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Brooks, J. G., & Brooks, M. G. (1993). *In search of understanding: The case for constructivist classrooms*. Virginia: Association for Supervision and Curriculum Development.
- Bulut, S. (2004). İlköğretim programlarında yeni yaklaşımlar. *Matematik, Bilim ve Aklın Aydınlığında Eğitim Dergisi*, 5, 54-55.
- Ceyhan, A., & Türnüklü, E. B. (2002). Matematik öğretiminde kullanılabilir bir materyal: Çalışma yapıları. *Çağdaş Eğitim Dergisi*, 27(292), 37-46.
- Chung, I., (2004). A comparative assessment of constructivist and traditionalist approaches to establishing mathematical connections in learning multiplication. *Education*, 125(2), 271-278.
- Cohen, S. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The Social Psychology of Health* (pp. 31-67). Sage Publications, Inc.
- Çelikler, D. (2010). Kimyasal bileşikler konusu için geliştirilen çalışma yapılarının öğrenci başarısı ve kalıcı öğrenme üzerine etkisi. *Educational Research Association The International Journal of Research in Teacher Education*, 1(1), 42-51.
- Çinkı, A. (2007). *Fen bilgisi deneylerinde V-diyagramları ve çalışma yapıları kullanımının ilköğretim 6. sınıf öğrencilerinin başarıları üzerine etkisi* (Yayınlanmamış yüksek lisans tezi). Balıkesir Üniversitesi Fen Bilimleri Enstitüsü, Balıkesir.
- Demircioğlu, H. ve Atasoy, Ş. (2006). Çalışma yapılarının geliştirilmesine yönelik bir model önerisi. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi*, 19, 71-79. <https://dergipark.org.tr/tr/pub/deubefd/issue/25441/268448>
- Demircioğlu, H. & Kaymakçı, S. (2010). Tarih öğretmenlerinin çalışma yapıları hakkındaki görüşleri: Trabzon örneği. *Karadeniz Araştırmaları*, 27(27), 141-159.
- Demircioğlu, H., Demircioğlu, G., & Ayaş, A. (2004). Kavram yanlışlarının çalışma yapılarıyla giderilmesine yönelik bir çalışma. *Milli Eğitim Dergisi*, 163, 121-131.
- Demirel, Ö., Seferoğlu, S.S., & Yağcı, E. (2001). *Öğretim teknolojileri ve materyal geliştirme*. Ankara: Pegem A Yayınları
- Gökçe, S., Aydoğan-Yenmez, A. & Özpınar, İ. (2016). Matematik öğretmenlerinin geogebra ile hazırlanan çalışma yapıları üzerine görüşleri. *Türk Bilgisayar ve Matematik Eğitimi Dergisi*, 7(1), 164-187.
- İnci Kuzu, Ç. (2021). Aile ve öğretmen yaklaşımlarının matematik kaygı düzeyine etkisi ile ilgili öğrenci görüşleri. *EKEV Akademi Dergisi*, 25(85), 113-128. <https://doi.org/10.17753/Ekev1844>
- İnci Kuzu, Ç., & Kutlu, G. (2022). Matematik Öğretmenlerinin Çalışma Yapılarına Yönelik Görüşlerinin Değerlendirilmesi. *Akdeniz Üniversitesi Eğitim Fakültesi Dergisi*, 1(1), 1-26
- Işık, A., & Çelik, E. (2017). Effect On Student Achievement Of Teaching Algebraic Equations With Worksheets. *Kastamonu Education Journal*, 25(5), 1893-1908.
- Işık, A., & Özdemir, G. (2014). Çalışma yapılarıyla olasılık öğretiminin öğrenci başarısına etkisi. *Middle Eastern & African Journal of Educational Research*, 12(1), 4-16.
- Işık, A., & Konyalıoğlu, A. C. (2005). Matematik öğretiminde görselleştirme yaklaşımı. *Kazım Karabekir Eğitim Fakültesi Dergisi*, 11, 462-471. <https://dergipark.org.tr/tr/pub/ataunikkefd/issue/2772/37097>
- Kaş, S. (2010). *Sekizinci sınıflarda çalışma yapıları ile öğretimin cebirsel düşünme ve problem çözme becerisine etkisi*. Yayınlanmamış Yüksek Lisans Tezi, Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İlköğretim Anabilim Dalı, Matematik Öğretmenliği Bilim Dalı
- Keskin, S. (2019). *Çalışma yapılarıyla ortaokul 8. sınıflarda üçgenler konusunun öğretiminin akademik başarıya etkisinin incelenmesi* (Yayınlanmamış doktora tezi). Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum.
- Kroesbergen, E. H., Van Luit, J. E. H., & Maas, C. J. M. (2004). Effectiveness of explicit and constructivist mathematics instruction for low-achieving students in the Netherlands. *The Elementary School Journal*, 104(3), 233-251. <https://doi.org/10.1086/499751>
- Kilmen, S. (2015). *Eğitim araştırmacıları için spss uygulamalı istatistik* (2. Baskı), Ankara: Edge Akademi Yayınları.

- Martin, T. S., McCrone, S. M. S., Bower, M. L. W., & Dindyal, J. (2005). The interplay of teacher and student actions in the teaching and learning of geometric proof. *Educational Studies in Mathematics*, 60(1), 95-124. <https://www.doi.org/10.1007/s10649>
- Moore, N. M. (2005). *Constructivism using group work and the impact on self-efficacy, intrinsic motivation, and group work skills on middle-school mathematics students* (Unpublished doctoral thesis). Capella University, Minneapolis/USA.
- Murphy, J. (1997). Restructuring through school-based management, insights for improving tomorrow's schools. In T. Townsend (Eds.). *Restructuring Quality Issues For Tomorrow's Schools* (pp. 35-60). London: Routledge.
- Özçelik, A. (2015). 7.sınıf Yüzdeler ve Faiz Konusunun Gerçekçi Matematik Eğitime Dayalı Olarak İşlenmesinin Öğrencilerin Başarı ve Tutumlarına Etkisi. *Yayımlanmamış Yüksek Lisans Tezi, Fırat Üniversitesi, Elazığ*.
- Özdemir, G. (2012). *Yapılandırmacı öğretim yaklaşımına uygun olarak hazırlanmış çalışma yapraklarıyla 7. sınıflarda olasılık öğretimi* (Yayımlanmamış yüksek lisans tezi). Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum.
- Özdemir, Ö. (2006). *İlköğretim 8. Sınıf türün devamlılığını sağlayan canlılık olayı (üreme) konusunun çalışma yaprakları ile öğretimin öğrenci erişimine ve kalıcılığa etkisi* (Yayımlanmamış yüksek lisans tezi). Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü, İzmir.
- Şişman, M. (2007). *İlköğretim 8. sınıf matematik dersi "çarpanlara ayırma ve özdeşlikler" konusunun yapılandırmacı öğrenme yaklaşımına uygun olarak öğretiminin öğrenci başarısına etkisi* (Yayımlanmamış yüksek lisans tezi). Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.
- Tan, E. (2008). *İlköğretim 7. sınıf dil bilgisi öğretiminde zarflar konusuyula ilgili yapılandırmacı yaklaşıma göre hazırlanmış çalışma yapraklarının öğrenci başarısına etkisi* (Yayımlanmamış yüksek lisans tezi). Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Erzurum.
- Türnüklü, E., Ergin, A. S., & Aydoğdu, M. Z. (2017). 8. sınıf öğrencilerinin üçgenler konusunda problem kurma çalışmalarının incelenmesi. *Bayburt Eğitim Fakültesi Dergisi*, 12 (24), 467-486.
- Toumasis, C. (1995). Concept worksheet: An important tool for learning. *The Mathematics Teacher*, 88(2), 98-100.
- Yager, R. (1991). The constructivist learning model. *The Science Teacher*, 58(6), 52-57.
- Yazlık, D. Ö. (2020). Matematik Öğretmeni Adaylarının Cabri Yazılımıyla Çalışma Yaprakları Tasarlama Süreci ile Bunların Geometri Öğretiminde Kullanılması Üzerine Görüşleri. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi*, 21(3), 1291-1334.
- Zehir, H. (2010). *Çalışma yaprakları ile lineer dönüşümler ve lineer dönüşümlere karşılık gelen matrislerin öğretimi* (Yayımlanmamış doktora tezi). Atatürk Üniversitesi Eğitim Bilimleri Enstitüsü, Erzurum.

## Extended Abstract

### Introduction

The use of worksheets prepared in accordance with the constructivist learning approach enables students to actively participate in the lessons and to structure the knowledge they acquire in their minds. Thus, it facilitates the students' learning of mathematics subjects. Although mathematics is important in students' lives and in achieving their goals, learning mathematics can be difficult because it contains abstract concepts (Keskin, 2019). Teaching mathematics with a rote logic and adhering to the book prevents students from developing their thinking skills. It also negatively affects their self-confidence and entrepreneurship, and directs them to rote learning. When students are not active in the lesson, their interest and enthusiasm for mathematics decreases (Gürbüz, 2007).

In addition to these difficulties, some teachers consider being successful in mathematics as being able to use formulas, rules and methods appropriately. However, in order for students to be productive and successful in their lives, they need to develop their mathematical understanding and thinking. This can be achieved by giving importance to concepts and relationships in mathematics (Baki, 2008). For this reason, the Turkish Ministry of National Education put emphasis on student-centred learning activities and tries to ensure that students acquire knowledge by making sense, doing, and experiencing. Teaching environments in which students are active during teaching and construct knowledge in their own minds make the acquired knowledge more permanent (Bakaç, 2014).

Worksheets prepared in accordance with the constructivist approach are highly effective in providing these environments. For this reason, the aim of this study is to examine the teaching of the triangles in the geometry learning domain to the 8<sup>th</sup> graders with worksheets prepared in accordance with the constructivist curriculum.

### Method

The aim of this study is to examine the teaching of triangles in geometry learning area to the 8<sup>th</sup> graders with worksheets prepared in accordance with the constructivist curriculum. Quasi-experimental design, one of the quantitative data collection methods, was preferred in the study. The research was conducted with the 8<sup>th</sup> grade students of a state secondary school in Etimesgut district of Ankara province. The study group of the research consisted of 58 students (30 students in the experimental group and 28 students in the control group). In the study, the 'Triangles Achievement Test' developed by the researchers was used as a data collection tool. In the reliability calculation of the test, Cronbach Alpha .826, KR-20 .836 and KR-21 .814 were found. These results show that the internal consistency between the items and the reliability of the test are high.

Before the application, the 'Triangles Achievement Test' developed by the researcher was applied to the students in the experimental and control groups. It was observed that there was no significant difference between the pre-test scores of the experimental and control groups. After the pre-test, the experimental group was taught with worksheets prepared in accordance with the constructivist teaching programme. A total of nine worksheets were prepared and applied for the experimental group. The control group was taught with general teaching methods. Both groups were taught for 15 lesson

hours. At the end of 15 lesson hours, 'Triangles Achievement Test' was applied to both experimental and control groups as a post-test. The data related to the sub-problems of the research were analysed using Independent and Dependent Samples t-test, and SPSS package software was used for the analysis. It was found that the data in the study showed normal distribution. Effect sizes were calculated with Cohen's d value.

### Findings and Conclusion

In the study, the pre-test and post-test achievement levels of the experimental group and the control group in the subject of triangles showed a differentiation in favour of the post-test. In addition, the post-test achievement levels of the experimental group and the control group in the subject of triangles showed differentiation in favour of the experimental group. It was seen that teaching with worksheets prepared in accordance with the constructivist curriculum and teaching with the general teaching method increased the academic achievement of the 8<sup>th</sup> grade students about triangles. However, it was found that the effect of teaching with worksheets prepared in accordance with the constructivist curriculum was higher than the effect of teaching with the general teaching method. According to this result, it can be claimed that teaching with worksheets prepared in accordance with the constructivist curriculum for the 8<sup>th</sup> grade triangles subject acquisitions is more effective than teaching with the general teaching method and increases students' academic achievement more.

These results are in congruent with the results of many studies in the literature (Aktepe, 2012; Özdemir, 2012; Besler, 2009; Tan, 2008; Çelikler, 2010; Zehir, 2010; Martin et al., 2005; Demircioğlu et al., 2004; Akkaya & Durmuş, 2010; Moore, 2005; Kroesbergen et al., 2004) However, there are also studies (Chung, 2004; Demircioğlu & Kaymakçı, 2010) that are not compatible with the results of the study.

### Author Contributions

The authors were equally involved in all processes of the article.

### Ethics Declaration

This study was conducted with the approval decision taken at the Ethics Committee for Social and Human Sciences (Decision No. 11) at the 09 meeting of Atatürk University, dated 21.09.2023.

### Conflicts of Interest

Within the scope of this study, the authors declare that they are not in conflict of interest with any person, institution or organisation.

## Unlocking the Influence of Training on Language Instructors' Written Corrective Feedback Literacy Öğretmen Eğitiminin Dil Öğretmenlerinin Yazılı Düzeltici Geri Bildirim Bilgisi Üzerindeki Etkisinin Açığa Çıkarılması

Pınar Kır<sup>1</sup>  Nur Yiğitoğlu Aptoula<sup>2</sup> 

<sup>1</sup> Lecturer, Istanbul Technical University, School of Foreign Languages, İstanbul, Türkiye

<sup>2</sup> Asst. Prof. Dr., Boğaziçi University, Faculty of Education, Department of Foreign Language Education, İstanbul, Türkiye

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Pınar Kır

Istanbul Technical University

[pnrkartal@gmail.com](mailto:pnrkartal@gmail.com)

**Abstract:** This study examined the formation of writing instructors' written corrective feedback (WCF) philosophies and evaluated the effectiveness of a one-shot WCF training session in facilitating teacher transformation in WCF practices, a common professional development practice to train in-service language instructors at universities. Four writing instructors, with varying levels of experience and educational background, teaching in a school of foreign languages in Türkiye volunteered for the study. Prior to the training, seven essays that the instructors provided WCF for were collected. To expand their knowledge of WCF, the instructors then participated in a one-hour WCF training program, which covered types of WCF, forms of WCF, stages of WCF, the benefits of WCF, and some helpful tips for WCF. After the training, the instructors assessed and provided WCF for an additional seven essays. Data were collected through semi-structured interviews and WCF analysis of essays and analyzed using a rubric including all themes covered in the training and a thematic analysis of interview themes. The results suggested instructors' WCF philosophies were shaped by a combination of experience, school policies, and master's education. Furthermore, while the one-shot training program did not entirely transform the instructors' WCF philosophies, it had some impact on their practices.

**Keywords:** Written corrective feedback literacy, L2 writing, professional development, higher education

**Öz:** Bu çalışmada, İngilizce öğretmenlerinin yazma dersinde verdiği yazılı düzeltici geri bildirimlerin (WCF) nasıl ortaya çıktığı incelenmiştir. Ayrıca, bu çalışma, Türkiye'deki üniversitelerde yaygın bir mesleki gelişim uygulaması olarak kabul gören tek seferlik WCF eğitimi oturumunun etkililiğini, öğretmenlerin WCF kullanımındaki değişimlere bakarak değerlendirmiştir. Araştırmaya Türkiye'de bir yabancı diller yüksekokulunda öğretmenlik yapan, farklı deneyim ve eğitim düzeylerine sahip dört İngilizce yazma dersi öğretmeni gönüllü olarak katılmıştır. WCF eğitimi öncesinde öğretmenlerin WCF verdiği yedi öğrenci makalesi toplanmıştır. Ardından, öğretmenlerin WCF bilgisini geliştirmek amacıyla WCF türlerini, WCF formlarını, WCF aşamalarını, WCF'nin yararlarını ve bazı faydalı WCF ipuçlarını kapsayan bir saatlik bir eğitim verilmiştir. Eğitimin ardından, öğretmenler ek olarak yedi öğrenci makalesini daha WCF kullanarak notlandırmıştır. Veriler, yarı yapılandırılmış görüşmeler ve makalelere verilen WCF örneklerinin analizi yoluyla toplanmıştır. Veri analizi için eğitimde ele alınan tüm temaların yer aldığı bir değerlendirme listesi hazırlanmış ve röportaj temaları tematik analiz yöntemi kullanılarak değerlendirilmiştir. Sonuçlar, İngilizce yazma dersi öğretmenlerinin WCF felsefelerinin deneyim, okul politikaları ve yüksek lisans eğitiminin birleşimiyle nasıl şekillendiğini ortaya koymuştur. Ayrıca, tek seferlik eğitim programının öğretmenlerin WCF felsefelerini tamamen değiştirmese de onların pratik uygulamaları üzerinde bir miktar etki yarattığını da ortaya koymuştur.

**Anahtar Kelimeler:** Yazılı düzeltici geri bildirim okuryazarlığı, ikinci dilde yazma, mesleki gelişim, yüksek öğrenim

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### Introduction

Written corrective feedback (WCF), is a "complex phenomenon [whose] complexity is reflected in the controversies that surround such issues as whether to correct, what to correct, how to correct, and when to correct" (Ellis, 2009, p. 16). It has been a controversial topic on the point of improving language learning since the early argument of Truscott (1996), who claimed the utilization of WCF in writing classes is futile. Ever since, a myriad of researchers (e.g., Bitchener & Ferris, 2012; Bitchener & Knoch, 2009; Sheen, 2007) have tried to search the phenomenon and their findings refuted Truscott's ideas and indicated WCF is sine-qua-non of the second language (L2) writing classes rather than being a useless implication. A plenty of following studies showed positive influences of WCF in the L2 writing classes (e.g., Bitchener & Knoch, 2009; Ellis et al., 2008; Sheen, 2007). These studies investigated the phenomenon by searching different aspects of WCF methods in writing classes.

First and foremost, the focal concern has become to what extent student errors should be provided WCF in these studies.

Whether teachers should offer WCF to all student errors in a particular essay or they should focus only one or two kinds of errors and highlight them (Ferris et al., 2013) were two options. Whilst the former was known as comprehensive (unfocused) WCF, the latter was selective (focused) WCF. The advantages and disadvantages of the two types were sought in various studies (e.g., Bitchener & Knoch, 2009). The selective WCF was uncovered more effective (Bitchener, 2008; Ferris 1995) because students could capture a single error type in a better way and pay their attention easily, yielding more productive results in L2 writing classes (Ellis et al., 2008). However, further investigation cleared that those teachers mostly preferred comprehensive WCF as their usual way of offering feedback in the authentic L2 writing classes (Cheng & Zhang, 2021; Ellis et al., 2008; Wei & Cao, 2020) and correspondingly, students desired it more than selective WCF (Lee, 2005; Leki, 1991; McMartin-Miller, 2014). Additionally, comprehensive WCF was found influential in catering for student awareness (e.g., Sheppard, 1992; Storch, 2010). Nonetheless, focused WCF was found more feasible in authentic classrooms to apply (Lee et al., 2021).



The additional investigation was on whether to provide correct form of student errors or not. In that sense, attaching correct forms of student errors, known as direct WCF, or indicating the availability of an error by using some error codes or forms with no code, referred to as indirect WCF were two implementations (Bitchener & Ferris, 2012). Although some research findings supported indirect WCF (e.g., Ferris, 2006; Lalande, 1982) owing to its impact on long-term learning, others showcased that direct forms were more beneficial to enhance student performance (e.g., Shintani et al., 2014) and to trigger the internalization of the newly learned structures (Ellis et al., 2008). Also, studies found out that teachers provided direct WCF more than indirect as they prevent questions from the students (Furneaux et al., 2007; Lee, 2004).

Apart from the types and forms of WCF, written commentaries were highlighted in the WCF literature. Written commentaries, mostly known as extra comments, were offered in various forms such as statements, imperatives, hedges, or questions for student writings by teachers (Ferris, 1997; Zamel, 1985). Among these forms, questions were highly suggested as they improved cognitive interaction and yielded student autonomy. To be able to form effective written commentaries, teachers were suggested to offer plain, explicit, text-specific, and topic-oriented comments both for strengths and weaknesses of essays and their feedback should be constructive (Hyland & Hyland, 2001).

Furthermore, the stages of WCF were investigated, and some methods were proposed. According to Hattie and Timberley (2007), influential feedback had to answer three questions: Where am I going?, How am I going?, and Where to next?. These questions were related to three stages of feedback: respectively, feed up, feed back, and feed forward. In the feed up stage, the goals of writing are set and related to specific understandings. In the feed back stage, feedback is provided to shed light on the performance of the students as diagnostic and descriptive. In the feed forward stage, feedback aims to develop further learning and encourages critical reflection.

The utilization of important tools to enhance the effectiveness of feedback in L2 writing classes were also examined in WCF studies. The use of feedback forms (Lee, 2014), error ratio analysis sheets, or error logs (Ferris, 2011) was given utmost importance in the classes (McMartin-Miller, 2014) as they promoted learning. Regarding the procedures and cycles of WCF, hitherto studies inferred the importance of informing students about the current feedback procedures and asking their WCF preferences to improve an understanding of the WCF and to lead to open dialogues (Plonsky & Mills, 2006). To that wake, it is of utmost importance that L2 writing teachers inform their students about how they use WCF in their writing classes and share the responsibility of WCF procedures with their students through communication (Amrhein & Nassaji, 2010) by considering elements influencing the teacher-student dynamic within WCF activities such as goal congruence, expectation fulfillment, and power dynamics (Liu et al., 2022).

All these aforementioned studies composed the profound knowledge base of WCF. Nonetheless, the studies on WCF detected different theoretical and practical perspectives. In a nutshell, hitherto studies seeking teacher insights and practices on WCF could not find the traces of WCF knowledge base in teachers' real classroom practices, pointing the research-practice inconsistency between teachers' real WCF and

recommended principles (e.g., Lee, 2009; Montgomery & Baker, 2007). Studies pointed out that teachers either do not recall what they learned in teacher education or do not pay attention to the in-service teacher training (Lam, 2015; Vogt & Tzagari, 2014).

To illustrate, against the suggestions of WCF theories, the majority of the L2 writing teachers gave comprehensive WCF for student writings and attempted to pinpoint grammar mistakes more (Lee, 2003). Likewise, solely 20% of teachers utilize selective WCF rather than following the suggestions of selective WCF (Lee, 2008). What is more, L2 writing teachers give WCF for grammar and mechanics errors most of the time (Montgomery & Baker, 2007). To shed light on these findings, some other studies searched the reasons of these preferences and revealed that teachers desired "flexible response strategies that fit the student and the task rather than following rigid prescriptions" (Li, 2012, p. 21) or even if they want to implement what is suggested, they cannot manage it owing to the insufficient teacher training, support from school administrators, and practical restrictions (Li, 2011).

In the light of these studies, it is obvious that there has been a lack of WCF literacy among L2 writing teachers. Hammersley (2004) expresses the reason for the gap between research and practice with these words: "It is because of this gap between theory and practice that practitioners frequently view research information as abstract and irrelevant knowledge that cannot be applied to practical problems." (p. 561). In that sense, the aim of in-service teacher development should be to equip teachers with necessary research information that they can apply to. Kostoulas (2018) propounded that having research literacy requires teachers to have the ability of locating information, criticizing information, and synthesizing information into a functional, personally pertinent, theory of teaching and learning. Correspondingly, the aim of teacher training sessions should be offering information to teachers, and enabling them to reflect on information, and triggering them to use the newly learned information. Only in that way, teachers can develop their knowledge base and yield positive learning outcomes among various students (Timberley & Alton-Lee, 2008). Nonetheless, there is a dearth of research in developing WCF literacy among L2 writing teachers despite the fact that teachers need knowledge that they can use in their classes (Karaağaç-Zan & Yiğitoğlu, 2018; Lee, 2011). Especially, there is a lacuna in this field in the Turkish context. As one of the pioneering studies, Karaağaç-Zan and Yiğitoğlu (2018) examined WCF beliefs and practices of one experienced and one novice English teachers. The results of this descriptive study inclined that the perspectives of teachers regarding writing and mistakes, the responsibilities of teachers and students in writing, the training and background of pre-service teachers, and the policies implemented by schools were the primary reasons of their WCF beliefs and practices. However, teachers were in need of theoretical information on the issue. Therefore, there is an urgent need to bridge the gap between WCF research and practice by informing teachers about WCF literacy (Lee, 2017) with intervention studies. Raising awareness constitutes the first step of constructing WCF literacy among teachers (Lee, 2019). Thus, by proposing an in-service teacher training session which is a common practice at institutions as a professional development activity, this research aimed to fill this void with a case study methodology and raised the following research questions:

1. To what extent does a one-shot WCF training session have an impact on L2 writing instructors' WCF practices and philosophies?
2. What are the factors affecting the WCF philosophy formation of L2 writing instructors?
3. What are the expectations of L2 writing instructors from effective training sessions?

## Method

### Data collection

This study utilized a qualitative research approach with the aim of gathering, examining, and interpreting the descriptive data for an in-depth analysis of a specific phenomenon with a particular group of participants (Gay et al., 2012). Questioning a problem, comprehending all perspectives of a significant phenomenon, collecting data from a restricted number of people based on their narrative to have their insights are some characteristics of the qualitative research paradigm (Creswell, 2012). Additionally, a case study methodology was adopted to cater for more profound insights towards the changes in the philosophies and practices of WCF among participants. In such, each individual provides a unique contribution to the study and collectively similarities and differences between them lead to a better understanding of the phenomenon. Therefore, each instructor's experiences were regarded as a particular case with their background information.

### Context and Participants

The current study was carried out in an English language preparatory school of one of the top-tier state universities in Türkiye. The school was reached through personal contacts. The medium of instruction is English in this university. Therefore, students must hold a specific degree in English to be able to start education in their departments. To assess students' English proficiency level, a proficiency test is conducted by the English language preparatory school. This test assesses students' competence in reading, listening, use of English, and writing. Notably, writing proficiency is underscored as particularly pivotal, as it necessitates achieving a designated threshold score (12 out of 20), unlike other skills which do not mandate specific passing criteria. Students who cannot pass the proficiency test successfully have to attend the language preparatory school for one or two terms, depending on their proficiency level. Writing, reading, listening, and speaking skills are offered in different courses with varying teaching hours at the school. Academic writing classes are presented in four hours at intermediate level. Skill classes are divided among the instructors without considering any qualifications of them. For this reason, all instructors teach at least one writing course every semester by following the syllabus sent by the curriculum development office. Instructors do not have to develop any materials or prepare lesson plans, and they solely follow the weekly schedule including the required materials.

Four academic writing course instructors (3 females, 1 male) took part in this research. They were chosen through convenient sampling among the volunteer writing instructors. Their age ranged from 33 to 45 and experience varied from 8 to 18 years. While three of them held a master's degree in English language teaching, one had a bachelor's degree in English language teaching. Also, one of them was continuing his PhD study. The reason for the existence of such various

degrees in this sampling can be explained through the criteria of being an instructor at English preparatory schools in Türkiye. To apply for a position as an English instructor in English language preparatory schools, candidates must hold both bachelor's and master's degrees in one of the following fields: a) English Language Teaching, b) English Language and Literature, c) English Translation and Interpretation, d) Linguistics, and e) American Culture and Literature. Before 2016. Possessing a master's degree was not a prerequisite. However, in a new regulation initiated by the Higher Education Council (HEC), it became mandatory for prospective instructors to hold the aforementioned bachelor's and master's degrees. Additionally, state universities typically expect candidates to have between 2 and 5 years of higher education experience in the relevant field. Hence, whilst most of the instructors do not hold a master's degree in this institution, only the ones recruited after 2016 possess a master's degree. Table 1 demonstrates the participant backgrounds. Pseudo names were attained in the study.

Regarding continuous professional development, some attempts have been launched in the school by the professional development unit, albeit less in number recently. Monthly training sessions mostly offered as one-shot sessions aiming at a specific topic are the most common professional development activities at these institutions like many other state universities in Türkiye. The topics of sessions were determined by the instructors through the needs analysis conducted at the beginning of each term. All instructors were obliged to take part in these in-service training in line with job descriptions. Nonetheless, even though academic writing is of utmost importance in this school, there have not been any one-shot or ongoing training sessions for teaching, assessing, or providing WCF for academic writing. Instructors were left on their own in this sense. Additionally, there was not any school policy regarding the WCF practices of instructors.

**Table 1.** Demographic characteristic of participants

Name	Experience in Teaching	Degrees	Years of Teaching Writing	Level of Teaching Writing
Ali	12	PhD continued	12	Intermediate
Merve	11	MA	9	Intermediate
Ayşe	18	Bachelor's	12	Intermediate
Pelin	8	MA	6	Intermediate

### Data Collection Tools

*Semi-structured interviews* were used to examine instructors' insights on WCF in the study. 14 questions were prepared under four categories, a) background information, b) instructors' WCF philosophy formation, c) the effects of WCF training on their philosophy and practices, and d) expectations from effective training. Most of the questions were inspired from the topics in Bailey and Garner (2010) and Ferris et al. (2011) and adapted in line with the research questions of this study. Each interview was carried out face-to-face with individual instructors and took one hour.

Two different *sets of essays* provided WCF before and after WCF training were examined in this study. All instructors were requested to randomly choose seven essays that they have given WCF recently before the WCF training. The essays they gave were selected from the first level assessment test of

intermediate level, so the questions and essay type were the same in all essays. The criterion for intermediate level selection was to observe as much as WCF practices of instructors for a full essay as students write only a paragraph or two paragraphs in elementary and pre-intermediate levels. Following the WCF training, seven more essays with WCF were elicited from the instructors. Akin to the first essay set, the second essay set was from the second level assessment test at intermediate level.

### Procedures

This research aimed to investigate real practices of professional development and their influences on instructors at English preparatory schools. With this aim in hand, to ensure ecological validity throughout the study, the research design did not necessitate any obligatory participation for a training or obligate instructors to carry out any tasks apart from their daily job routine. Only with that research design which is not forcing them to give WCF for any specific essay out of their daily responsibilities, the research intended to guarantee the observation of real WCF practices of instructors and influences of a one-shot training session.

Prior to the study, the ethical permission has been obtained from the Ethics Committee for Human Research in Social Sciences (Protocol No. 413) at Istanbul Technical University on November 13, 2023. Before the training, a level assessment test where intermediate level students are expected to write a full essay was done in the seventh week of the term. Seven essays were scored and provided WCF from this test were collected from four volunteer instructors. Following that, all instructors had to join a one-shot WCF training offered by the professional development unit for one hour in week 10. The WCF training encompassed a comprehensive overview of the advantages of WCF, its various types, forms, stages, and useful WCF forms that instructors can utilize in their writing classes. Furthermore, a collaborative discussion session was structured, where instructors engaged in groups of four to deliberate on their existing WCF methodologies and assess the insights gained from the training. Subsequently, all presentation slides and supplementary materials were distributed to instructors for reference following the session. After the WCF training, instructors were requested to give seven new essays they scored and gave WCF from the second level assessment test in week 12. After the analyses of essays by the researcher, a semi-structured interview was performed with each instructor to analyze to what extent the WCF training was influential on their philosophies and practices.

### Data Analysis

To analyze the WCF practices of instructors in two essay sets, the researchers formed a rubric with all themes covered in the training. Written commentary with praise, criticism, suggestion, the use of imperatives, can “do”es, cannot “do”es and exemplifying the problematic points, types of feedback (comprehensive or selective WCF), forms of WCF (direct or indirect WCF), the stages of WCF (how I am going, where to next), and using error logs were the categories in the rubric. Percentages were utilized to gauge each instructor’s WCF practices within each category, considering the frequency of

specific WCF instances. By comparing the percentages of WCF practices, any discrepancies in the effectiveness of WCF before and after the training were identified and analyzed.

The interview data were meticulously recorded in audio format and subsequently transcribed verbatim. The researchers conducted a thorough review of the transcriptions to ensure accuracy and reliability. For data analysis, the thematic analysis approach (Braun & Clarke, 2006) was adopted. Initially, the researchers familiarized themselves with the data by reading through it and generating initial codes to systematically organize the information. Later, these codes were categorized into overarching themes, with continuous refinement and modification through iterative cycles of review. Once a thematic map was established, all identified themes were cataloged and documented for further analysis. To maintain inter-rater reliability among coders, the first step involved comparing how both coders classified data into the appropriate categories. Later, any discrepancies were addressed through discussion and adjustments were made in data categorization and assessment.

### Results

#### The Analysis of Transformative Shifts: Instructors’ Before- and After-Training WCF Practices

Instructors’ before-training and after-training WCF practices and insights in the interviews implied the impacts of WCF training on different aspects in this research. Firstly, to investigate the first research question, the analysis of WCF instances on two different sets of essays before and after the WCF training was conducted. The findings indicated to what extent WCF training affected university L2 academic writing instructors’ WCF practices. Table 2 and Table 3 present the detailed information about the change in instructors’ before- and after-training WCF practices in percentages with a comparative approach.

Regarding the first category in the rubric, namely written commentary, some changes were observed in instructors’ after-training WCF practices, albeit less in percentages. Although the changes were mostly observed in subcategories of suggestions and exemplifying problematic areas both in the form of increases and decreases, some minor changes were also prominent in criticism, use of imperatives, “Can do”es, and “Cannot do”es subcategories with comparatively lower percentages. As for the types of WCF, even though the training exposed the benefits of providing selective WCF, instructors did not change their habits and continued delivering solely comprehensive WCF before (100%) and after (100%) the training. For forms of WCF, even though no modifications were available in the practices of two instructors, the distribution amount of direct and indirect WCF was different in two instructors’ WCF practices. Likewise, there was no change in the stages of WCF in two instructors’ practices and some rises and declines exist in two others’ practices. There was not any use of logs before or after the training. The following section explains these changes for each participant in a more detailed way.

**Table 2.** The analysis of instructors' before-training WCF practices

Name	Written Commentary							Types of WCF		Forms of WCF			Stages of WCF		Use of Logs
	Prai.	Criti.	Sug.	Imp.	"Can do"	"Cannot do"	Exe.	Comp.	Sel.	Dir.	Ind.	How	Where		
Ali	0%	0%	0%	40%	100%	100%	0%	100%	0%	20%	80%	60%	0%	0%	
Merve	0%	10%	50%	0%	0%	60%	40%	100%	0%	100%	0%	60%	40%	0%	
Ayşe	0%	0%	0%	0%	0%	0%	20%	100%	0%	100%	0%	30%	0%	0%	
Pelin	20%	0%	70%	0%	50%	70%	80%	100%	0%	0%	100%	70%	70%	0%	

**Table 3.** The analysis of instructors' after-training WCF practices

Name	Written Commentary							Types of WCF		Forms of WCF			Stages of WCF		Use of Logs
	Prai.	Criti.	Sug.	Imp.	"Can do"	"Cannot do"	Exe.	Comp.	Sel.	Dir.	Ind.	How	Where		
Ali	<b>20%</b>	0%	0%	<b>20%</b>	100%	100%	0%	100%	0%	<b>40%</b>	<b>60%</b>	<b>40%</b>	0%	0%	
Merve	0%	10%	<b>70%</b>	0%	<b>50%</b>	60%	<b>20%</b>	100%	0%	100%	0%	<b>80%</b>	<b>50%</b>	0%	
Ayşe	0%	0%	<b>30%</b>	0%	0%	0%	<b>40%</b>	100%	0%	100%	0%	30%	0%	0%	
Pelin	20%	<b>10%</b>	<b>40%</b>	0%	<b>30%</b>	<b>40%</b>	<b>50%</b>	100%	0%	<b>20%</b>	<b>80%</b>	70%	70%	0%	

\*The instances of increase or decrease in instructors' WCF practices following the WCF training were bolded in Table 3.

### Instructor 1: Ali

Ali, boasting 12 years of experience, stood out as one of the most seasoned instructors among the participants. He has immersed himself in the field of English language education since his undergraduate studies. At the time of the study, he was in the process of completing his PhD thesis. He has been teaching L2 academic writing since the beginning of his career. Although his WCF practices did not change enormously after the WCF training, at least he implied he paid attention to the content of the training and tried to apply some of the suggestions there, albeit his concerns about some possible conflicts which might arise in the classes.

Regarding the written commentary part, he composed two columns titled as "+" and "-" at the end of each essay in his before-training WCF practices. While "+" column implied "can do"es, "-" column indicated "cannot do"es of students. Although there were not any explanatory sentences under these titles, students' strengths and weaknesses on organization, details, vocabulary, grammar, and mechanics were shown in the format of a category such as "thesis statement" or "topic sentence". He added some imperative sentences next to error areas with exclamation marks, such as "Rewrite!" (40%). He did not involve any signs of praise, criticism, suggestions, or examples of the errors in his WCF

practices. Conversely, the amount of WCF instances on the second essay set largely dropped after the training. Less number of comments were present on essays. Surprisingly, he commenced to praise some students with remarks like "good" or "great" (20%). The same inclination was prominent for "can do" and "cannot do"es columns. Yet, similar to his before-training WCF practices, no instances of criticism, suggestions, or examples of the errors were found.

Comprehensive WCF was his common practice for all first sets of essays (100%), and he provided it in the form of underlining, circling, crossing out the wrong structures, adding a question mark, and asking critical thinking questions. This tendency did not change even after the training. Furthermore, indirect WCF (80%) was his typical form of WCF for most of the essays without the correct form of the problematic utterance, yet some forms of direct WCF (20%) were also emergent for few students. On the contrary to constant preference for comprehensive WCF, his preferences for direct WCF changed and increased from 20% to 40% and favored indirect WCF less after the training.

In line with the stages of WCF, he supported students for the development of "How I am going stage" (60%). "One argument is missing" or "Topic sentence must reflect your argument" were some examples of his WCF for this stage. By asking many questions to students related to the errors in the

form of a full sentence or sometimes only adding a question mark, he reflected the quality of students' essays. However, there were no signs of WCF for "Where to next stage" or the use of error logs. For the after-training practices, a limited amount of WCFs for "How I am going stage" (40%) were usual and WCF patterns were less controlled. Nonetheless, no error logs existed again.

### **Instructor 2: Pelin**

Pelin, with eight years of experience, was the least experienced instructor among the participants. She completed her master's studies in English language education and has been teaching academic writing for six years. Even though some slight differences were available between her before-training and after-training WCF practices, these were mostly attached to contextual factors rather than the forthright effects of the training.

Pertaining to her written commentary, she included a detailed commentary at the end of each essay. Therefore, she never corrected or commented on an error within the text before the training. The only interruptions she attempted were to imply crucial errors to explain the problem. Her commentary was mostly related to the errors of organization, details, grammar, vocabulary, and mechanics. As a positive remark, her commentary always commenced with "Can do"es of the students (e.g., "Linkers are used well") in the first paragraph. By starting a new paragraph, she explicated what the student "Cannot do" and the problematic areas in the essay. She also provided many examples of the errors to help students understand better. To illustrate, she highlighted the wrong word preference and listed all possible words that can be used instead of the wrong word. Although she clarified what students can do in a detailed manner, she rarely praised the students (20%). In like manner, she did not criticize or dictate imperatives on the essays. She closed her written commentaries with a final remark as "suggestions" (e.g., "You can study if clauses."). Conversely, her after-training written commentaries were not as detailed as the previous ones. Instead, she held shorter written commentary parts mostly attached next to the errors within the essay, rather than writing a separate commentary section at the end of the essay in the second essay set. Significantly less amount of WCF was available for organization, details, grammar, vocabulary, and mechanics compared to before-training comments, too. She still included "Can do"es, "Cannot do"es parts and exemplified some errors (respectively 30%, 40%, 50%) at the end of the essays. However, their quantity was not as much as her previous WCF practices (respectively 50%, 70%, 80%). The level of praise was the same (20%), yet some criticism existed (e.g., "Too many if clauses"). Likewise, there was a decline in the number of suggestions (from 70% to 40%). She did not use imperatives.

Touching on types of WCF, she supplemented comprehensive WCF (100%) for all student errors, without focusing on one or two types of errors before the training. To imply the error, she underlined the wrong utterance or used an insertion icon to indicate the missing part. There was no use of writing error codes. Correspondingly, no alteration was available in her after-training WCF practices for the types of WCF. She provided comprehensive WCF (100%) by underlining the errors and inserting an icon, too.

Respecting the forms of WCF, she selected indirect WCF and did not present the correct forms of the errors in her before-training WCF instances. In addition, she did not explain the

error within the text, as her commentary and leading questions were attached to the end of the essay. Contrastively, her after-training practices differentiated from the previous ones to some extent, and she became aware of direct WCF (up to 20%) in some essays despite the majority of indirect WCF (80%) in most of the papers.

As for stages of WCF, she clarified how the students are going with leading sentences (e.g., "The organization is clear"). For Where to next stage, she drew a road map for the students for their future studies while motivating them with phrases such as "Keep going" or "You need to read a lot to overcome the vocabulary problem". No error logs were used in her before-training WCF practices. There were not any revisions for stages of WCF in her after-training WCF, she kept giving the similar feedback for the students. Furthermore, she did not benefit from error logs.

### **Instructor 3: Ayşe**

With the highest level of experience, 18 years in English teaching, Ayşe was the oldest instructor among the participants. She had been teaching academic writing for twelve years. Although she had a bachelor's degree in English language teaching, she did not pursue further studies at the master's level. Though she had fewer WCF instances on her essays and did not change her after-training WCF practices a lot, she could justify her attempts in a clear way.

Her first WCF practices did not consist of a written commentary nearly in all the essays. Only organization errors or some significant problems were given to WCF as a brief comment next to the error. Although she focused on organization by focusing on the topic sentence in some essays and grammar use, she did not signify content details or vocabulary use with WCF for most of the papers. She did not include any comments to praise, criticize, provide suggestions, or to imply what students "Can do" and "Cannot do". No use of imperatives was available. Nonetheless, she exemplified student errors by juxtaposing the correct form denoted by a tick icon and the wrong form by marking a cross on certain essays. Regarding her after-training WCF practices, there was no significant change observed. Repeatedly, no written commentary section consisting of praise, criticism, "Can do"es, "Cannot do"es and imperatives was attached to the essays. The only significant change was the existence of more suggestions about the organization of the essay inserted by some short notes (30%). In addition, she exemplified the errors up to 20%.

Pertaining to the types of WCF, comprehensive WCF was offered for all grammatical errors in the form of underlining, circling, crossing out the error or adding question marks. In the same vein, direct WCF was most common, and she gave the correct forms of the mistakes. The only WCF for the stages of WCF was for the where I am going stage. She added statements like "Not relevant" or "No need". Nonetheless, there was not any WCF for Where to next stage and the utilization of error logs. On the other hand, her after-training WCF practices for the types of WCF, forms of WCF, and stages of WCF did not vary from her previous practices. She never benefited from error logs.

### **Instructor 4: Merve**

Merve obtained her bachelor's and master's degrees from the English language teaching department. With a total of 11 years of teaching experience, she possesses a solid foundation, particularly in academic writing, having dedicated nine years



to teaching this skill. She was one of the most productive academics who provided a vast amount of WCF for the student errors in the study. Like other instructors, she could not transform all of her WCF practices and continued to provide WCF in the same manner after the WCF training. Yet, some of her practices inclined the traces of the WCF training in specific categories.

She offered an in-depth WCF pattern for nearly all of her students' errors in her first set of essays before the training. Even though she attached a brief written commentary to the end of essays, most of her feedback was integrated into the essay next to the errors. Her commentary did not involve students' "Can do"es, imperative sentences, or occurrences of praise (0%). Yet, it was possible to observe some criticisms like "Hard to understand" (10%). She presented various suggestions to the students (50%) (e.g., "This part could be developed more.", "General statement could be better."). Besides the strengths of the students, she largely focused on the weaknesses of them with statements such as "Supporting ideas are not clear.", "Grammar is not correct." or "It does not meet the word limit" (60%). Also, she explained the wrong utterances by correcting them as well as offering more options to use in this specific part (40%). In contrast, some remarkable changes stood out in her after-training WCF practices. To illustrate, more positive comments emphasizing what students can do (50) particularly at the beginning of the written commentary as suggested in the training became more prominent in her data. Similarly, the occurrence of suggestions increased up to 70%. Nonetheless, any change was not detected in terms of criticism, praise, the use of imperatives, and what students cannot do. She also commenced to less exemplify the errors (20%).

Comprehensive WCF was the common practice for all the essays by circling, crossing the error, or inserting an icon to demonstrate there is a missing constituent (100%). Regarding the forms of WCF, direct WCF integrated with the correct forms of the mistakes were dominant in the pre training samples (100%). Furthermore, her feedback was mostly towards the how I am going stage with "Supporting ideas are not clear." or "Where is your personal opinion?" (60%). Despite comparably having less percentage, for where to next stage, she offered some feedback (e.g., "Please work on grammar." or "Develop better ideas.") (40%). She did not use

error logs in the previous essays. When compared to before-training WCF practices, she did not make changes related to types of WCF and forms of WCF, she kept utilizing the same ones even after the training. Nonetheless, only a slight increase was noticed in the use of how I am going stage (80%) and where to next (50%). Similarly, there were not any error logs.

### The Way L2 Writing Instructors Navigate the Change and Growth in their WCF Philosophy

To shed light on the more in-depth insights of the instructors, semi-structured interviews were performed to examine the first, second and third research questions. The interview data revealed how instructors' WCF philosophies have been formed throughout their career, how a one-shot training session affected their WCF practice and philosophy, and what instructors expect from an effective training session. Based on the thematic analysis, three major themes namely 1) *influential factors shaping philosophy development*, 2) *influences of the training*, and 3) *criteria for effective training* were found out. The first theme held three sub themes, a) experience, b) school policies and c) master's education. The second theme included two sub themes, a) change in practice, b) change in philosophy. The third theme had two sub themes, a) the quantity, and b) the aim. Figure 1 presents the themes and sub-themes of the interview data.

Regarding the second research question, asking what affects the WCF philosophy formation of L2 writing instructors, the first theme unveiled in the interview data, namely *influential factors shaping philosophy development*, implied three main factors. The first factor, *experience*, was quite impactful for all the instructors' WCF understanding. Related to WCF philosophy development process, instructors declared their philosophy of WCF has been shaped throughout the teaching career with trial-and-error approach.

*"Examples of my in-class WCF practices consist of conducting one-to-one conferencing sessions, allowing students to silently interpret feedback, and creating PDFs or PowerPoint presentations to highlight students' errors in essays to share with all students together. I found them through my personal experiences throughout the years."* (Ayşe)

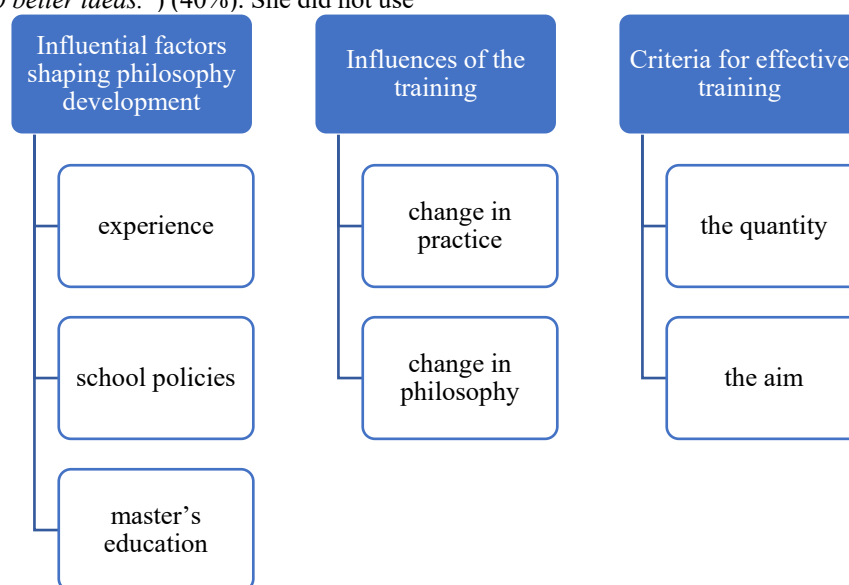


Figure 1 Occurring themes and subthemes in the interviews

Despite the effectiveness of other facets in philosophy development, one participant mentioned that the most effective tenet was her own experiences of teaching in shaping her WCF practices. To give a mundane example, whilst she utilized error codes, she quitted them upon realizing their ineffectiveness in transforming students.

*“Recognizing that my students did not make use of error codes, and they could not enhance their writing skills, I opted to supply them with correct forms of the errors. I am convinced this is a better way to deliver WCF and reshaped my philosophy in that way.”* (Merve)

The second sub theme, *school policies*, was another impact on philosophy development. All instructors stated they constructed their WCF philosophy via the experiences at various schools of foreign languages with different WCF policies they worked on. Most of the time, the rubrics utilized in the schools and their WCF applications determined their WCF habits constantly. One instructor stated, although she utilized error codes before, she stopped using them owing to school policies. In addition, disappointments related to school policies and students compelled her to reassess and change her WCF philosophies.

*“I gave up. When I realized that the WCF I provided did not alter students’ motivation or practices, it let me down, and I decided to change my practices.”* (Ayşe)

One instructor considered alterations of WCF practices must be ensured institution wise and only in that way they should start to apply it. The instructor did not approve diverse practices by instructors within the same school, which can lead to unfairness. The duration of lessons, the profile of students, class size, and student expectations all influence the type of WCF that an instructor offers. For this reason, all these factors should be paid attention while determining WCF practices within an institution.

Finally, *master’s education*, the third sub theme also formed L2 writing instructors’ WCF philosophies. One instructor assumed her WCF philosophy has evolved as through the effect of the courses she was offered at her bachelor’s and master’s degree. Another instructor signified that her feedback philosophy has evolved over time, particularly during their master's education. Before pursuing her master's degree, the instructor used to offer WCF exclusively for grammar and vocabulary errors, neglecting aspects like organization, mechanics, and details. Contrastively, through readings and discussions during their master's program, the perspective on WCF shifted, prompting them to incorporate more WCF.

*“I realized the importance of WCF for the development of students; therefore, I attempted to offer WCF as much as I could do.”* (Pelin)

On the other hand, one participant indicated even though the influence of undergraduate and master’s education was dominant when he began his teaching career, the impact of foreign language education was scarce on his WCF practices when the time passed because these departments did not offer any WCF related courses in their curriculum. Hence, he could not find a chance to directly learn from his education.

*“I did not undergo any formal training in teaching writing; therefore, my approach to WCF stemmed from my experiences in the schools, specifically, the writing policies of schools played a significant role in shaping my philosophy.”* (Ali)

The second main theme of the interview data, *the influences of the training*, with two sub themes namely a)

change in practice, and b) change in philosophy answered the first research question examining to what extent a one-shot WCF training session influenced L2 writing instructors’ WCF philosophies and practices. As for the effects of the WCF training on practice *change*, one instructor said even though he acknowledged selective WCF during the training and aspired to use it, he had some concerns about its approval from the students on the point of explaining student grades. He had some hesitations towards the use of it, which might create various conflicts between students and the instructor in the classroom environment and cause an awkward conversation.

*“If I provided selective WCF, it would become challenging to justify the scores assigned to students, as there are only a few WCF instances on their essays after the WCF training. This scenario might lead to conflict between the student and me. However, when I offer feedback on organization, details, vocabulary, and grammar, students can comprehend the rationale behind their scores. If I solely mark vocabulary errors, students may question, “Did you only focus on vocabulary errors?” and think these are the only errors they made.”* (Ali)

Another instructor acknowledged that due to time constraints, student motivation issues, and the necessity of being concise, she adapted her approach and provided a different attitude to WCF in the second set of essays in reference to the changes in her after-training WCF practices. She could not focus on the training content in her mind whilst providing WCF.

*“I had different concerns while I was providing WCF for the second set of essays such as students’ expectations and time, so I had to be concise and more time efficient. I think this perspective changed my WCF practices and I could not apply what I have learned during the training.”* (Pelin)

Additionally, some instructors believe that although they were made aware of some helpful information about the WCF, it was difficult for them to change their practices. For instance, one of them told that the most significant intake from the WCF training was the awareness about WCF types and forms as well as their advantages and disadvantages for students. Her vision towards certain implementations in writing classes was enlightened. To give a mundane example, comprehensive WCF was her common practice before the training, still she implied she wanted to pay attention to this issue and offer less comprehensive WCF after the training. In contrast, she was not successful in transferring her awareness into her WCF practices in the second essay sets after the training because her students were not informed about this kind of WCF process. Correspondingly, in the absence of a formal WCF policy in the school, she hesitated in determining her WCF practices and adopting a new WCF method.

*“I noticed I gave WCFs for all students’ errors, which might be boring for students. Yet, it proves to be incredibly challenging to restrain myself, as I find it nearly impossible to let it go.”* (Ayşe)

As for the *philosophy change* after the training, nearly all instructors agreed on the difficulty of changing their philosophy with only one training session. Even though one-shot training affected their perspectives to some extent, it was not possible to transform their philosophy developed throughout years with the effect of many factors. One instructor inclined that the training reminded him of theories he learned during his education and realized the existence of the traces of these theories in his practice. He indicated that his comprehensive WCF practices supported with a direct

approach were intentional and stemmed from his philosophy, in line with his practices. Also, another instructor thought the training content was inspiring and informative on the benefits of providing WCF, however, she felt the need to delve deeper into the subject matter and learn more about it. Consequently, instead of immediately applying what she learned from the training, she opted to tailor her feedback approach based on contextual factors while grading subsequent papers. Nevertheless, she expressed intentions to integrate error logs into her writing classes and provide feedback accordingly.

*"Limiting the amount of WCF on a paper and offering selective WCF for specific errors can be advantageous for students. However, it's essential to engage in discussions with students beforehand to negotiate this approach."* (Pelin)

Another instructor mentioned the training was influential and well-prepared, so it was comprehensive enough to equip instructors with the required information. It inspired her about the use of selective WCF, and she desired to try it in her classes. In that way, the training affected her perspectives of WCF. However, even though the training was good enough to change the perspectives of the instructors on WCF, it was not so effective to change WCF philosophy. Changing the philosophy and the practice as well is a challenging phenomenon and takes a lot of time. Therefore, one-shot training might not be influential in that sense.

*"Offering selective WCF for one or two error types was novel to me. I thought it to be quite rational, as my students can be overwhelmed by my comprehensive WCF, and this might lead to boredom. I want to incorporate selective WCF in the future, yet it is very challenging to abandon what you used to do. Adjusting requires both time and dedication."* (Merve)

### Establishing Expectations for Effective Training Sessions

Respecting the third research question, investigating what L2 writing instructors expect from a successful training session, the third theme, *criteria for effective training*, demonstrated two sub themes a) the quantity and b) the aim. *The quantity* was found out as a sub-theme in the data, as some instructors emphasized the importance of participating in a series of sessions rather than one-shot training. To illustrate, regarding the ineffectiveness of one-shot training sessions, instructors mentioned a series of training sessions would be more beneficial for the best intake as it would raise their awareness eventually and lead to a philosophy and practice change. Still, they inclined that owing to many factors such as long teaching hours, the burden of assessment and the number of students, they do not want to join numerous sessions in such a scenario. However, they thought one-shot training sessions could be supported with a few follow-up activities in the form of application to ensure the effectiveness. In that sense, they suggested the development of some forms on the point of applying what they have learned in the training.

*"One-shot training sessions are needed. Although this is a traditional perspective, considering external factors, it becomes necessary in some situations. The workload is quite heavy, so the instructors' motivation decreases, and they do not want to participate in the training. In this case, one-shot training can be conducted, accompanied by follow-up activities."* (Ali)

Touching on the second sub-theme, the aim, instructors assumed that to yield the best results from the training sessions, the content of the sessions should be aligned with the

needs of the instructors. Training sessions should aim to answer the needs of the instructors rather than bringing on their own agenda. A needs analysis should be carried out and based on the results of it, the training themes should be determined. Only in that way, institutions cater for effective training sessions.

### Discussion

The current research contributed to the WCF literature with three significant findings. First, it revealed to what extent a one-shot WCF training session influenced L2 academic writing instructors' WCF philosophies and practices at university settings. Secondly, this research found out how L2 academic writing instructors composed their WCF philosophies and what the underlying factors were at stage. Finally, the findings highlighted the insights of L2 academic writing instructors on their expectations of an effective training session.

Firstly, the findings of the study affirmed the previous literature indicating the inconsistency between teachers' real WCF practices and suggested principles on the types of WCF, stages of WCF and written commentaries (e.g., Lee, 2003; Montgomery & Baker, 2007), implying the need for more in-service teacher training in this field. As for the first research question, examining both philosophy and practice change on WCF preference of instructors, the study identified manifold results in terms of changes. First and foremost, the study showcased that instructors were unable to internalize all suggestions of the WCF training and convert the information into their practices, which merges with the previous findings implying that teachers forget what they learned or ignore in-service teacher training (Lee, 2009; Montgomery & Baker, 2007). This finding might be related to the frequency of WCF training, practical constraints and student expectations as stated by the participants in the interviews. In addition, to abandon a practice might be too difficult after one session of training. On the other hand, although instructors could not fully change their WCF practices and improve their WCF philosophies after the training or internalize what they taught, their interview results shed light on how the training raised awareness about WCF literacy, yet they could not apply it due to the factors such as student expectations. Therefore, this finding can be accepted as the effect of one-shot training session in constructing the first step to develop qualified WCF philosophies and practices among instructors in line with the suggestions of Lee (2019). Nonetheless, for a permanent philosophy development, more sessions and time are required. Concomitantly, these results clarified that instructors internalized the suggestions in the training which focuses on taking students' expectations into account and informing them about WCF policy to be applied in the class (Plonsky & Mills, 2006) as instructors shared the responsibility with their students (Amrhein & Nassaji, 2010).

Delving into the details of the practice change, corresponding to the previous literature, instructors provided more comprehensive WCF compared to selective WCF in this study (e.g., Cheng & Zhang, 2021; Lee, 2003; Lee, 2008; Sheppard, 1992; Storch, 2010; Wei & Cao, 2020). Their overall preferences did not change after the WCF training. Various explanations might stand out for this result as stated in the interview. First, instructors found selective WCF novel to their practices and hesitated to apply it. Also, they felt the urge to discuss it with their students before applying it, to prevent a possible conflict in terms of justifying their scores in

the classroom. Next, instructors also believed the suitability of using selective WCF following the teaching of a specific grammar structure.

Secondly, instructors preferred direct WCF over indirect WCF before the training and two instructors who did not use direct WCF before utilized it after the training, corroborating with Ellis et al. (2008), Furneaux et al., (2007), and Shintani et al. (2014). This finding can be clarified through the effect of WCF training on conveying the importance of direct WCF on student development. Furthermore, nearly all the instructors used written commentaries with different styles in the research (Ferris, 1997). After the training, instructors' suggestions, "Can do"es and exemplification patterns grew, albeit to some extent as suggested in the training. This alteration in instructors' WCF practices approved that they were able to associate the importance of effective commentary provided for positive and negative facets of the essay and student success (Hyland & Hyland, 2021).

Additionally, against the suggestions of Hattie and Timberley (2007) about the questions of effective feedback, instructors only emphasized "How am I going?" and "Where to next?" questions in their feedback. No feedback was available for "Where am I going?" question. Their practices were not transformed following the training, denoting that one-shot training session might not be successful to transmitting all the required information of WCF stages. Also, the current study confirmed the findings of Lee (2003) stating that teachers offer WCF mostly for grammar errors. Contrastively, instructors also provided WCF for organization, details, vocabulary, and mechanics in this study.

In reference to the second research question asking what factors affected instructors' WCF philosophy, the first interview theme, influential factors shaping the philosophy development revealed experience, school policies and master's education. Among them, experience was the most influential one as it also affected how instructors perceive the training sessions. It was found out that less experienced instructors are more eager to learn through training. In contrast, more experienced instructors lose their enthusiasm in time. They transform their practices through student and institution expectations, which is in line with McMartin-Miller (2014) indicating that teachers compose their WCF based on the conditions of their students and correspondingly Li (2012) asserting that teachers select flexible strategies adaptable to the student and task needs instead of adhering to rigid rules.

Although instructors expected a needs-based training, it is possible to state that they cannot be aware of their needs in some cases. In this study, instructors did not use to integrate suggested WCF practices into their practice, yet they did not feel the urge to improve their WCF literacy and benefit from the training due to some other constraints. This finding pointed out contextual factor's outcome teacher needs in some situations. Additionally, opposing to Hammersley (2004) assuming teachers find research findings irrelevant and too abstract, this study did not indicate this kind of result. All instructors focused on the training content and considered the ways of integrating them into their classes. Nonetheless, due to the number of the sessions, instructors could not transform their practices. In that sense, additional activities supporting the content of the one-shot training might be influential in yielding more effective results.

## Conclusion and Implications

To conclude, this study contributed to a growing body of literature on the effects of training sessions on instructors' WCF practices. Firstly, the results pointed out all teachers could not fully internalize the WCF training and transform what they have learned into their WCF practices. However, this one-shot training managed to yield an awareness of types, forms, and stages of WCF among the instructors, which is the initial step to develop feedback literacy among in-service L2 writing instructors (Lee, 2019). Bearing that in mind, further teacher training activities should accord an important place to the critical role of WCF literacy with ongoing training sessions to help instructors' internalization process of the knowledge base without disregarding the teaching burden of instructors. Also, it is of utmost significance for schools to embed specific WCF policies into their curriculum in line with the recent developments in the literature. Additionally, as instructors become experienced in these schools, the curriculum and materials should be developed by experts in the field.

Furthermore, findings suggested that instructors' WCF philosophies are shaped by a combination of experience, school policies, and master's education. In that sense, the development of L2 teacher feedback literacy training activities should account for contextual and individual factors as well as pedagogical and practical knowledge, rather than divorcing them from the realities of teaching. By scaling up professional development regarding feedback literacy, the future training sessions should help instructors to use feedback effectively and concomitantly improve student learning. Additionally, as master's education is influential, master's programs are suggested to integrate writing and WCF related courses to their curriculum to equip their students with required knowledge.

In conclusion, some suggestions for the future research were promoted in this study. Firstly, instead of a one-shot training session, the effects of training sessions on teachers' WCF literacy should be searched. Also, the study should be replicated in different contexts with different applications added to one-shot training sessions.

## Author Contributions

Each author contributed equally to all aspects of the article. Furthermore, all authors have reviewed and endorsed the final iteration of the study.

## Ethics Declaration

This study was carried out with the approval decision from the Ethics Committee for Human Research in Social Sciences (Protocol No. 413) at Istanbul Technical University on November 13, 2023.

## Conflict of Interest

The authors affirm that there is no conflict of interest with any institution or individual within the scope of the research.

## References

- Amrhein, H. R., & Nassaji, H. (2010). Written corrective feedback: What do students and teachers think is right and why? *Canadian Journal of Applied Linguistics*, 13(2), 95–127. Retrieved from <https://journals.lib.unb.ca/index.php/CJAL/article/view/19886>
- Bailey, R., & Garner, M. (2010). Is the feedback in higher education assessment worth the paper it is written on? Teachers' reflections on their practices. *Teaching in Higher*



- Education*, 15(2), 187-198. <https://doi.org/10.1080/13562511003620019>
- Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing*, 17(2), 102-118. <https://doi.org/10.1016/j.jslw.2007.11.004>
- Bitchener, J., & Knoch, U. (2009). The value of a focused approach to written corrective feedback. *ELT Journal*, 63(3), 204-211. <https://doi.org/10.1093/elt/ccn043>
- Cheng, X., & Zhang, L. J. (2021). Teacher written feedback on English as a foreign language learners' writing: Examining native and nonnative English-speaking teachers' practices in feedback provision. *Frontiers in Psychology*, 12, 1-16. <https://doi.org/10.3389/fpsyg.2021.629921>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson.
- Ellis, R. (2009). Corrective feedback and teacher development. *L2 Journal*, 1(1), 3-18. <https://doi.org/10.5070/L2.V1I1.9054>
- Ellis, R., Sheen, Y., Murakami, M., & Takashima, H. (2008). The effects of focused and unfocused written corrective feedback in an English as a foreign language context. *System*, 36(3), 353-371. <https://doi.org/10.1016/j.system.2008.02.001>
- Ferris, D. R. (1995). Student reactions to teacher response in multiple-draft composition classrooms. *TESOL Quarterly*, 29(1), 33-53. <https://doi.org/10.2307/3587804>
- Ferris, D. R. (1997). The influence of teacher commentary on student revision. *TESOL Quarterly*, 31, 315-339. <https://doi.org/10.2307/3588049>
- Ferris, D. R. (2006). Does error feedback help student writers? New evidence on the short- and long-term effects of written error correction. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 81-104). Cambridge University Press.
- Ferris, D. R. (2012). Written corrective feedback in second language acquisition and writing studies. *Language Teaching*, 45(4), 446-459. <https://doi.org/10.1017/S0261444812000250>
- Ferris, D. R. (2014). Responding to student writing: Teachers' philosophies and practices. *Assessing Writing*, 19, 6-23. <https://doi.org/10.1016/j.asw.2013.09.004>
- Ferris, D. R., Liu, H., Sinha, A., & Senna, M. (2013). Written corrective feedback for individual L2 writers. *Journal of Second Language Writing*, 22(3), 307-329. <https://doi.org/10.1016/j.jslw.2012.09.009>
- Furneaux, C., Paran, A., & Fairfax, B. (2007). Teacher stance as reflected in feedback on student writing: An empirical study of secondary school teachers in five countries. *International Review of Applied Linguistics in Language Teaching*, 45(1), 69-94. <https://doi.org/10.1515/IRAL.2007.003>
- Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational research: Competencies for analysis and applications* (10th ed.). Pearson.
- Hammersley, M. (2004). Some questions about evidence-based practice in education. In G. Thomas & R. Pring (Eds.), *Evidence-based practice in education* (pp. 133-149). Open University Press.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81-112. <https://doi.org/10.3102/003465430298487>
- Hyland, F., & Hyland, K. (2001). Sugaring the pill: Praise and criticism in written feedback. *Journal of Second Language Writing*, 10(3), 185-212. [https://doi.org/10.1016/S1060-3743\(01\)00038-8](https://doi.org/10.1016/S1060-3743(01)00038-8)
- Hyland, K., & Hyland, F. (Eds.). (2006). *Feedback in second language writing: Contexts and issues*. Cambridge University Press.
- Karaağaç Zan, G., & Yiğitoğlu, N. (2018). Exploring novice and experienced teachers' beliefs and practices of written feedback. *Inonu University Journal of the Faculty of Education*, 19(2), 355-369. <https://doi.org/10.17679/inuefd.335443>
- Kostoulas, A. (2018). Developing teacher research competence: Simpler than you think, more necessary than you realise. In D. Xerri & C. Pioquinto (Eds.), *Becoming research literate: Supporting teacher research in English language teaching* (pp. 13-18). English Teachers Association Switzerland.
- Lalande, J. F. II. (1982). Reducing composition errors: An experiment. *The Modern Language*, 66(2), 140-149. <https://doi.org/10.1111/j.1540-4781.1982.tb06973.x>
- Lam, R. (2015). Language assessment training in Hong Kong: Implications for language assessment literacy. *Language Testing*, 32(2), 161-197. <https://doi.org/10.1177/0265532214554321>
- Lee, I. (2003). L2 writing teachers' perspectives, practices and problems regarding error feedback. *Assessing Writing*, 8(3), 216-237. <https://doi.org/10.1016/j.asw.2003.08.002>
- Lee, I. (2004). Error correction in L2 secondary writing classrooms: The case of Hong Kong. *Journal of Second Language Writing*, 13(4), 285-312. <https://doi.org/10.1016/j.jslw.2004.08.001>
- Lee, I. (2005). Error correction in the L2 classroom: What do students think? *TESL Canada Journal*, 22(2), 1-16. <https://doi.org/10.18806/tesl.v22i2.84>
- Lee, I. (2008). Understanding teachers' written feedback practices in Hong Kong secondary classrooms. *Journal of Second Language Writing*, 17(2), 69-85. <https://doi.org/10.1016/j.jslw.2007.10.001>
- Lee, I. (2009). Ten mismatches between teachers' beliefs and written feedback practice. *ELT Journal*, 63(1), 13-22. <https://doi.org/10.1093/elt/ccn010>
- Lee, I. (2011). Working smarter, not working harder: revisiting teacher feedback in the L2 writing classrooms. *The Canadian Modern Language Review*, 67(3), 377-399. <https://doi.org/10.3138/cmlr.67.3.377>
- Lee, I. (2014). Revisiting teacher feedback in EFL writing from sociocultural perspectives. *TESOL Quarterly*, 48(1), 201-213. <https://doi.org/10.1002/tesq.153>
- Lee, I. (2017). *Issues in classroom writing assessment and feedback in L2 school contexts*. Springer.
- Lee, I. (2019). Teacher written corrective feedback: Less is more. *Language Teaching*, 52(4), 1-13. <https://doi.org/10.1017/s0261444819000247>
- Lee, I., Luo, N., & Mak, P. (2021). Teachers' attempts at focused written corrective feedback in situ. *Journal of Second Language Writing*, 54, 100-115. <https://doi.org/10.1016/j.jslw.2021.100809>
- Leki, I. (1991). The preferences of ESL students for error correction in college-level writing classes. *Foreign Language Annals*, 24, 203-218. <https://doi.org/10.1111/j.1944-9720.1991.tb00464.x>
- Li, J. (2012). *University tutors' beliefs about and practices in assessing undergraduates' writing - A New Zealand case study* (Unpublished doctoral dissertation, the University of Waikato, New Zealand).



- Liu, Y., Storch, N., & Morton, J. (2022). It takes two to tango: Investigating teacher-student interactions related to written corrective feedback with activity theory. *Assessing Writing*, 53, 100647. <https://doi.org/10.1016/j.asw.2022.100647>
- McMartin-Miller, C. (2014). How much feedback is enough?: Instructor practices and student attitudes toward error treatment in second language writing. *Assessing Writing*, 19, 24–35. <https://doi.org/10.1016/j.asw.2013.11.003>
- Montgomery, J. L., & Baker, W. (2007). Teacher-written feedback: Student perceptions, teacher self- assessment and actual teacher performance. *Journal of Second Language Writing*, 16(2), 82-99. <https://doi.org/10.1016/j.jslw.2007.04.002>
- Plonsky, L., & Mills, S.V. (2006). An exploratory study of differing perceptions of error correction between a teacher and students: Bridging the gap. *Northern Arizona University Applied Language Learning*, 16(1), 55–77. <https://discovery.ucl.ac.uk/id/eprint/1474600/>
- Sheen, Y. (2007). The effect of focused written feedback and language aptitude on ESL learners' acquisition of articles. *TESOL Quarterly*, 41(2), 255-284. <https://doi.org/10.1002/j.1545-7249.2007.tb00059.x>
- Sheppard, K. (1992). Two feedback types: Do they make a difference? *RELC Journal*, 23(1), 103-110. <https://doi.org/10.1177/003368829202300107>
- Shintani, N., Ellis, R., & Suzuki, W. (2014). Effects of written feedback and revision on learners' accuracy in using two English grammatical structures. *Language Learning*, 64(1), 103-13. <https://doi.org/10.1111/lang.12029>
- Storch, N. (2010). Critical feedback on written corrective feedback research. *International Journal of English Studies*, 10(2), 29–46. <https://doi.org/10.6018/ijes.10.2.119181>
- Timperley, H., & Alton-Lee, A. (2008). Reframing teacher professional learning: An alternative policy approach to strengthening valued outcomes for diverse learners. *Review of Research in Education*, 32(5), 328–369. <https://doi.org/10.3102/0091732X07308968>
- Truscott, J. (1996). Review Article: The case against grammar correction in L2 writing classes. *Language Learning*, 46(2), 327-369. <https://doi.org/10.1111/j.1467-1770.1996.tb01238.x>
- Vogt, K., & Tsagari, D. (2014). Assessment literacy of foreign language teachers: findings of a European study. *Language Assessment Quarterly*, 11(4), 374-402. <https://doi.org/10.1080/15434303.2014.960046>
- Wei, W., & Cao, Y. (2020). Written corrective feedback strategies employed by university English lecturers: A teacher cognition perspective. *SAGE Open*, 10(3), 1–12. <https://doi.org/10.1177/2158244020934886>
- Zamel, V. (1985). Responding to students' writing. *TESOL Quarterly*, 19(1), 79–101. <https://doi.org/10.2307/3586773>

## Boşanmanın Öğrenciler Üzerindeki İzleri: Sınıf Öğretmenlerinin Perspektifinden The Effects of Divorce on Students: From The Perspective of Primary School Teachers

Hilal Uğraş<sup>1</sup> 

<sup>1</sup> Öğr. Gör.Dr., Fırat Üniversitesi Karakoçan M.Y.O., Elazığ, Türkiye

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#### \*Sorumlu Yazar

Hilal Uğraş

Fırat Üniversitesi Karakoçan  
M.Y.O

hugras@firat.edu.tr

**Öz:** Bu araştırma, ebeveynlerinin boşanmasının çocuklar üzerindeki etkilerini sınıf öğretmenlerinin görüşleri aracılığıyla belirlemeyi amaçlamaktadır. Araştırma, nitel araştırma yöntemlerinden olgu bilim deseni kullanılarak gerçekleştirilmiştir. Araştırmanın çalışma grubunu, 2023-2024 eğitim öğretim yılında Türkiye'nin bir şehrinde, çeşitli devlet okullarında görev yapan yirmi sekiz sınıf öğretmeni oluşturmaktadır. Katılımcılar amaçlı örnekleme yöntemi ile belirlenmiştir. Veriler, yarı yapılandırılmış görüşme formları aracılığıyla toplanmış ve içerik analizi yolu ile betimlenmiştir. Araştırma bulgularına göre, ebeveynleri boşanmış öğrencilerin sınıf içindeki davranışlarında oluşan farklılıklar, ebeveynlerinin boşanmasının öğrencilerin akademik performansları üzerindeki etkisi, ebeveynlerinin boşanmasının öğrencilerin sosyal ilişkilerine etkisi, ebeveynleri boşanmış öğrencilere yönelik okulda uygulanan destek programları ve ebeveynleri boşanmış öğrenciler için faydalı olabilecek destek ve kaynaklar olmak üzere beş ana tema belirlenmiştir. Araştırma sonuçları, ebeveynlerinin boşanma sürecinden öğrencilerin sosyal, davranışsal, ekonomik ve psikolojik açılarından olumsuz olarak etkilendiklerini göstermektedir. Ebeveynlerinin boşanmasının öğrenciler üzerindeki bu olumsuz etkilerini en aza indirmek amacı ile okullarda sağlanabilecek destek ve kaynakların geliştirilmesi konusunda sınıf öğretmenlerine rehberlik yapacak önerilerde bulunulmuştur.

**Anahtar Kelimeler:** Sınıf öğretmeni, ilkökul, boşanmış ebeveynler, boşanmanın öğrencilere etkisi

**Abstract:** This study aims to determine the effects of parental divorce on children through the views of primary school teachers. It was conducted using a phenomenological design based on qualitative research methods. The study group for the research consists of twenty-eight primary school teachers working in various public schools in a city in Turkey in the 2023–2024 academic year. Participants were determined by the purposive sampling method. Data were collected through semi-structured interview forms and described through content analysis. According to the research findings, five main themes were identified: differences in the classroom behavior of students with divorced parents, the impact of parental divorce on students' academic performance, the impact of parental divorce on students' social relationships, support programs implemented at school for students with divorced parents, and support and resources that can be useful for students with divorced parents. The results of the research show that students are negatively affected by their parents' divorce process in social, behavioral, economic and psychological terms. In order to minimize the negative effects of parental divorce on students, suggestions were made to guide classroom teachers on the development of support and resources that can be provided in schools.

**Keywords:** Primary school teacher, primary school, divorced parents, the effect of divorce on student

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### Giriş

Aile, toplumun temel bir kurumu olarak kabul edilmekte ve çeşitli önemli fonksiyonları yerine getirmektedir. Bu fonksiyonlar arasında; neslin sürdürülmesi, çocukların sosyalleştirilmesi, psikolojik ve biyolojik tatmin, ekonomik faaliyetlere katılım ve kültürün aktarımı öne çıkmaktadır (Yalvaç, 2000). Ancak son yıllarda, değişen toplumsal şartlar ve özellikle COVID-19 gibi olağanüstü durumlar nedeniyle aile kurumu sorgulanmış ve yeni zorluklarla karşılaşmıştır (Lebow, 2020; Prasso, 2020). Özellikle COVID-19 salgını, aile yaşamına büyük bir stres dalgası getirmiş ve bu durum boşanma olasılığını artırmıştır (Prasso, 2020). Bu salgın, işsizlik, sorumlulukların artması, ve yakınlarını kaybetme korkusu gibi diğer stres faktörleriyle birleşerek aile bütünlüğünü zorlamıştır (Greene vd., 2012; Lebow, 2019). İngiltere'de yapılan bir araştırmaya göre, 2020 yılında, bir önceki yıla kıyasla boşanma başvurularında %122'lik bir artış olduğu belirlenmiştir (BBC ve Savage, 2020). Benzer durumlar ABD, Çin ve İsveç'te de görülmüştür. Türkiye, özellikle COVID-19 salgınının etkileriyle boşanma oranlarının arttığı ve bu artışın daha da derinleştiği ülkeler arasındadır (Alkan, 2014; Bernardi ve Boertien, 2017; Bilici, 2018; Geniş vd., 2019; Günen ve Poyraz, 2017; Lebow, 2020; Mahrer vd., 2018; Tanrıverdi ve Özgüç, 2019; Turğut, 2015;

Uzun, 2013). Aile bütünlüğünün zedelendiği bu dönemde en fazla etkilenen grubun çocuklar olduğu tespit edilmiştir. (TUİK, 2023).

### Ebeveynleri Boşanmış Çocuklarda Görülen Sorunlar

Boşanma olayındaki artışın özel bir ilgi alanı olmasının nedenlerinden biri, boşanmanın aile üyeleri üzerinde uzun vadeli olumsuz etkiler yaratabilecek potansiyel riskleri beraberinde getirmesidir (Amato, 2000, 2014; Hetherington, 2006). Boşanma, çocukların okul, arkadaşlık, boş zaman ve aile gibi farklı yaşam alanlarında işlev görmelerini etkileyerek, çocukların uyum düzeyi açısından geniş bir spektrumda değişkenlik göstermektedir (Amato, 2014; Cherlin, 1999; Kelly ve Emery, 2003; Lansford, 2009).

Türkiye'de evliliklerin yarısından fazlası ilk 10 yıl içinde boşanma ile sonuçlanmaktadır (TUİK, 2023). Bu veriye dayanarak boşanmış ailelerdeki çocukların boşanma sürecinde 1-9 yaş aralığındaki bir yaşta olduğu anlaşılmaktadır. Boşanma süreci ve sonrasında çocukların yaşadığı zorlukları anlamak ve bu konuda çözüm üretmek önemlidir.

Araştırmalar, boşanmanın çocuklar üzerindeki geri dönüşü olmayan ve zararlı etkiler bırakan bir süreç olduğunu göstermektedir. Boşanmanın olumsuz etkileri, çocuklarda ve onların nesillerinde devam etmektedir; araştırmalar, boşanmadan yıllar sonra bile çocukların özellikle psikolojik

refah ve sosyal ilişkiler açısından uzun süreli ve travmatik bir yük taşıdığı göstermiştir (Amato, 2000, 2014; Amato ve Cheadle, 2005; Dohaney, 2018; Hetherington, 2006; Korkmaz, 2022; Sancaklı, 2014; Stallman ve Ohan, 2016; Tatlıoğlu ve Demirel, 2016; Wolfinger, 2000, 2005).

Boşanmış ebeveynlerin öğrencilerde akademik başarısızlıklar (Carroll, 2013; Martin, 2012), davranış problemleri (Tebeka vd., 2016), depresyon (İşler, 2023), antisosyal davranışlar (Atabey, 2017; Kasuto, 2017) ve okulda sosyal uyumsuzluklar ortaya çıkabilmektedir (Amato, 2000; Aysan ve Uzbaş, 2004; Bernardi ve Boertien, 2017; Sancaklı, 2014; Tatlıoğlu ve Demirel, 2016). Çalışmalar, boşanmış ebeveynlerin çocuklarının okuldaki davranış problemlerinin, aileleriyle birlikte yaşayan çocuklara kıyasla daha olumsuz olduğunu; bu çocukların akranları ve ebeveynleriyle yaşadıkları çatışmaların ve kendilerine bakış açılarının da daha negatif olduğunu ortaya koymaktadır (Arkes, 2014; Aydoğan ve Altınbulak, 2015; Babalis vd., 2014; Demir-Dağdaş vd., 2017; Kabaoğlu, 2011; Riggio, 2004; Riggio ve Sağlam, 2011; Valenzuela, 2011).

Çocuklarda görülen problemlere, çocukların boşanma sonucundaki yeni duruma ve aile içerisinde oluşan eksikliklere uyum sağlayamamalarının sebep olduğu belirlenmiştir (Büyükhahin, 2009; Jarwan, ve Al-frehat, 2020; Karakuş, 2003; Makenzie, 2021; Öngider, 2006; Tahiroviç ve Demir, 2018). Yapılan araştırmalar ayrıca, boşanmış ebeveynlerin çocuklarının benlik saygısı, psikolojik uyum sosyal beceriler ve akademik başarı düzeylerinin düşük olduğunu ve davranış bozukluğu gösterme sıklığının yüksek olduğunu göstermektedir (Nazlı vd., 2021; Stacey ve McCabe, 2001). Boşanma sürecinde yaşanan zorlukların sadece aile ortamında değil, çocukların okul ortamlarındaki davranışlarına da etki ettiği görülmektedir. Bu nedenle, çocukların davranışlarını daha yakından gözlemleyen ve etkileyen öğretmenlere büyük sorumluluklar düşmektedir.

### **Ebeveynleri Boşanmış Öğrenciler Üzerinde Öğretmenlerin Etkisi**

Literatürde boşanmış ebeveynlerin çocuklarının ihtiyaçlarını anlamayı amaçlayan bir dizi çalışma, ebeveynlerinden ayrılan veya boşanan çocukların olumlu uyumunu kolaylaştırmada öğretmenlerin önemli bir rol oynadığını vurgulamıştır (Angelo, 2018; Lukefahr, 2019; Mahony vd., 2015). Öğretmenler, bir çocuğun mezosisteminde kilit etkileyicilerdir; bu yüzden çocuklara değişimle başa çıkmanın sağlıklı yollarını öğretmek duygusal becerileri ve sosyal işlevselliği geliştirmelerine yardımcı olmaktadır (Chiappetta, 2019). Bu bağlamda, boşanma sürecinden sonra öğretmenlerin sorumlulukları artmaktadır. Mahony vd. (2015) boşanmanın etkisi altındaki çocuklara rehberlik eden öğretmenlerin, bu çocuklara duygusal, davranışsal ve akademik destek sağlamakla kalmayıp aynı zamanda ebeveynler, okul personeli ve öğrenciler ile işbirliği yaparak kendi destek ağlarını oluşturmaya odaklandıklarını belirtmiştir (Mahony vd., 2015). Bu çerçevede, öğretmenlerin doğru eylemleri, öğrencilerin sosyal ve akademik gelişimini destekleyen koşulların oluşturulmasına hizmet etmekte ve bu koşulların sonucunda çocukların davranışları, uyumu ve öğrenmeleri üzerinde olumlu etkiler yaratmaktadır. Bu bağlamda, öğretmenlerin aktif bir rol üstlenerek işbirliği yapmaları ve destek stratejilerini etkili bir şekilde uygulamaları, çocukların genel refahını artırmakta ve öğrenmelerini olumlu yönde etkileyebilmektedir (Al-

Ghabban, 2018; Black vd., 2017; Mahony vd., 2015; Taş, 2018).

Çocukların problemleri erken dönemde ele alınmadığı takdirde, duygusal güvensizliğin tetiklediği stres faktörlerinin, ergenlik ve yetişkinlikte bir dizi zarar verici psikolojik soruna yol açtığı görülmektedir (Amato, 2014; Auersperg vd., 2019; Van der Wal vd., 2019). Bu bağlamda, sınıf öğretmenlerinin, okulda öğrencileriyle uzun süre vakit geçiren ve genel eğitim sürecini yöneten, öğrencilerin sosyal beceriler kazanmalarında önemli rol oynayan, bireysel farklılıkları önemseyen ve öğrencilerin duygusal refahını destekleyerek rehberlik yapma konusunda kilit rol oynayan kişiler olduğu kabul edilmektedir (Angelo, 2018; Laletaş ve Khasin, 2021; Lukefahr, 2019; Mahony 2015). Bu nedenle, ebeveynlerinin boşanmasının öğrenciler üzerindeki etkilerini sınıf öğretmenlerinin görüşleri aracılığıyla belirlemek önemlidir. Mevcut alanyazın incelendiğinde, boşanmış ebeveyn çocuklarıyla yapılan araştırmaların çoğunun, boşanmamış ebeveyn çocuklarıyla karşılaştırıldığı çalışmalar olduğu (Akkaya, 2022; Alkan, 2014; Altuntaş, 2012; Gülmez ve Karadağ, 2020; Güney ve Yalçın, 2020; Yılmaz, 2011) ve çalışmaların çoğunlukla nicel araştırma deseninde (Aydın ve Baran, 2012; Pirtık, 2013; Semra, 2023; Taş, 2018; Tolan, 2023) yapıldığı ve sınıf öğretmenlerinin görüşlerini belirlemeye yönelik sınırlı sayıda çalışma olduğu ve elde edilecek bulguların literatüre katkı sağlayacağı düşünülmektedir. Çünkü Türkiye'de boşanma süreci ve sonrasında öğrencilere nasıl destek sağlanacağı konusunun üniversite programlarında yer almaması (Karahan, 2022), ilkökul öğretmenlerinin boşanma sürecinin çocuğun mikro sistemini nasıl etkileyebileceğini anlama konusunda eksiklikler olabileceğini işaret etmektedir. Bu bağlamda, bu çalışmanın ilkökul öğretmenlerinin bu konudaki iç görüşlerini artırmak, onları desteklemek için stratejiler geliştirmeye yönelik katkı sağlayabileceği düşünülmektedir. Bu araştırma, ebeveynlerinin boşanmasının öğrenciler üzerindeki etkilerini sınıf öğretmenlerinin görüşleri aracılığıyla belirlemek amacıyla yapılmıştır. Bu amaç doğrultusunda aşağıdaki araştırma sorularına yanıt aranmaktadır;

1. Ebeveynleri boşanmış öğrencilerin sınıf içinde olan davranışlarındaki farklılıklar nelerdir?
2. Ebeveynlerinin boşanmasının öğrencilerin akademik performanslarına etkileri nelerdir?
3. Ebeveynlerinin boşanmasının öğrencilerin sosyal ilişkilerine etkileri nelerdir?
4. Ebeveynleri boşanmış öğrencilere yönelik okulda uygulanan destek programları uygun mudur?
5. Ebeveynleri boşanmış öğrenciler için hangi destek ve kaynaklar faydalı olabilir?

### **Yöntem**

Bu çalışma, nitel araştırma yöntemlerinden biri olan olgu bilim deseni ile gerçekleştirilmiştir. Nitel araştırma, bireylerin deneyimlerini nasıl anlamlandırdıkları ve yorumladıkları üzerine odaklanarak derinlemesine bir anlayış sağlamaktadır (Holloway, 1997). Bu araştırma yaklaşımı, sosyal, kültürel ve fiziksel ilişkileri belirli süreçler bağlamında inceleyerek, katılımcıların bakış açılarını anlamamıza rehberlik etmektedir. Maxwell (2012) ve Miles ile Huberman (1994) tarafından belirtildiği gibi, nitel araştırma, kişisel deneyimleri keşfetmek ve bu deneyimlerin nasıl şekillendiğini anlamak için katılımcılarla yapılan derinlemesine görüşmeleri, gözlemleri ve diğer nitel veri toplama yöntemlerini içermektedir. Nitel araştırma, katılımcıların dünya görüşlerini ve yaşantılarını

derinlemesine kavrayarak, zengin ve ayrıntılı bir perspektif sunmaktadır.

Çalışmada derinlemesine bilgi elde etmek amacıyla, çalışma verileri toplamak ve analizi için olgu bilim deseni (fenomenoloji) tercih edilmiştir (Holloway, 1997; Patton, 2015). Olgu bilim deseni, araştırmacının günlük hayatta var olan ancak genellikle detaylı bilgi sahibi olunmayan olguları inceleyerek insan deneyimlerini açığa çıkarmayı amaçlayan bir sorgulama stratejisidir (Creswell, 2013; Merriam, 2018; Yıldırım ve Şimşek, 2008). Bu desen, katılımcıların bir olgu ile ilgili deneyim, algı ve bu deneyimlere yükledikleri anlamları keşfetmeyi hedefler. Veriler, olgu ile ilgili deneyimi olan bireylerden toplanmakta ve bütüncül bir şekilde betimlenmektedir (Creswell, 2013). Yapılan bu çalışma, ailelerinin boşanmasının öğrenciler üzerindeki etkilerini sınıf öğretmenlerinin görüşleri aracılığıyla belirlemek amacıyla yapılmıştır.

### Çalışma Grubu

Araştırmanın katılımcı grubunu, Türkiye'nin belirli bir şehrindeki çeşitli devlet okullarında görev yapan yirmi sekiz sınıf öğretmeni oluşturmaktadır. Katılımcılar arasında 19 kadın ve 9 erkek bulunmaktadır (Tablo 1). Bu çalışmada, katılımcılar amaçlı örnekleme yöntemiyle seçilmiştir. Amaçlı

örnekleme, nitel araştırmalarda yaygın olarak kullanılan bir tekniktir. Bu teknik, sınırlı kaynakların en etkili şekilde kullanılmasını için bilgi bakımından zengin vakaların belirlenip seçilmesini sağlamaktadır (Gentles vd., 2015). Bu yöntem, ilgili konuda bilgi ve deneyime sahip bireylerin veya grupların tanımlanması ve seçilmesini içermektedir. (Gentles vd., 2015). Bu bağlamda uygun çalışma grubu olarak sınıf öğretmenleri belirlenmiştir. Sınıf öğretmenleri, öğrencilerle günlük yaşantıyı doğrudan deneyimleyen ve diğer profesyonellerden daha fazla temas kuran kişilerdir. Çalışmaya katılan sınıf öğretmenleri, katılımcıların diğer potansiyel katılımcılara yönlendirdiği bir kartopu örnekleme süreci kullanılarak seçilmiştir. (Warren 2002; Weiss 1994). Kartopu örnekleme yönteminde, araştırmanın konusuyla ilgili referans bir kişi seçilir ve bu kişi aracılığıyla diğer kişilere ulaşılır (Biernacki ve Waldorf, 1981). Katılımcılar, araştırmacıları diğer potansiyel katılımcılara yönlendirdiği için örneklemin de zaman içerisinde büyüdüğü görülmektedir. Bu nedenle, bu yaklaşım genellikle 'kartopu etkisi' olarak adlandırılmaktadır (Noy, 2008). Bu çalışmaya öğretmenler gönüllü olarak katılmıştır. Öğretmenlerden gönüllü olur formu alınmıştır. Araştırmanın yürütüldüğü sınıf öğretmenlerine ait demografik bilgiler Tablo 1'de yer almaktadır.

**Tablo 1.** Sınıf öğretmenlerinin demografik bilgileri

Katılımcı	Kadın (K) Erkek (E)	Öğretmen Yaşı	Eğitim Derecesi Lisans (□) Lisansüstü (■)	Görev yaptığı bölge		Sınıfı 1.sınıf (1) 2.sınıf (2) 3.sınıf (3)	Öğretim deneyimi 1-5 yıl (●) 6-10 yıl (■) 11 yıl ve üstü (⊖)
				Şehir merkezi (●)	İlçe (○)		
Ö1	E	30	□	○		1	■
Ö2	K	40	□	●		1	⊖
Ö3	K	42	■	●		2	⊖
Ö4	K	36	□	○		3	⊖
Ö5	E	32	□	○		3	■
Ö6	K	26	■	○		1	●
Ö7	K	26	□	○		1	■
Ö8	K	26	■	○		2	●
Ö9	K	46	□	●		1	⊖
Ö10	K	39	□	○		2	⊖
Ö11	K	42	□	●		2	⊖
Ö12	E	29	■	○		2	●
Ö13	K	32	■	●		3	■
Ö14	E	35	□	○		1	■
Ö15	K	38	□	●		2	⊖
Ö16	K	39	□	●		2	⊖
Ö17	K	28	□	●		1	■
Ö18	K	35	□	●		3	●
Ö19	K	31	■	○		3	■
Ö20	E	35	■	●		1	⊖
Ö21	K	34	□	○		3	⊖
Ö22	K	45	□	●		3	⊖
Ö23	K	36	□	●		3	⊖
Ö24	E	32	■	○		1	■
Ö25	E	35	□	●		3	■
Ö26	E	49	□	●		3	⊖
Ö27	K	35	□	●		1	■
Ö28	E	30	□	○		2	■

Tablo 1'de belirtildiği üzere, araştırmaya katılan toplam 28 sınıf öğretmeninden 19'u kadın, 9'u erkek olarak belirlenmiştir. Katılımcı öğretmenlerin yaş aralığı 26 ile 49 arasında değişmekte olup, 20'si lisans, 8'i lisansüstü eğitim derecesinden mezundur. Araştırmanın yürütüldüğü süreçte, 15 öğretmen şehir merkezinde, 13 öğretmen ise ilçelerdeki okullarda görev yapmaktadır. Görev aldıkları sınıf düzeylerine göre, 10 öğretmen 1. sınıf, 8 öğretmen 2. sınıf ve 10 öğretmen 3. Sınıfı okutmaktadır. Mesleki deneyimlerine göre ise, 4 öğretmen 1-5 yıl, 11 öğretmen 6-10 yıl ve 13 öğretmen ise 11 yıl ve üzerinde mesleki deneyime sahiptir.

### Veri Toplama Aracı

Araştırmacı, ebeveynlerinin boşanmasının öğrenciler üzerindeki etkilerini belirlemek amacıyla sınıf öğretmenlerinin görüşlerini içeren yarı yapılandırılmış görüşme formu hazırlamıştır. Form hazırlanırken, öncelikle taslak sorular araştırmacı tarafından hazırlanmıştır. Daha sonra form eğitim bilimleri alanında iki eğitimci ve bir rehberlik ve psikolojik danışmanı tarafından incelenmiş, eğitimcilerin geri bildirimlerine göre forma son şekli verilmiştir. Görüşme formunda yer alan araştırma soruları aşağıda yer almaktadır:

1. Ebeveynleri boşanmış öğrencilerin sınıf içindeki davranışlarında hangi farklılıkları gözlemlediniz?
2. Öğrencilerin akademik performansları üzerinde boşanmanın etkisi olup olmadığına dair gözlemlerinizi neler?
3. Boşanmış ebeveynlerin, öğrencilerin sosyal ilişkilerine etkisi konusunda gözlemlerinizi nelerdir?
4. Ebeveynleri boşanmış öğrencilere yönelik okulda uygulanan destek programlarının uygunluğu hakkında ne düşünüyorsunuz?
5. Sınıfınızdaki ebeveynleri boşanmış öğrenciler için hangi destek ve kaynakların daha faydalı olabileceğini düşünüyorsunuz?

### Veri Toplama

Veriler, araştırmacı tarafından hazırlanan yarı yapılandırılmış görüşme formları kullanılarak toplanmıştır. Orjinal ve beklenmedik sorunların ortaya çıkması için alan ve esneklik sağladıkları için bu formlar görüşmelerde tercih edilmiştir. Ortalama 30-35 dakika süren görüşmeler araştırmacı tarafından gerçekleştirilmiş ve ses kayıt cihazlarına kaydedilmiştir. Görüşme başlamadan önce, araştırmacı alınan bilgilerin gizli kalacağı ve araştırma dışında kullanılmayacağı ile ilgili etik hususlar hakkında bilgi vermiş ve daha sonra görüşmeler başlatılmıştır. Katılımcılardan, görüşmenin başında öncelikle tablo 1'de yer alan demografik bilgiler ile ilgili soruları yanıtlamaları istenmiştir. Görüşme sırasında tartışmayı teşvik etmek ve öğretmenlerin yorumlarını netleştirip genişletmek amacıyla "Bir örnek verebilir misiniz?" ve "Lütfen ne demek istediğinizi açıklayın" gibi araştırma soruları kullanılmıştır. Görüşme tamamlandıktan sonra görüşme verileri kelimesi kelimesine basılı kopyaya dönüştürülmüştür. Katılımcıların her birine gerçek isimleri yerine veri analizlerinde kullanılan "Ö1" şeklinde kodlar verilmiştir.

### Geçerlik ve Güvenirlik

Bu araştırma sürecinde, yüksek geçerlik ve güvenilirlik düzeyleri sağlanabilmesi için çeşitli önlemler alınmıştır. Görüşmeler ortalama 30-35 dakika sürmüş ve öğretmenlerin cevaplarına bulgular bölümünde alıntılar şeklinde yer almıştır.

Veri analizi aşamasında, bir araştırmacı ve iki uzman tarafından yapılan içerik analizi verileri ayrı ayrı kategori ve alt kategoriler oluşturulmuş ve araştırmacılar arası güvenilirlik oranları, Miles ve Huberman (1994) tarafından önerilen formülle hesaplanarak Cohen Kappa, %85 güvenilirlik oranı elde edilmiştir (Miles ve Huberman, 1994). Bu metodoloji, araştırmanın sağlam temellere dayandığını ve elde edilen sonuçların güvenilir olduğunu göstermektedir.

Araştırmacı, iç geçerliği güvence altına almak adına uzman görüşlerine başvurarak hazırlanan görüşme formunu değerlendirmiştir. Araştırma amacına ulaşmak için geliştirilen veri toplama aracı, eğitim bilimleri alanından 2, psikolojik ve rehberlik alanından 1 uzman olmak üzere üç kişiye sunulmuş ve kullanılacak sorularla ilgili dönüt alınmıştır. Bu uzmanlardan alınan geri bildirimler doğrultusunda imla ve anlam üzerinde düzenlemeler yapılarak görüşme formu son haline getirilmiştir. Psikolojik problemleri içeren konuların alt kategorilerinin oluşturulması aşamasında, rehberlik ve psikolojik danışmanlık alanında uzman görüşü tekrardan alınmıştır.

Araştırmanın iç geçerliliğini artırmak için veriler öğretmenlerle yüz yüze toplanmış olup, katılımcılara görüşmenin amacı hakkında bilgi verilmiş, gizlilik beyanı ve gönüllü katılım esasına dayalı hatırlatmalar yapılarak gönüllü katılımları teyit edilmiştir. Tüm öğretmenler yazılı bilgilendirilmiş onam formunu imzalamıştır. Ses kayıt cihazlarıyla yapılan veri toplama süreci, veri kaybını önlemek adına gerçekleştirilmiş ve görüşme sonrasında kayıtlar tekrar dinletilerek onay alınmıştır.

Çalışmanın iç geçerliliğini sınırlayabilecek veri çeşitlemesi yapılamamıştır. Ancak, dış geçerlilik için araştırmanın yöntemi, katılımcılar, veri toplama aracı, verilerin toplanması süreci ve analizi detaylı bir şekilde açıklanmış, bulgular farklı çalışmalarla karşılaştırılarak dış geçerlilik desteklenmiştir.

### Veri Analizi

Bu çalışmada, boşanma sürecinin öğrenciler üzerindeki etkilerine ilişkin sınıf öğretmenlerinin görüşleri içerik analizi yoluyla betimlenmiştir. Araştırmanın temel amacı, öğretmenlerin boşanma sürecinin öğrencilere etkileri hakkındaki düşüncelerini anlamak ve araştırma sorularına dayalı olarak kodlanan verileri içerik analizi yöntemiyle değerlendirmektir (Merriam ve Tisdell, 2015).

İçerik analizi, bir veya birden çok metnin içinde bulunan kavramları, sözcükleri, deyimleri, temaları, karakterleri veya cümleleri belirlemek ve bu öğelerin varlığını rakamsal olarak ifade etmek amacıyla kullanılmaktadır. Bu analitik yöntem, metinleri sistematik bir şekilde inceleyerek içerdikleri bilgileri tanımlamayı ve anlamayı hedeflemektedir (Kızıltepe, 2017). İçerik analizi, derinlemesine ve kapsamlı bir şekilde olguları açıklamak için kullanılan bir metodolojidir. Bu yöntem, verilerin titizlikle incelenmesini ve çeşitli revizyonlarla sonuçlanarak geçerli ve anlamlı sonuçlar elde edilmesini amaçlar. Araştırmacılara yeni bilgiler ve farkındalıklar sağlayarak bireylerin deneyimlerini ve tutumlarını anlamak için bir zemin sunar. Verilerin detaylı analizi, araştırmanın kalitesini artırır ve sonuçların daha kapsamlı ve anlamlı olmasına katkıda bulunur. İçerik analizi, bilgi üretme, değerlendirme ve bireylerin deneyimlerini anlama süreçlerinde etkili bir araştırma yöntemidir (Elo ve Kyngäs, 2008).

Veri analizi sürecinde öğretmenler ile yüz yüze gerçekleştirilen görüşmelerden elde edilen veriler, MAXQDA programında işlenmiştir. İlk veri kodlaması, görüşmenin



tamamına dayalı olarak açık kodlama tekniği kullanılarak gerçekleştirilmiştir. Bu aşamada, bağımsız olarak belirlenen ilk temalar, görüşmelerde ortaya çıkan ana konu başlıklarıdır. Sonraki aşamada, bu temalara göre kategoriler ve alt kategoriler belirlenmiştir.

## Bulgular

Boşanma sürecinin öğrenciler üzerindeki etkilerine ilişkin sınıf öğretmenlerinin görüşlerini belirlemek için yapılan çalışmada, öğretmenlerin görüşlerinin analizleri doğrultusunda beş ana tema, kategoriler ve alt kategoriler belirlenmiştir. Bu tema ve içerikleri ile ilgili öğretmen görüşlerine aşağıda yer verilmiştir.

### 1.Tema: Ebeveynleri Boşanmış Öğrencilerin Sınıf İçindeki Davranışlarında Oluşan Farklılıklar

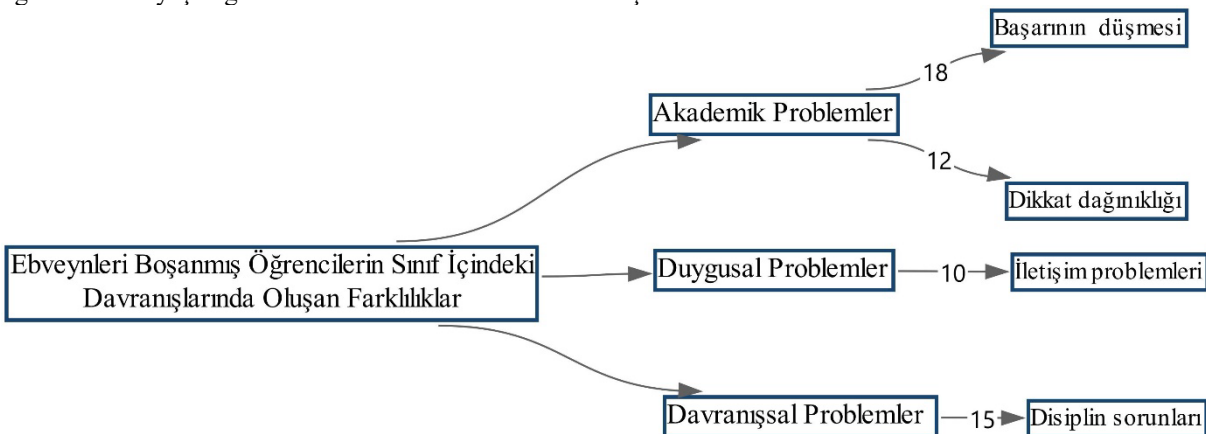
Sınıf öğretmenlerinin “Ebeveynleri boşanmış öğrencilerin sınıf içindeki davranışlarında hangi farklılıkları gözlemlediniz?” sorusuna verdikleri cevaplar incelenmiştir. Yapılan analizlerde; akademik, duygusal ve davranışsal problemlerle ilgili kategoriler belirlenmiştir. Akademik kategoride; başarının düşmesi ve dikkat dağınıklığı alt kategorileri ortaya çıkarken; duygusal problemler kategorisinde iletişim problemleri alt kategorisi; davranışsal problemler de ise disiplin sorunları alt kategorisinin belirlendiği görülmektedir. Bu kategori ve alt kategorilere şekil 1’de yer verilmiştir.

Öğretmenler, boşanmanın öğrencilerin öğrenimi üzerindeki etkisi ve boşanmanın gelecekteki akademik sonuçları üzerindeki potansiyel olumsuz etkileri hakkındaki endişelerini dile getirmişlerdir. Çoğu öğretmen, öğrencilerin akademik başarılarını olumsuz etkileyen bir faktör olarak ebeveynlerin ayrılmasını gözlemlemiştir. Örneğin (Ö21) “...öğrencim anne ile yaşıyor. Evde çok şiddet varmış, ayrıldıktan sonra da anne çocuğa şiddet uygulamaya başlamış. Anladığım kadarıyla anne ilgilenmiyor çocuklarla, öğrencim kardeşine bile bakmak zorunda kalıyor. Devamlı dikkati dağınık, dalgın ve yorgun gözüküyor, derse katılmak hatta oyun bile oynamak istemiyor...” şeklinde öğrencinin yaşadığı iletişim ve dikkatini toplama ile ilgili problemleri ve bu problemin öğrencinin akademik başarıya etkisini dile getirmiştir. Benzer şekilde (Ö25), “...sosyal hayatta ve derslerde aktif olan bir öğrencim boşanma sürecinden sonra içine kapandı. Ödevlerini yapmıyor, derse katılmıyor, arkadaşlarıyla ve öğretmenleri ile iletişim kurmuyor...” şeklinde akademik ve duygusal problemler yaşayan öğrencisinden bahsetmiştir. Öğretmenler, öğrencilerinin yaşadığı zorluklara tanık olmanın kendileri için

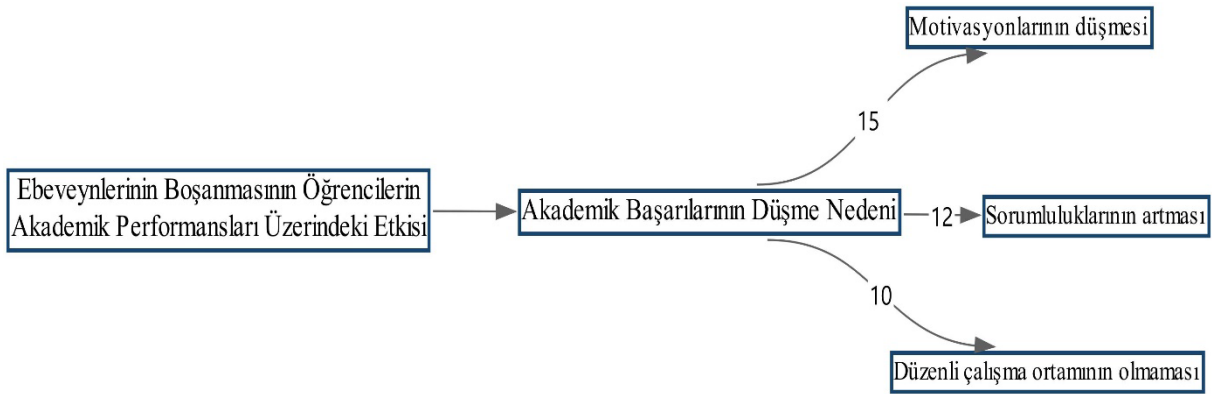
ne kadar zor olduğunu ve bunun sonucunda yaşadıkları disiplin sorunlarını anlattı. (Ö8) “...çocuk arkadaşlarına ve annesine karşı çok saldırgan oldu. İnternette yanlış içerikler izleyip diğer arkadaşlarına da anlatıyor. Sınıfını değiştirip arkadaş ortamından uzaklaştırsak da girdiği yeni ortamda da aynı problemleri arkadaşları ile yaşamaya devam etti. Anne müdahale ettiğinde öfke nöbetleri geçiriyor...” ve (Ö14) “...öğrencim, boşanma sonrasında öfke patlamaları yaşamaya başladı. Mesela, sınıf içinde arkadaşlarıyla daha fazla tartışma yaşamaya başladı ve hızlı bir şekilde sinirlenip kötü sözler söylüyor...” Anlatımlarıyla öğrencilerinde gözlemledikleri davranış problemlerini örneklemiştir. Ayrıca öğretmenler yaşanan akademik, duygusal ve davranış problemlerinin sebeplerinin öğrenciden öğrenciye değiştiğini paylaşmıştır. Ö11, “...davranış yönünden problemi olmayan akıllı bir öğrencimdi, sonra öğrencimin hırsızlık yapmaya başladığını tespit ettim. Sebebini öğrenmek için çocukla görüşünce halasının yapmasını istediğini söyledi. Annesi ile kalan öğrenci babasını ziyarete gittiğinde hala ve babaanne ile vakit geçiriyormuş. 8 yaşında olan çocuğa hırsızlık yapıp para getirirse kendisi babasının yanına daha çok gelebileceğini söylemiş. Nasıl bir vicdansızlıktır çocukla görüşmek için çocuğu zorluyormuş...” şeklindeki yaşadığı olay ile öğrencisinin yaşadığı davranış probleminin kaynaklarından birini anlatmıştır. (Ö20) ise öğrencisiyle ilgili yaşadığı durumdan “...öğrencinin ailesinin maddi durumu iyi olmasına rağmen hırsızlık yapmaya başladığını fark ettim. Hiç ihtiyacı yok ama dikkat çekmek için hırsızlık yapıyor. Sorunun sebebini anlamaya çalışınca ailesinin yakın zamanda boşandığını öğrendim. O zamana kadar haberim yoktu ve sıkıntıyı geç fark ettiğim için çok üzülüm...” şeklinde bahsederek, boşanma süreci yaşayan öğrencilerin yaşadıkları davranış problemlerine dikkat çekmiştir. Görüldüğü gibi ebeveynlerin boşanmasının öğrencilerde dikkat dağınıklığı, başarılarının düşmesi, çevreleriyle iletişim problemleri ve disiplin sorunları yaşamaları gibi yansımaları olmaktadır.

### 2. Tema: Ebeveynlerinin Boşanmasının Öğrencilerin Akademik Performansları Üzerindeki Etkisi

Sınıf öğretmenlerinin “Öğrencilerin akademik performansları üzerinde boşanmanın etkisi olup olmadığına dair gözlemleriniz neler?” sorusu ile ilgili görüşleri incelendiğinde, akademik başarılarının düşme nedeni ile ilgili kategori belirlenmiştir. Bu kategoride sorumluluklarının artması, motivasyonlarının düşmesi ve düzenli çalışma ortamının olmaması alt kategorileri belirlenmiştir (Şekil 2).



Şekil 1: Ebeveynleri boşanmış öğrencilerin sınıf içindeki davranışlarında oluşan farklılıklara ilişkin tema, kategori ve alt kategoriler



**Şekil 2:** Ebeveynlerinin boşanmasının öğrencilerin akademik performansları üzerindeki etkisine ilişkin tema, kategori ve alt kategoriler

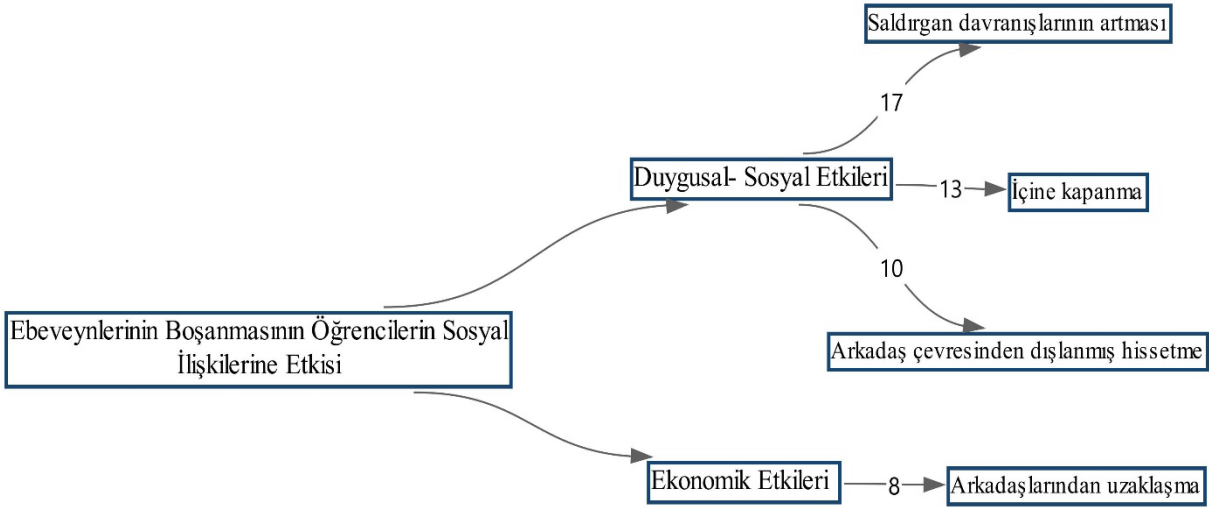
Görüşmelerde, ebeveynlerinin boşanmasının öğrencilerin akademik başarılarına etkilerinin ağırlıklı olarak olumsuz olduğu vurgulanmıştır. Öğretmenler, öğrencilerin başarılarının düştüğünü ve bu durumun öğrencilerin okula ve ders çalışmaya yönelik motivasyonlarındaki düşüş, sorumluluklarının artması ve düzenli çalışma ortamlarının bulunmamasından kaynaklı olabileceğini ifade etmiştir.

Görüşülen öğretmenler, boşanma süresinde etkilenen öğrencilerin yaşadığı odaklanma problemlerinden ve motivasyonlarındaki düşüşten bahsetmiştir. Bir öğretmen (Ö5) "...boşanma kargaşasından dolayı sıkıntılı öğrencim derslere dikkatini vermekte problem yaşıyor. Gayet başarılı olduğu matematik dersinde bile başladığı soruları çözüme ulaştıramıyor...". Bir diğer öğretmen (Ö10) "...derste genelde önünde bir şeyler karalıyor, dersi artık dinlemiyor..." şeklinde ifade etmiştir. Ayrıca (Ö12) "...çocuk dikkatini veremediği için diğer öğrencilerden daha yavaş öğreniyor...", (Ö8) "...bir öğrencim, boşanma sürecinin ardından derslere olan motivasyonunu kaybetti. Önceden ilgili ve başarılı bir öğrenciyken, şimdi ödevlerini yapmakta zorlanıyor ve yapılan taramalardaki performansı düştü..." ifadesiyle, yaşanan sürecin öğrencinin akademik başarısına olumsuz etkisini dile getirmiştir. Öğretmenler, öğrencilerin evdeki problemlerin okula ve sınıfa yansımaları, (Ö12) "...iki tane boşanmış aile de yaşayan öğrencim var. Sınıftaki başarısı en düşük olan çocuklarım onlar. Çocukların aklı evde kalıyor. Derse uzun süre odaklanmakta zorluk çekiyorlar...", (Ö14) "...çocuk şiddetli ve sıkıntılı boşanma sürecinden geçti. Boşanmadan sonra çocuk ödevlerini yapmıyor, derse katılmıyor, sorulara cevap vermiyor. Derslere ilgisi ve okul başarısı düştü..." örnekleriyle açıklamıştır. Tamamen hayatla bağını kestiğinden dolayı çok üzüldüğü bir öğrencisinin olduğunu anlatan (Ö9) "...çocuk birden hiç konuşmamaya başladı. Ne olduğunu anlatmadı, ailesinin de boşanma sürecinde olduğunu öğrenince rehberlik servisine yönlendirdim. Rehberlik öğretmeni bir süre sonra iletişim kurmayı başardı. Annesi şiddet görüyormuş. Bir gün karşı çıkmaya çalıştığında babası ona da vurmuş ve o günden sonra konuşmamaya karar vermiş. Çocuk okul ve arkadaşlarıyla ilişkisini kesti ne derse katılıyor ne de arkadaşlarıyla oynuyor..." olayı ile evde yaşanan olumsuzların öğrenci üzerindeki etkisini ayrıntılı şekilde örneklemiştir. Öğretmenler, boşanma sonrasında öğrencilerin sorumluluklarının arttığını, hem kendileri hem de ev ile ilgili daha fazla iş yapmak zorunda kaldıklarını hatta kardeşlerine bakmak zorunda kaldıklarından derslerine daha az vakit ayırdıklarına dikkat çekmiştir. (Ö25), bu durumu

"...Öğrencim boşanma sonrası annesi ile yaşamaya başladı ve annesi çalışmaya başladığı için kardeşiyle de ilgilenmesi gerekiyor. Çoğu zaman kardeşine baktığından ödevlerini yetiştiremediğini söylüyor. Derslerden geri kalıyor bu yüzden..." şeklinde, (Ö14) ise "Bu yıl sınıfta ebeveynleri çok uzun süredir boşanmış bir çocuğum var. Bu öğrencim kendi işini kendisi yapıyor ve yaşı küçük olduğu için çoğu zaman verilen etkinlikleri yetiştiremiyor, eksik geliyor..." şeklinde örneklendirmiştir. Öğrencilerin dağınık bir yaşam sürmesi, düzenli çalışma ortamlarının olmaması bu çalışmada görüşülen öğretmenler için bir endişe alanı olarak vurgulanmıştır. Öğretmenler, sınıflarındaki ebeveynleri boşanmış öğrencilerin anne-baba arasındaki gel gitlerle mücadele ettiklerini anlatmıştır. (Ö11), öğrencisi için bu kargaşa ve dağınıklık öğrenme yetenekleri üzerindeki etkisini "...çocuk annesinde kalıyor, hafta sonları babasına gidiyormuş. Hafta içi de bazen babasında kalmaya gidiyormuş. Okul eşyaları annenin evinde olduğu için ödevlerini eksik yapıyor, kitaplarını diğer evde unuttuğundan okula getirmiyor, sürekli bir kaos var çocuğun hayatında..." şeklinde açıklamıştır. Benzer şekilde problemler yaşayan öğretmenlerden (Ö9) "...annesinde yaşıyor, babasına kalmaya gittiğinde ödevlerini kontrol etmediği için babaya gittiğinde ödevlerini tamamlamıyor...", (Ö8) "...ayrı iki ev arasında gidip geldiği için kullandığı defter kitapları unutulabiliyor, buda düzenli çalışmasını ve disiplinini olumsuz etkiliyor ve başarısı düşüyor...", (Ö16) ise "...aile bir arada değilse ve çocuğun düzeni yoksa akademik başarısı bundan olumsuz etkileniyor. Sınıfta en başarısız öğrencilerim genelde boşanmış aile çocukları..." şeklindeki örneklerle açıklamalarda bulunmuştur. Ebeveynlerinin boşanması sonucunda öğrencilerin sorumluluklarının arttığı, düzenli çalışma ortamına sahip olamadıkları ve yaşadıkları sürecin motivasyonlarını olumsuz etkilediği görülmektedir.

### 3.Tema: Ebeveynlerinin Boşanmasının Öğrencilerin Sosyal İlişkilerine Etkisi

Öğretmenlerin, "Boşanmış ebeveynlerin, öğrencilerin sosyal ilişkilerine etkisi konusunda gözlemleriniz nelerdir?" sorusuna verdikleri cevapları analiz edilmiştir. Bu analizler sonucunda duygusal-sosyal etkileri kategorisinde içine kapanma, arkadaş çevresinden dışlanmış hissetme ve saldırgan davranışların artması; ekonomik etkileri kategorisinde arkadaşlarından uzaklaşma alt kategorisi oluşmuştur. Bu kategoriler ve alt kategorileri şekil 3'te verilmiştir.



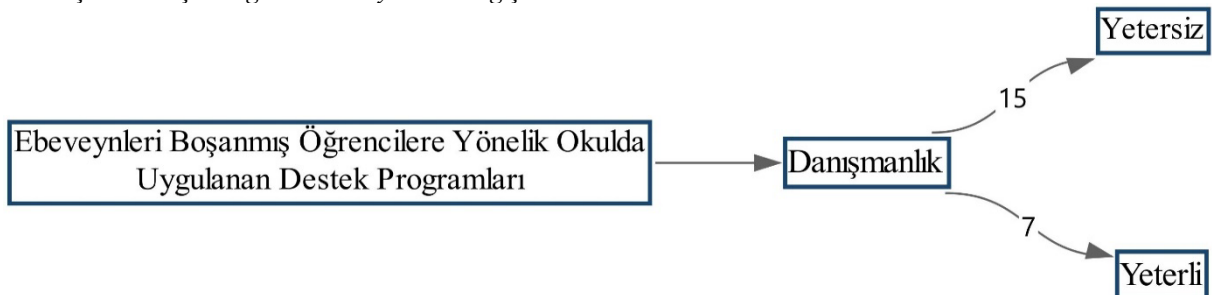
**Şekil 3.** Ebeveynlerinin boşanmasının öğrencilerin sosyal ilişkilerine etkisine ilişkin tema, kategori ve alt kategoriler

Ebeveynleri boşanmış öğrencilerde içine kapanma, arkadaş çevresinden dışlanmış hissetme ve saldırgan davranışlarının arttığı gözlemlenmiştir. Ebeveynleri boşanan çocukların genelde okul, arkadaş hatta aileleri ile ilişkilerinin zarar gördüğü belirlenmiştir. Öğretmenler öğrencilerinin içine kapandığı ve iletişim kurmaya isteksizleştiğinden bahsetmiştir. Buna örnek olarak (Ö5), “...öğrencimin, boşanma sürecinden sonra sosyal ilişkilerinde geri çekilmeler oldu. Mesela, sınıf içinde daha az konuşkan hale geldi ve grup etkinliklerinden kaçınmaya başladı...”, (Ö20) “...tatlı tatlı konuşan, naif bir kız öğrencim vardı. Boşanmadan sonra çocuk iyice içine kapandı...” öğrencilerinin durumunu anlatmıştır. Öğretmenler, boşanma sürecinde öğrencilerin kendini farklı ve eksik hissettiğini ya da toplumun farklı hissettirdiğini gözlemlediklerini ifade etmiştir. Öğrenciler arkadaşlarının aileleriyle birlikte gördüklerinden, bazı şeyleri tek başlarına yapmak zorunda olduklarından kendilerini eksik hissettiklerini ve bu durumun onları yalnızlaştırdığını düşündüklerini söylemiştir. Bu durum ile ilgili (Ö19), “...etkinlikler düzenliyoruz ve boşanmış anne babalardan ya biri ya da ikisi birden gelmiyor. Diğer çocukları ve aileleri görünce o öğrencimin üzüldüğünü görmek çok acı. Kendilerini dışlanmış hissedip arkadaşlarıyla diğer zamanlarda da uzaklaştıklarını fark ediyorum...”, (Ö10) öğrencisi için “Boşanma sürecinden sonra bir öğrencim diğer çocuklarla oyun oynamayı bıraktı. Tenefüslerde bahçede ise benim yanına gelip geziyor yoksa sınıfta hep oturuyor. Oyunlara katılmıyor...” örnekleriyle ifade etmiştir. Öğretmenlerin gözlemledikleri başka bir durum ise toplumun boşanmış ebeveynlere bakış açısından dolayı öğrencilerin yaşadığı duygusal zorluklardır. (Ö19), toplum baskısını vurgulayarak öğrencisinin bu durumda yaşadığı “...boşanan ailelere toplumun bakışı da kötü. Çocuklarının bu ailelerin çocuklarıyla oynamasını istemeyenler bile oluyor! Bir öğrencim bu şekilde dışlandığından dolayı okul değiştirmek

zorunda kaldı...” olayı kaygılı bir şekilde anlatmıştır. Görüşmelerde öğretmenler, özellikle evde şiddet var ise bu öğrencilerde şiddet ve küfür davranışlarının arttığını söylemiştir. (Ö22), öğrencinin yaşadığı duygusal zorlukların sonucunda öğrencide oluşan davranış problemi ile ilgili “...boşanma sebebi annenin şiddet görmesi olduğunu bildiğim bir erkek öğrencim var. Okulda da öğrencim arkadaşlarıyla sürekli kavga ediyor. Biraz şişman ve güçlü de ondan da faydalanıp çocukları dövüyor. Kimse oyun oynamak istemiyor onunla...” deneyimini paylaşmıştır. Öğretmenler, öğrencilerin boşanma sonrası ekonomik gelirlerinin azalmasından dolayı ya da dikkat çekmek için öğrencilerinin hırsızlık yaptıklarını, bu sebeple arkadaşlarıyla ilişkilerinin bozulduğunu gözlemlemiştir. Bazı durumlarda ise ekonomik olarak problem yaşayan öğrencilerin kendilerini eksik görüp yine içine kapanmıştır. (Ö28) “...arkadaşlarıyla oynamayı kesen bir öğrencimin annesiyle görüşüm. Boşanma sonrası babasının ekonomik olarak desteklemediğini ve sıkıntı çektiklerini anlattı. Çocukta eksiklikleri yüzünden arkadaşlarından utandığı için yanlarına gitmek istemiyormuş...” ile öğrencisinin yaşadığı problemi dile getirmiştir. Ebeveyni boşanan öğrencilerin içine kapanma, saldırgan davranışlarda bulunma ve arkadaşları tarafından dışlanma gibi duygusal problemler yaşadığı, ayrıca ekonomik problemlerden dolayı arkadaşlarından uzaklaştığı görülmektedir.

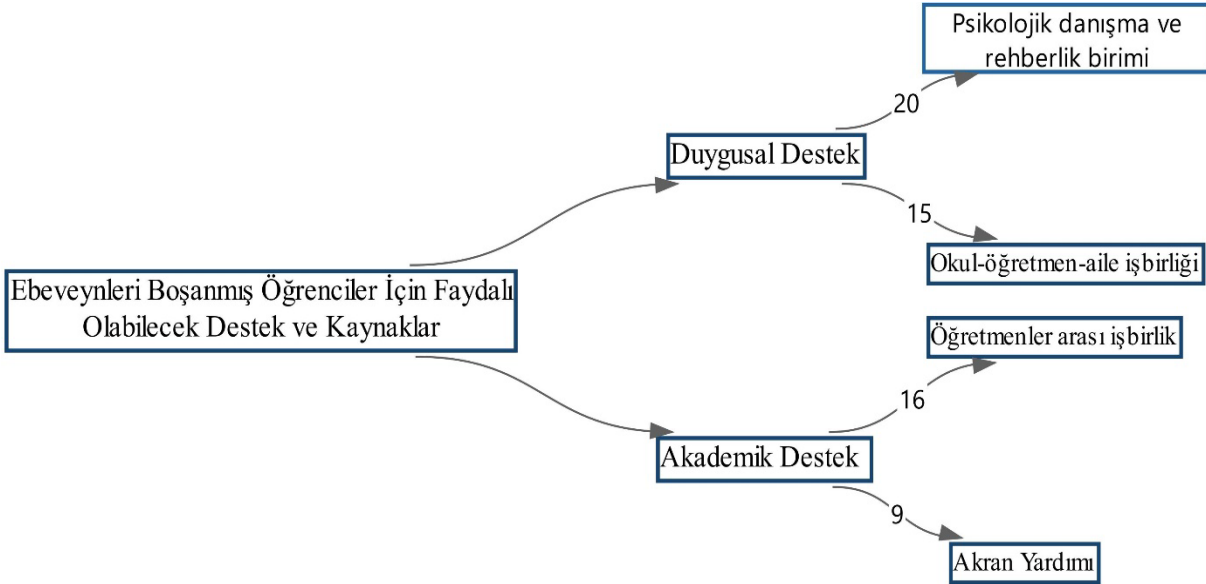
#### 4.Tema: Ebeveynleri Boşanmış Öğrencilere Yönelik Okulda Uygulanan Destek Programları

“Ebeveynleri boşanmış öğrencilere yönelik okulda uygulanan destek programları hakkında ne düşünüyorsunuz?” sorusuna öğretmenlerin verdikleri cevapların analizi doğrultusunda danışmanlık kategorisinde yeterli ve yetersiz alt kategorileri oluşmuştur (Şekil 4).



**Şekil 4.** Ebeveynleri boşanmış öğrencilere yönelik okulda uygulanan destek programlarına ilişkin tema, kategori ve alt kategoriler





Şekil 5.

Ebeveynleri boşanmış öğrenciler için faydalı olabilecek destek ve kaynaklara ilişkin tema, kategori ve alt kategoriler öğretmenler, uzmanlar ile öğrencilere yapılan desteğin olumlu sonuç verdiğini fakat büyük oranda öğrencilere verilen desteğin yetersiz olduğunu belirtmiştir.

**5.Tema: Ebeveynleri Boşanmış Öğrenciler İçin Faydalı Olabilecek Destek ve Kaynaklar**

Öğretmenlere sorulan “Sınıfınızdaki ebeveynleri boşanmış öğrenciler için hangi destek ve kaynakların daha faydalı olabileceğini düşünüyorsunuz?” sorusuna verilen cevaplar sonucunda iki kategori oluşmuştur. Duygusal-sosyal destek ve akademik destek kategorileri ve alt kategorileri şekil 5’te yer almaktadır.

Öğretmenler, ebeveynleri boşanmış öğrencilere yönelik psikolojik danışma ve rehberlik hizmetlerinin uygulamalarının tek başına yetersiz olduğundan, okul ve öğretmenlerin işbirliği içinde yaptıkları etkinliklerin daha faydalı olduğundan bahsetmiştir. Öğretmenler (Ö5, Ö18) yapılacak etkinliklerde okulun desteğini “...sosyal etkinlikler öğrencilerin davranışlarını düzeltilmesi ve arkadaşları ile kaynaşmalarında çok etkili. Okuldaki spor etkinlikleri ve sosyal aktiviteleri yapmaya okul idaresi teşvik etmeli...” “...okulun boşanmış aile çocukları gibi problemler yaşayan çocuklarda dâhil tüm çocukların sosyal yönden gelişmesi için etkinlikler düzenlemeli...” şeklinde vurgulamıştır. Ayrıca öğretmenler Okul psikolojik danışma ve rehberlik biriminin yapacağı etkinliklerin faydalı olacağına dikkat çekmiştir. Bu etkinlikler yapılırken problem yaşanmadan önlem alınması gerektiğine ilişkin fikirlerini (Ö6), “...gözlemediğim kadarıyla, bu çocuklar için özel danışmanlık seansları faydalı olabilir. Özellikle duygusal destek ve aile içi iletişim konusunda yardımcı olabilecek destek programları önemli...” ve (Ö19) “Ailesinin boşanma süreci yaşadığını öğrendiğim öğrenciyi hemen rehberlik servisine gönderdim. Çocukta sıkıntı oluşmadan önlem almalı...” şeklinde ifade etmiştir. Öğretmenler, davranış problemi yaşayan öğrencilere bu durum uzmanlık gerektirdiği için sınıf öğretmenlerinden çok okul psikolojik danışmanlarının yardımcı olmalarının uygun olacağını düşünmektedir. (Ö8) “Bu öğrencilerin rehberlik servisinde yardım alması gerek. Ben konuştuğumda bana anlatmıyor sıkıntılarını...” ve (Ö11) “Rehberlik öğretmenlerimizin davranış problemi yaşanan konular hakkında daha çok etkinlik yapmaları için daha fazla ders ayrılmalı...” şeklindeki

görüşleri, okul psikolojik danışmanı yapacakları desteğin faydasına olan inançlarını göstermektedir. Öte yandan öğretmenler, ebeveynleri boşanmış öğrencilerin yaşadığı problemlerin akademik başarılarını etkilediği ve öğretmenlerin ve akranlarının akademik yönden de destek vermesi gerektiği düşüncesine de sahiptir. Bu problemi aşmak için yaptıkları uygulamalara (Ö15) “...öğrencilere, yavaş öğrenen arkadaşına yardımcı olmalarını, teneffüslerde beraber okuma yapmalarını söylüyorum. Birbirlerinden daha hızlı öğrenebiliyorlar...”, (Ö23) “...arkadaşları ile iletişimi artsın ve kendini ifade edebilsin diye grup etkinliklerine yönlendiriyorum. Bu etkinliklerin faydalı olduğunu düşünüyorum...” ve (Ö17) “...drama etkinlikleri yapıyorum. Diğer öğrencilerin onu anlamasını sağlıyor. Ayrıca içinde bir sürü sıkıntı barındıran küçük çocuk içindekileri bizimle paylaşabiliyor...” örneklerini vererek faydalı uygulamalar olduğunu ifade etmişlerdir. Ayrıca öğretmenler öğrencilerin özel durumlarını fark ettiklerinde daha imtiyazlı yaklaştıklarını belirtmek için (Ö19) “...çocuğun anne ve babanın evi arasında mekik dokuduğunu biliyorum. O yüzden ödevini tamamlamadığında bitirmesi için zaman tanıyorum. Ya da okuma kitabını unutuyor, başka kitaba devam etmesine izin veriyorum. Biraz daha esnek davranıyorum ona karşı...” şeklinde deneyimlerini paylaşmıştır. Okuldaki ebeveynleri boşanan öğrencilere psikolojik danışma ve rehberlik öğretmenlerinin diğer öğretmenler ve aile ile işbirliği içerisinde destek olması gerektiği belirlenmiştir. Ayrıca bu dönemde akademik başarısı da olumsuz etkilenen öğrencilere sınıf öğretmenleri ve arkadaşlarının anlayış ve yardımının faydalı olacağı görülmektedir.

### Tartışma

Bu araştırma, ebeveynlerinin boşanmasının öğrenciler üzerindeki etkilerini sınıf öğretmenlerinin görüşleri aracılığıyla belirlemek amacıyla gerçekleştirilmiştir. Çalışma kapsamında boşanmanın öğrencilerin üzerindeki etkileri beş tema, bu temalara ait kategoriler ve alt kategoriler şeklinde belirlenmiştir. Belirlenen tema, kategori ve alt kategoriler ile ilgili sonuçlar aşağıda yer almaktadır.

Araştırma sonuçlarına göre, boşanmış ebeveynlere sahip öğrencilerin sınıf içindeki davranışlarında oluşan farklılıklar temasındaki akademik problemler kategorisi başarının düşmesi ve dikkat dağınıklığı alt kategorilerinden oluşmaktadır. Duygusal problemler kategorisinde, iletişim problemleri alt kategorisi tespit edilmiştir. Ayrıca disiplin sorunları alt kategorisi, davranışsal problemler kategorisinde belirlenmiştir. Araştırma sonuçlarını destekler şekilde, alanyazında da ebeveynleri boşanmış öğrencilere akademik başarının düşmesi, dikkat dağınıklığının ve disiplin problemlerinin artması ve çevresi ile iletişim kurmada daha isteksiz olmaları gibi çeşitli davranışlar belirlenmiştir (Amato, 2000; Amato ve Cheadle, 2005; Aral ve Gürsoy, 2000; Aysan ve Uzbaşı, 2004; Bacanlı 2002; Baysal, 2003; Büyükaşahin, 2009; Dohaney, 2018; Geniş vd., 2019; Hoelter, 2009; Huurre vd., 2006; Kabaoğlu, 2011; Kelly, 2007; Kelly ve Emery, 2003; Korkmaz, 2022; Mahrer vd., 2018; Nock, 2000; Wolf, 2004). Bu davranışlar, öğrencilerin genel gelişimlerini ve öğrenme süreçlerini olumsuz yönde etkilemektedir.

Çocuklar, birlikte oldukları aile üyeleri ile sağlıklı iletişim ve ilişki içerisinde olduklarında kendilerini iyi hissedip, davranışlarına ve psikolojilerine bu sağlıklı iletişimin etkileri olumlu yönde yansımaktadır (Çiftçi Arıdağ ve Ünsal Seydoğulları, 2019). Bununla beraber yapılan çalışmalarda, ebeveynler ve çocukları arasında olumlu ilişkilerin kurulması

ve ebeveynlerin çocukların öğrenmelerine dâhil olması ile çocukların akademik başarı düzeyleri arasında anlamlı bir ilişki olduğu belirlenmiştir (Joyce, 2016; Korkmaz, 2022; Treloar, 2018; Veas vd., 2019). Ancak, boşanma sürecinde çatışmaya maruz kalan çocuklarda, akademik, duygusal ve davranışsal problemler ortaya çıkmaktadır (Lületaş ve Khasin, 2021; Mahrer vd., 2018; Sorek, 2019; Turğut, 2015). Bu sebeple çocuğun ailesiyle yaşadığı ya da ailesinde yaşanan sorunların, çocuğu birçok açıdan olumsuz etkilediği söylenebilir. Özellikle aile içi çatışmaların yaşandığı durumlarda, çocukların akademik, duygusal ve davranışsal problemlerinin daha belirgin hale geldiği görülmüştür. Öte yandan sağlıklı aile ilişkileri ve çocukların aileleriyle olumlu etkileşimleri, akademik başarılarını olumlu yönde etkilemektedir (Çiftçi Arıdağ ve Ünsal Seydoğulları, 2019). Bu bulgular, boşanma sürecinde çocuklara sağlıklı destek ve iletişim sunmanın önemini vurgulamaktadır.

Araştırma sonuçları, ebeveynleri boşanmış öğrencilerde dikkat problemlerinin yaşandığı, öğrencilerin derslere karşı motivasyonlarının düştüğü ve sonucunda akademik başarılarının olumsuz etkilendiğini göstermektedir (Amato, 2000; Bernardi ve Boertien, 2017; Bilici, 2018; Lületaş ve Khasin, 2021; Mahrer vd., 2018; Özçelik, 2020; Shek ve Wu, 2016). Bu problemlerin yanı sıra, öğrencilerin sosyal gelişimi ve duygusal refahı da olumsuz yönde etkilenmektedir (Affi vd., 2009; Bloch vd., 2007; Cummings ve Schatz, 2012; Çiftçi Arıdağ ve Ünsal Seydoğulları, 2019; Huurre vd., 2006; Kabaoğlu, 2011; Korkmaz, 2022; Lucas vd., 2013; Masarik ve Conger, 2017; Sorek, 2019; Stallman ve Ohan, 2016; Tebeka vd., 2016). Ayrıca bu öğrencilerin duygusal olarak etkilendiği ve çevreleriyle iletişimlerini azalttığı dikkat çekmektedir (Aysan ve Uzbaşı, 2004; Bacanlı 2002; Laletaş ve Khasin, 2021; Sancaklı, 2014; Turğut, 2015). Boşanmanın öğrencilerde sebep olduğu bu olumsuzluklara ek olarak öğrencilerin davranış problemlerinde artış yaşandığı (Amato, 2000; Bilici, 2018; Korkmaz, 2022; Laletaş ve Khasin, 2021), hırsızlık gibi riskli davranışların ortaya çıktığı gözlemlenmiştir. Görüldüğü gibi ailelerinin parçalandığı bu sürecin çocukların hayatını birçok yönden olumsuz etkilediği söylenebilir. Boşanmanın çocuklar üzerindeki etkilerini anlamak ve bu etkilerle başa çıkmak için kapsamlı bir yaklaşım gerekmektedir. Ebeveynler, eğitimciler ve toplum genelindeki paydaşlar arasında işbirliği ve iletişim, bu süreçte çocukların sağlıklı bir şekilde gelişimini desteklemenin önemli bir parçasını oluşturmaktadır.

Boşanmış ebeveynlerin öğrencilerin akademik performansları üzerinde etkisi temasında akademik başarının düşme nedeni kategorisi oluşmuştur. Bu kategoriye ait alt kategoriler ise sorumluluk artması, düzenli çalışma ortamının olmaması ve motivasyonun düşmesi şeklinde oluşturulmuştur. Araştırma bulgularına dayanarak ebeveynleri boşanmış öğrencilerin akademik performanslarında düşüş yaşandığı belirlenmiştir (Alkan, 2014; Altuntaş, 2012; Bilici, 2018; Hashemi ve Homayuni, 2017; Korkmaz, 2022; Lületaş ve Khasin, 2021; Seijo vd., 2016; Sun ve Li 2011). Ailenin parçalanması ile öğrencilerin akademik başarı arasında anlamlı yönde negatif bir ilişki vardır (Alkan, 2014). Bu durumun altında yatan nedenlerden biri, öğrencilerin boşanma sonucu aile içindeki sorumluluklarının artmasıdır (Güven ve Köroğlu, 2023). Özellikle boşanma durumunda, ebeveynlerin, çocuğun ihtiyaçlarına yeterince yetişememesi durumu, çocuğun sorumluluklarını arttırabilir. Bazı durumlarda, çocuğun kendi ihtiyaçlarının yanı sıra diğer aile üyelerine destek olması da gerekebilir (Korkmaz, 2022). Bu durum,



çocuğun erken yaşta fazla sorumluluk almasına ve bu sorumlulukları yerine getirmeye çalışmasına neden olabilir. Sonuç olarak bu süreç, çocuğun okula kafası karışmış, üzgün, kızgın ve odaklanamamış bir şekilde gelmesine bağlı olarak derslere yönelik motivasyonunun düşmesine ve derslere odaklanma gücünü yaşamasına yol açabilmektedir (Bilici, 2018; Korkmaz, 2022). Ayrıca, boşanma sonucunda çocuğun yaşadığı yer değişiklikleri ve ebeveynleri arasında mekik dokuması, çocuğun çalışma düzenini bozabilmektedir. Bu durum, çocuğun düzenli bir çalışma ortamına sahip olamamasına ve motivasyon eksikliğine neden olmakta, bu da akademik başarıyı olumsuz yönde etkileyebilmektedir (Gündüz, 2019; Korkmaz, 2022). Ayrıca, çocuğun duygusal ve psikolojik ihtiyaçlarına gerektiği gibi odaklanamaması, genel yaşam kalitesini etkileyebilmektedir. Görüldüğü gibi boşanma sürecinin çocuklar üzerindeki etkileri karmaşık olabilmekte ve çocukların eğitim ve gelişimine yönelik desteklerin dikkatle planlanması gerekmektedir. Ayrıca aile içindeki sorumlulukların dengelenmesi, çocuğun düzenli bir çalışma ortamına sahip olması ve duygusal ihtiyaçlarının karşılanması, akademik başarılarını artırmak için önemli faktörler arasında sayılmaktadır (Baker vd., 2021; Garbe vd., 2020; Iraklis, 2021; Khun-inkeeree vd., 2021; King vd., 2021; Ogunode vd., 2023). Bu bağlamda, ebeveynlerin, öğretmenlerin ve diğer ilgili paydaşların işbirliği içinde çalışması gerekmektedir.

Boşanmış ebeveynlerin öğrencilerin sosyal ilişkilerine etkisi temasında, duygusal-sosyal etkileri ve ekonomik etkileri kategorileri olmak üzere iki kategori alanı oluşmuştur. Duygusal-sosyal etkileri kategorisinde içine kapanma, arkadaş çevresinden dışlanmış hissetme ve saldırgan davranışların artması alt kategorileri belirlenmiştir. Ekonomik etkileri kategorisinde ise arkadaşlarından uzaklaşma alt kategorisi ortaya çıkmıştır. Bu çalışmada öğretmenler tarafından tanımlanan çocukların saldırgan ve anti-sosyal davranışları, ebeveynleri ile iletişim kurma ve başa çıkma yeteneklerini etkileyen duygusal sıkıntılarının bir sonucu olarak açıklanabilir. Çünkü boşanma olgusu, psikolojik, sosyal ve ekonomik açıdan aile üyelerini derinden etkileyen uzun ve zorlu bir süreçtir (Akyüz, 1978; Geniş vd., 2019; Tathoğlu ve Demirel, 2016; Uzun, 2013). Çocukların da, bu süreçten en çok olumsuz yönde etkilenen grup olduğu söylenebilir (Geniş vd., 2019; Korkmaz, 2022; Tuzun, 2004; Uzun, 2013). Boşanma sonucunda ailesi ile olan güvenli bağlarını da kaybeden çocukların, depresyon ve kaygı düzeylerinin arttığı (İşler, 2023), utanç duygusu (Cebeci ve Ceylan, 2009) ve duygusal zorluklar yaşadığı belirlenmiştir (Afifi vd., 2009; Bloch vd., 2007; Huurre vd., 2006; Kaya ve Gündüz, 2019; Tebeka vd., 2016). Araştırma sonuçları, ebeveynleri ayrılmış çocukların sosyal açıdan güçlükler yaşadıklarını (Sancaklı, 2014; Tathoğlu ve Demirel, 2016), duygusal anlamda kendilerini geri çektiklerini ve arkadaşlık ilişkilerinin bozulduğunu (Cebeci ve Ceylan, 2009) ve içine kapanma eğiliminde olduklarını göstermektedir (Atabey, 2017; Kasuto, 2017). Ayrıca, çocuklar boşanma sonrasında dışlanmış hissetmekte (Wallerstein vd., 2000) ve bu durum onların sosyal ilişkilerinde de olumsuz etki yaratmaktadır. Çocukların bireysel benlik gelişimleri için, aile içinde sevgi, saygı ve güvenin beslenmesi, hoşgörü ve esneklikle davranılması önemlidir (Gordon, 2016). Çocuğun kendisine ve çevresine yönelik olumlu bir benlik algısı geliştirebilmesi için ailenin olumlu tutumlar geliştirmesi gerekmektedir. Aile içinde güvenli bağlanma geliştiren çocukların çevreleriyle daha uyumlu ilişkiler kurdukları ve daha az sosyal problem

yaşadıkları görülmektedir (Kesebir vd., 2011). Araştırma sonuçları, ebeveynleri boşanmış çocuklarda saldırgan davranışların arttığına işaret etmektedir. Bunun nedeni boşanma sürecindeki ebeveynlerin çocuklara model oluşturduğu antisosyal ve saldırgan davranışlar olabilir (Bandura, 1989). Yüksek çatışmalı boşanma durumlarında, çocukların ebeveynlerinden gelen çatışma modellemesi, antisosyal davranışları artırabilir (Joyce, 2016; Sigal vd., 2011; Stallman ve Ohan, 2016). Ebeveynleri boşanmış çocuklarda saldırgan davranışlarının artması (Spremo, 2020), çocuğun duygusal dengesizlik yaşadığını ve bu durumu şiddetle ifade etme eğilimine girebileceğini işaret etmektedir. Çocuklar, evde ve okulda öfke duygularını çeşitli yollarla dışa vurmakta; bununla birlikte, öfkelerini okulda arkadaşlarına ve öğretmenlerine yönlendirerek saldırgan davranışlar sergileyebilmektedir (Kasuto, 2017; Sağlam, 2011). Ebeveynlerinin boşanmasına tepki olarak çocuklar, yaşlarına, cinsiyetlerine ve kişilik özelliklerine bağlı olarak farklı şekillerde davranabilmektedir. Bu tür çocuklar, sürecin nihai bir sonucu olarak (Tanrıverdi ve Özgüç, 2019), ebeveynlerine ve diğer çocuklara karşı öfke ve saldırganlık gösterebilir (Ersan, 2020). Araştırma sonucunda ebeveynleri boşanmış öğrencilerin ekonomik problemler yaşadıkları ve bu problemlerin arkadaş çevrelerinden uzaklaşmalarına neden olduğu belirlenmiştir (Aral, ve Gürsoy, 2000; Kaya ve Gündüz, 2019; Korkmaz, 2022; Tathoğlu ve Demirel, 2016). Boşanma süreci ve sonrasında ikamet değişimi, annenin daha fazla ekonomik sorumluluk yüklenmesi çocuğun yaşam standartlarını olumsuz yönde etkilemektedir (Demir ve Çelebi, 2017; Sayar, 2021). Çocuğun yaşadığı ekonomik zorluklar sosyal çevresindeki etkileşimlerini azaltmakta ve yaşam kalitesinin düşmesine neden olmaktadır (Erdim ve Ergün, 2016).

Araştırma sonuçlarına göre boşanmış ebeveynlerin çocuklarına yönelik okulda uygulanan destek programları, danışmanlık kategorisi altında incelenmiştir. Öğretmenlerin bu süreçte öğrencilere uygulanan destek uygulamalarının yeterliliğine ilişkin olumlu ve olumsuz görüşlere sahip oldukları belirlenmiştir. Araştırma sonucunda, boşanma sürecinden etkilenen öğrencilerin okuldaki uyumlarını sağlamak ve akademik başarılarını desteklemek için öğretmenlerin, okul psikolojik danışmanlarının ve okuldaki diğer paydaşların öğrencilere destek olmak için aktif bir rol oynamaları ve danışmanlık yapmaları gerektiği vurgulanmaktadır. Eğitim araştırmaları da, öğretmenlerin ve okul sisteminin, gelişimsel ve akademik potansiyellerini karşılayamama riski taşıyan öğrencileri belirleme ve desteklemede kritik bir rol oynadığını tespit etmiştir (Allen vd., 2018; Bayer vd., 2017; Laletaş vd., 2017). Boşanma sürecinin hem ebeveynler hem de çocuklar üzerinde olumsuz etkilere yol açabileceği, bu zorlu duruma uyum sağlamak için bireylerin çevrelerinden destek almalarının önemli olduğu tespit edilmiştir (Amato, 2000). Sınıf öğretmenleri ve okul psikolojik danışmanları, boşanma sürecinden etkilenen öğrencilere yönelik olarak, dinleme becerilerini kullanarak, sevgi ve disiplini tutarlı bir şekilde sunarak, empati ve sabır göstererek, rutini sürdürerek, güvenli bir okul ortamı oluşturarak ve danışmanlık hizmetleri sağlayarak yardımcı olabilirler (Cottongim, 2002; Ellington, 2003). Ayrıca boşanmadan etkilenen ilkökul öğrencilerinin uyumunu en iyi şekilde desteklemek için, her iki ebeveynle de iletişim hatlarını açık tutmak, ebeveyn ve çocuklara destek olmak ve iletişimi güçlendirmek önemlidir (King vd., 2021). Ebeveynleri boşanmış öğrencilerin ihtiyaçlarını anlamayı araştıran bir dizi

çalışma, ebeveynlerinden ayrılan veya boşanan öğrencilerin olumlu uyumunu kolaylaştırmada öğretmenlerin önemli bir rol oynadığını vurgulamıştır (Angelo, 2018, Lukefahr, 2019, Mahony vd., 2015). Mahony vd. (2015) tarafından yapılan bir çalışma da, boşanmanın etkisi altındaki öğrencileri destekleyen öğretmenler, bu küçük çocuklar için duygusal, davranışsal ve akademik destek sağlamanın yanı sıra ebeveynler, okul personeli ve topluluk üyeleriyle işbirliği yaparak kendi destek sistemlerini oluşturmaya odaklandığını göstermektedir. Öğretmenlerin sağlayacağı danışmanlık hizmeti, ebeveynleri boşanmış öğrenciler için destekleyici ve yapılandırılmış bir okul ortamının oluşturulmasına katkı sağlayabilir. Bu hizmet, öğrencilerin arkadaş ve aile destek ağlarına kolay erişimlerini ve resmi destek programlarına erişimlerini sağlayabilir (Geniş vd, 2019). Ancak duygusal ve psikolojik olarak savunmasız olan özellikle de küçük yaş grubundaki öğrencilere eğitim vermek ve desteklemek oldukça karmaşık ve öğretmenler için özel bilgi ve eğitim gerektiren bir beceridir (Laletas vd., 2017). Bu bağlamda boşanma sürecinden etkilenen öğrencilerin okuldaki uyumlarını ve akademik başarılarını desteklemek için öğretmenleri ve okul danışmanları önemli bir rol oynamaktadır. Bu çalışmanın bulguları, bu konuda yapılacak eğitim programlarının ve destek hizmetlerinin önemine vurgu yapmaktadır.

Ebeveynlerin boşanmış öğrenciler için faydalı olabilecek destek ve kaynaklar temasında duygusal-sosyal destek ve akademik destek kategorileri belirlenmiştir. Duygusal destek kategorisinde rehberlik servisi ve okul-öğretmen-aile işbirliği; akademik destek kategorisinde akran yardımı ve öğretmenler arası işbirlik alt kategorileri oluşmuştur. Boşanma süreci, aile üyeleri üzerinde sosyal, ekonomik ve psikolojik olarak olumsuz etkiler bırakmaktadır (Tatlıoğlu ve Demirel, 2016). Bu nedenle aile üyelerine, hayatlarındaki değişiklikler sonucu oluşan yeni düzene uyum sağlayabilmesi için destek vermek gerekmektedir. Öğretmenlerin küçük yaşta öğrenciler için sağladığı desteklerin, öncelikle duygusal destek olduğu vurgulanmaktadır (Cummings ve Schatz, 2012). Çocukların öğrenme süreçlerinden önce duygusal olarak kendilerini güvende hissetmelerinin gerekliliği üzerinde durulmaktadır. Boşanmanın tüm süreçlerinde öğrencilerin, genellikle anne ve babalarının boşanma olayını okul ve arkadaş çevresinden gizledikleri bulgusu elde edilmiştir (Erdim ve Ergün, 2016). Ancak bazı öğrencilerin, güvendikleri öğretmenleri ve arkadaşlarıyla bu durumu paylaştıkları görülmektedir (Korkmaz, 2022). Bu bağlamda, araştırma sonuçları da öğretmenlerin eylemlerinin duygusal desteği kolaylaştırmaya odaklanması ve okulların önemli rolünü vurgulamaktadır (Cottongim 2002; Ellington 2003; King vd., 2021). Bu desteğin uzman kişiler tarafından verilmesi de ayrıca önemlidir. Araştırma sonuçlarında da, okul psikolojik danışmanının, ebeveyni boşanmış öğrencilere danışmanlık yapması ve sınıf öğretmenlerinin, öğrencileri ve ebeveynlerini danışmanlık için okul psikolojik danışmanlarına yönlendirmek konusunda etkin rol oynaması gerektiğine dikkat çekilmiştir (Cottongim, 2002; King vd., 2021). Ek olarak araştırma da, ebeveynleri boşanmış öğrencilere yönelik psikolojik danışma programlarının, yeni duruma uyum sağlama ve psikolojik iyilik hali açısından olumlu etkiler sağladığına ilişkin sonuçlar, alanyazında ki araştırmalarla da desteklenmektedir (Arsu vd., 2018, King vd., 2021; Korkmaz, 2022).

Boşanma sonrası devam eden ebeveyn çatışması, özellikle okul çağındaki çocuklar için zorlayıcı bir durumdur. Özellikle yüksek çatışmalı boşanmanın uyum sorunlarına neden olup,

çocuk psikopatolojisi riskini artırdığı görülmektedir (Stallman ve Ohan, 2016). Okul ortamı, özellikle davranışsal ve duygusal zorluklar gösteren öğrencileri belirlemek için merkezi bir konumda yer almaktadır (Beausang vd., 2012). Okul, davranışsal ve duygusal problemler yaşayan öğrenciler için bilişsel, sosyal ve duygusal becerileri geliştirmek için güvenli bir alan oluşturarak, uyum güçlükleri ve zihinsel sağlık sorunları riskini azaltabilecek bir tampon görevi üstlenebilir. Çocuk gelişimi konusunda eğitim almış öğretmenler 'risk altındaki' öğrencilerin davranışsal uyarı işaretlerini belirlemede kritik bir rol oynayabilir (Laletas ve Khasin, 2021). Bu sebeple üzerine büyük görevler düşen öğretmenlerin öğrencilere danışmanlık yapıp, destek olması, bu süreçten öğrencilerin daha az zarar ile çıkmalarına yardımcı olabilir. Boşanma sürecinde danışmanlık hizmetlerinin öne çıkartılmasıyla, destek ve iletişim için belirli pedagojik uygulamalar kullanılması gerekliliği vurgulanmakta ve bu konuda okul psikolojik danışmanlarına önemli görev düşmektedir (Ellington, 2003; King vd., 2021). Ayrıca araştırma sonuçlarına göre, okul-öğretmen-aile arasındaki işbirliği, öğrencilerde oluşan ve oluşabilecek olumsuzlukları ortadan kaldırmak için önemli bir etkiye sahip olduğu belirlenmiştir. Bandura ve Wessels (1994) tarafından yapılan öz-yeterlikle ilgili çalışmalarda, öğrencilerin okul, aile ve arkadaş ilişkileri içinde, davranışları modelleme yaparak öğrendiği vurgulanmaktadır. Bu bağlamda öğrenci, önce davranışları gözlemleyerek bu davranışları uygulamaya başlamaktadır (Bandura ve Wessels, 1994). Bu nedenle, ailenin çocuğuna doğru örnek olması ve olumlu adımlar atması büyük önem taşımaktadır. Anne ve baba olarak, ebeveynliğe devam etme çabaları ve çatışmaları azaltma girişimleri, çocuğun daha az zarar görmesine yardımcı olmaktadır (Donahay, 2018). Yapılan araştırmalar, öğrencilerin akademik başarılarındaki farkın, anne ve babanın öğretmenlerle daha pozitif bir iletişim kurması, iş birliği içinde çalışması ve çocuğun sorumluluğunu birlikte alması gibi faktörlerin etkisi olabileceğini ortaya koymaktadır (Atabey, 2017; Veas vd., 2019). Ayrıca ebeveyn katılım derecesinin (Anderson ve Minke, 2007) ve çocuklara evde desteğin, öğrencilerin gelişiminde oldukça etkili olduğu dikkat çekmektedir (Veas vd., 2019). Ebeveynlerin katılımını sağlamak için öğretmenlerin tutumu da önemlidir. Öğretmenler, öğrencilere destek sağlamak için başkalarıyla ortaklıklar kurmada kilit noktadadır. Araştırmalar, ebeveynleri ayrılan öğrencilerle çalışan öğretmenlerin, ebeveynler ve diğer öğretmenlerle iletişimi önemseyerek ilişkileri geliştirmeye çalışmasının, öğrencilerde yarattığı olumlu etkileri göstermiştir (Cottongim 2002; Ellington 2003). Sonuç olarak, ebeveynlerin öğretmenlerle iş birliği yapması ve öğrencilerin gelişimine destek olması, boşanma sürecinin öğrencilerin üzerindeki olumsuz etkilerini en aza indirme açısından önemlidir. Okul, öğretmenler ve aileler arasında sağlanacak iş birliği, öğrencilerin sağlıklı bir şekilde gelişimine katkı sağlayabilir ve olumsuz etkileri minimize edebilir. Bu nedenle, boşanma sonrası ailelerin ve okulun birlikte çalışması, öğrencilerin refahını ve başarısını artırabilir.

Araştırma sonuçlarına göre, akademik başarıdaki düşüş konusunda öğrencilere öğretmenler arası işbirliği ve akranlarının yardımı faydalı olabilmektedir. Araştırmalar, boşanmış ebeveynlere sahip öğrencilerde akademik başarının düştüğünü göstermektedir (Geniş vd., 2019; Korkmaz, 2022). Ebeveynlerin boşanmasıyla öğrenciler güvenilir bir destek kaynağını kaybetmekte, yalnızlık ve terk edilmişlik duygularının da artırması akademik başarısını olumsuz

etkilemektedir (Spremo, 2020). Öğrencilere duyulan önem ve etkili bir öğretmenin merkezi özelliği olan öğrencileri önemseme, ebeveynleri boşanmış öğrencilerin akademik başarılarındaki olumsuzlukların azaltılmasında kritik bir rol oynamaktadır (Noddings, 2015; Velasquez vd., 2013). Öğretmenler, ebeveynleri boşanmış öğrencilerin ev ortamında aldığı desteğin azalmasına bağlı olarak ek yardıma ihtiyaç duyduğunu belirtmektedirler. Bu noktada, öğrencilere özellikle akran yardımı, ek etkinliklerin düzenlenmesi ve ek zaman ayrılması gibi yöntemlerle destek verilebilir (Veas vd., 2015). Öğretmenler, öğrencileri diğer öğretmenler ve arkadaşlarıyla olumlu ilişkiler kurmaları için teşvik ederek, destekleyici bir ortam oluşturabilir (Cottongim, 2002; Ellington, 2003; King vd., 2021). Bu bağlamda öğretmenlerin teşvik ve olumlu pekiştirme sağlayarak, öğrencilere özel görevler vererek ve öğretime odaklanarak öğrencilerin özgüvenini artırmayı hedeflemesi ve destekleyici akran grupları ile ilişkilerini sürdürmelerine yardımcı olması akademik destek sağlanması açısından faydalı olacaktır.

### Öneriler

- Bu çalışmadan elde edilen bulgular, sınıfında ebeveynleri boşanmış öğrencileri olan sınıf öğretmenlerinin uygulamalarına ilişkin daha fazla araştırma yapabilmek için bir başlangıç noktası sunabilir. Ebeveynlerinden ayrılan öğrencilerin okul deneyimlerini ve öğretmenlerin bu durumlarla başa çıkma stratejilerini daha ayrıntılı olarak inceleyecek araştırmalara ihtiyaç duyulmaktadır.
- Öğretmen yetiştirme programları ve mesleki gelişim kursları, öğretmenleri yüksek çatışmalı boşanma gibi zorluklarla karşılaştıklarında özel gereksinimlere uygun olarak hazırlayacak şekilde düzenlenebilir. Bu programlar, öğretmenlere bu özel durumla başa çıkma, çocukları destekleme ve onlara etkili bir şekilde rehberlik etme becerilerini kazandırmaya odaklanabilir.
- Sınıf öğretmenlerine, ebeveynleri boşanmış çocuklara daha iyi destek sağlayabilmek için özel eğitim verilebilir. Bu eğitim, duygusal destek sağlama ve çocukları yönlendirme konularına odaklanabilir.
- Okullar, boşanma sürecindeki öğrencilere yönelik psikolojik destek hizmetlerini güçlendirerek ve psikolojik danışmanlık birimleri aracılığıyla danışmanlık hizmetleri sunarak bu öğrencilerin duygusal iyi olma durumlarını daha çok destekleyebilir.
- Sınıf öğretmenleri, ebeveynleri boşanmış öğrencilerin aileleriyle yakın işbirliği içinde olmalıdır. Ailelerle düzenli iletişim kurularak çocuğun okul yaşamında karşılaştığı zorluklar ve duygusal ihtiyaçları hakkında bilgi alışverişi yapılıp, birlikte çözüm yolları aranabilir.
- Okullarda, boşanma sürecindeki çocukların duygusal ve sosyal becerilerini geliştirmeye yönelik programlar uygulanabilir.
- Okullar, boşanma sürecinin çocuklar üzerindeki etkileri hakkında farkındalık yaratmak için seminerler, konferanslar veya ebeveyn toplantıları düzenleyebilir. Ayrıca, bu süreçte yapılan araştırmaların sonuçlarını

paylaşarak öğretmenlerin ve ailelerin bilgi düzeyini artırabilir.

- Ebeveynleri boşanmış öğrencilerin akademik başarılarını artırmak için, akranları arasında farkındalık yaratıp, diğer öğrencilerin de arkadaşlarına yardım etmeleri için teşvik edilebilir.

### Yazar Katkı Oranı

Yazar, çalışmada başka bir yazarın katkısı olmadığını ve çalışmanın son halini okuduğunu ve onayladığını beyan etmektedir.

### Etik Kurul Beyanı

Bu makalede dergi yazım kuralları, yayın ilkeleri, araştırma ve yayın etiği kuralları, dergi etik kurallarına uyulmuştur. Makale ile ilgili ortaya çıkabilecek her türlü ihlalin sorumluluğu yazara aittir. Araştırma kapsamında Fırat Üniversitesi Sosyal ve Beşerî Bilimler Bilimsel Araştırma ve Yayın Etiği Kurulu değerlendirme karar tarihi=18.01.2024, etik değerlendirme belge numarası=21728 ile etik kurul izni alınmıştır.

### Çatışma Beyanı

Yazar çalışma kapsamında herhangi bir kurum veya kişi ile çıkar çatışması bulunmadığını beyan etmektedir.

### Kaynakça

- Afifi, T. O., Boman, J., Fleisher, W., & Sareen, J. (2009). The relationship between child abuse, parental divorce, and lifetime mental disorders and suicidality in a nationally representative adult sample. *Child Abuse & Neglect*, 33(3), 139-147. <https://doi.org/10.1016/j.chiabu.2008.12.009>
- Akkaya, B. (2022). Ebeveyni boşanmış ve boşanmamış okul öncesi çocukların sosyal ilişkilerindeki iletişim becerilerinin ebeveyn görüşlerine göre değerlendirilmesi. *Akademik Tarih ve Düşünce Dergisi*, 9(3), 1067-1103.
- Akyüz, Y. (1978). Türkiye’de öğretmenin “öğretmen” ve meslek imajı [Teacher in Turkey "teacher" and the image of the profession]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 11(1), 115-121.
- Alkan, E. Ö. (2014). *Parçalanmış aile modelindeki öğrencilerin eğitimdeki başarı durumları: Trabzon örneği* [Yayınlanmamış yüksek lisans tezi]. İnönü Üniversitesi.
- Allen, K., Kern, M. L., Vella-Brodick, D., Hattie, J. & Waters, L. (2018). Okulların okul aidiyetini teşvik etme konusunda bilmesi gerekenler: Bir meta-analiz. *Eğitim Psikolojisi İncelemesi*, 30(1), 1-34. <https://doi.org/10.1007/s10648-016-9389-8>
- Altuntaş, G. (2012). *Boşanmış ebeveynler ile boşanmamış ebeveynlerin lise birinci, ikinci, üçüncü sınıflarında okuyan çocuklarının sürekli öfke ve öfke ifade tarzı, benlik saygısı ve anksiyete düzeylerinin karşılaştırılması* [Yayınlanmamış yüksek lisans tezi]. Maltepe Üniversitesi.
- Amato, P. R. (2000). The consequences of divorce for adults and children. *Journal of Marriage and the Family*, 62, 1269-1287. <https://doi.org/10.1111/j.1741-3737.2000.01269.x>
- Amato, P. R. (2014). The consequences of divorce for adults and children: An update. *Društvena istraživanja-Časopis za opća društvena pitanja*, 23(01), 5-24. <https://doi.org/10.5559/di.23.1.01>
- Amato, P. R., & Cheadle, J. (2005). The long reach of divorce: Divorce and child well-being across three

- generations. *Journal of marriage and family*, 67(1), 191-206. <https://doi.org/10.1111/j.0022-2445.2005.00014.x>
- Anderson, K. J., & Minke, K. M. (2007). Parent involvement in education: Toward an understanding of parents' decision making. *The Journal of Educational Research*, 100(5), 311-323. <https://doi.org/10.3200/JOER.100.5.311-323>
- Angelo, M., S. (2018). *High conflict separation/divorce, intimate partner violence and its effects on child adjustment*. ProQuest Dissertations Publishing [Doctoral dissertation]. William James College.
- Aral, N., Gürsoy, F. (2000). Boşanmış ve boşanmamış ebeveynlerin çocuklarının depresyon düzeyleri üzerine bir araştırma. *Toplum ve Sosyal Hizmet*, 1, 18-28.
- Aral, N., ve Başar, F. (1998). *Boşanmış aileye sahip olan ve olmayan çocukların kaygı düzeylerinin incelenmesi*. VII. Ulusal Eğitim Bilimleri Kongresi, Selçuk Üniversitesi, Konya
- Arendell, T. (2023). *Mothers and divorce: Legal, economic, and social dilemmas*. Univ of California Press. <https://doi.org/10.2307/jj.2430428>
- Arkes, J. (2014). Separating the harmful versus beneficial effects of marital disruptions on children. *Journal of Divorce and Remarriage*, 58, 526-541. <https://doi.org/10.1080/10502556.2017.1344500>
- Arsu, F., Erbay, E., Ünal, F. G. & Gürkan, U. (2018). *Grupla psikolojik danışmanın boşanmış aile çocuklarının öznel iyi oluş ve boşanmaya uyum düzeylerine etkisi*. Uluslararası Necatibey Eğitim ve Sosyal Bilimler Araştırmaları Kongresi, Balıkesir, Türkiye.
- Atabey, D. (2017). Bazı değişkenlere göre erken çocukluk döneminde okul – baba ilişkisi. *Uluslararası Sosyal Araştırmalar Dergisi*, 10(52), 721-729. <https://doi.org/10.17719/jisr.2017.1930>
- Atilen, J. T., Oliver, M. I., & Brosi, M. (2017). Preservice teachers' understanding of children of divorced families and relations to teacher efficacy. *Educational Research Quarterly*, 40(3), 25-49.
- Auersperg, F., Vlasak, T., Ponocny, I., & Barth, A. (2019). Long-term effects of parental divorce on mental health: A meta-analysis. *Journal of Psychiatric Research*, 119, 107-115. <https://doi.org/10.1016/j.jpsychires.2019.09.011>
- Ayberk, Y., & Taylan, H. H. (2021). Değişen aile yapısında aile içi sorunların ve aile aidiyetinin incelenmesi (Cizre örneği). *Journal of Academic Social Science Studies*, 14(88). <https://doi.org/10.29228/JASSS.54930>
- Aydın, O., & Baran, G. (2012). Ebeveynleri boşanma sürecinde olan 9-12 yaş grubundaki çocukların boşanmaya uyum düzeylerinin incelenmesi. *Ankara Sağlık Bilimleri Dergisi*, 1(1), 35-52. [https://doi.org/10.1501/Asbd\\_0000000004](https://doi.org/10.1501/Asbd_0000000004)
- Aydoğan, İ. & Altunbulak, C. (2015). İlköğretim ikinci kademedeki boşanmış ve tam aileye sahip öğrencilerin okul başarıları ve okulda karşılaştıkları problemlerin incelenmesi. *Kırıkkale Üniversitesi Sosyal Bilimler Dergisi*, 5(2), 75-102.
- Aysan, F., & Uzbaşı, A. (2004). İlköğretim 4. ve 5. sınıflarda okuyan öğrencilerin sosyal becerileri ve okul uyumu ile depresyon düzeyleri arasındaki ilişkinin incelenmesi. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 4(2).
- Babalıs, T., Tsoli, K., Nikolopoulos, V. & Maniatis, P. (2014). The effect of divorce on school performance and behavior in preschool children in Greece: An empirical study of Teachers' views. *Psychology*, 5(1), 20. <https://doi.org/10.4236/psych.2014.51005>
- Bacanlı, H. (2002). *Psikolojik kavram analizleri*. Ankara: Nobel Yayın Dağıtım.
- Baker, C., Clayton, S., & Bragg, E. (2021). Educating for resilience: Parent and teacher perceptions of children's emotional needs in response to climate change. *Environmental Education Research*, 27(5), 687-705. <https://doi.org/10.1080/13504622.2020.1828288>
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental psychology*, 25(5), 729. <https://doi.org/10.1037/0012-1649.25.5.729>
- Bandura, A., & Wessels, S. (1994). *Self-efficacy*, 4, 71-81.
- Bankir İşler, Y. (2023). *Boşanmış ve boşanmamış aileye sahip ergenlerin temel psikolojik ihtiyaçlarının karşılanması, başa çıkma ve romantik ilişkilerde sorun çözme becerilerinin incelenmesi* [Yayınlanmamış yüksek lisans tezi]. Hasan Kalyoncu Üniversitesi.
- Bayer, M., Ruthmann, K., & Schacht, A. (2017). The impact of personal relevance on emotion processing: evidence from event-related potentials and pupillary responses. *Social Cognitive and Affective Neuroscience*, 12(9), 1470-1479. <https://doi.org/10.1093/scan/nsx075>
- BBC & amp; Savage, M. (2020). (December BBC). Why the pandemic is causing spikes in break-ups and divorces. BBC The Life Project. <https://www.bbc.com/worklife/article/20201203-why-the-pandemic-is-causing-spikes-in-break-ups-and-divorces>
- Beausang, J., Farrell, A., & Walsh, K. (2012). Young people whose parents are separated or divorced: A case for researching their experiences at the intersection of home and school. *Educational Research*, 54(3), 343-356. <https://doi.org/10.1080/00131881.2012.710092>
- Berk, L. E. (2006). *Child development*, Seven Edition.
- Bernardi, F., & Boertien, D. (2017). Non-intact families and diverging educational destinies: A decomposition analysis for Germany, Italy, the United Kingdom and the United States. *Social Science Research*, 63, 181-191. <https://doi.org/10.1016/j.ssresearch.2016.09.004>
- Bibou-Nakou, I. (2004). Helping teachers to help children living with a mentally ill parent: Teachers' perceptions on identification and policy issues. *School Psychology International*, 25(1), 42-58. <https://doi.org/10.1177/0143034304041502>
- Biernacki P, Waldorf D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research*, 10(2), 141-63. <https://doi.org/10.1177/004912418101000205>
- Bilici, A. B. (2018). Hayatı anlamlandırma sürecinde boşanmanın ortaokul çocuklarının üzerindeki psiko-sosyal etkileri (Fevzi Çakmak Ortaokul Örneği). *Uluslararası Sosyal Araştırmalar Dergisi*, 11(56), 257-269. <https://doi.org/10.17719/jisr.20185638998>
- Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., ... Shiffman, J. (2017). Early childhood development coming of age: Science through the life course. *The Lancet*, 389(10064), 77-90. [https://doi.org/10.1016/S0140-6736\(16\)31389-7](https://doi.org/10.1016/S0140-6736(16)31389-7)
- Bloch, M., Peleg, I., Koren, D., Aner, H., & Klein, E. (2007). Long-term effects of early parental loss due to divorce on the HPA axis. *Hormones and Behavior*, 51(4), 516-523. <https://doi.org/10.1016/j.yhbeh.2007.01.009>
- Brajša-Žganec, A., Lopižić, J., & Penezić, Z. (2014). Psihološki aspekti suvremene obitelji, braka i partnerstva. *Zagreb: Hrvatsko Psihološko Društvo*.



- Büyükhahin, G. (2009). *Boşanmış ve boşanmamış (tam) ailelerden gelen 11 – 13 yaş arası çocukların anne baba tutumlarını algılama biçimlerinin sosyal uyum düzeyleri ile ilişkisi* [Yayınlanmamış yüksek lisans tezi]. Maltepe Üniversitesi.
- Carroll, J. (2013). *Önce çocuklar*. (Çev. Arzu Birkan). İstanbul: Doğan Kitap
- Cebeci, T., & Ceylan, S. (2009). *Tam aileye ve tek ebeveyn sahip ailelerden gelen 7-12 yaşları arasındaki çocukların bağlanma stilleri ve kaygı durumları arasındaki ilişki* [Yayınlanmamış Yüksek Lisans Tezi]. Maltepe Üniversitesi.
- Cherlin, A. J. (1999). Going to extremes: Family structure, children's well-being, and social science. *Demography*, 36, 421-428. <https://doi.org/10.2307/2648081>
- Chiappetta, C. (2019). Reducing Domestic Violence and Improving Outcomes for Children: Funding Civil Legal Aid to Maximize Impact. *Family Court Review*, 57(4), 465–477. <https://doi.org/10.1111/fcre.12440>
- Cottongim, C. M. (2002). *The school's role as a support system for children of parental divorce*. East Tennessee State University.
- Creswell, J. W. (2013). *Steps in conducting a scholarly mixed methods study*.
- Cummings, E. M., & Schatz, J. N. (2012). Family conflict, emotional security, and child development: translating research findings into a prevention program for community families. *Clinical Child and Family Psychology Review*, 15, 14-27. <https://doi.org/10.1007/s10567-012-0112-0>
- Çiftçi-Arıdağ, N. & Ünsal-Seydoğulları, S. (2019). Lise öğrencilerinin yaşam doyumu ve yılmazlık düzeylerinin anne-baba tutumlarıyla ilişkisi açısından incelenmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 34(4), 1037-1060. <https://doi.org/10.16986/HUJE.2018038527>
- Çivıtcı, N., Çivıtcı, A., & Fiyakalı, N. C. (2009). Anne-babası boşanmış ve boşanmamış olan ergenlerde yalnızlık ve yaşam doyumu. *Kuram ve Uygulamada Eğitim Bilimleri*, 9(2), 493 – 525.
- Demir, S., & Çelebi, Ş. (2017). Tek ebeveynli ailelerin sorunları: Nitel bir araştırma. *Yalova Sosyal Bilimler Dergisi*, 7(13), 111-128. <https://doi.org/10.17828/yalovastosbil.333891>
- Demir-Dagdas, T., Isik-Ercan, Z., Intepe-Tingir, S. & Cava-Tadik, Y. (2018). Parental divorce and children from diverse backgrounds: Multidisciplinary perspectives on mental health, parent-child relationships, and educational experiences. *Journal of Divorce & Remarriage*, 59(6), 469-485. <https://doi.org/10.1080/10502556.2017.1403821>
- Donahey, K. (2018). Effects of divorce on children: The importance of intervention. *Intuition: the BYU Undergraduate Journal in Psychology*, 13(1), 21-33.
- Ellington, A. J. (2003). A meta-analysis of the effects of calculators on students' achievement and attitude levels in precollege mathematics classes. *Journal for Research in Mathematics Education*, 34(5), 433-463. <https://doi.org/10.2307/30034795>
- Elo S., & Kyngäs H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62, 107- 15. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- Erdim, L., & Ergün, A. (2016). Boşanmanın ebeveyn ve çocuk üzerindeki etkileri. *Sağlık Bilimleri ve Meslekleri Dergisi*, 3(1), 78-84. <https://doi.org/10.17681/hsp.13621>
- Ersan, C. (2020). Physical aggression, relational aggression and anger in preschool children: The mediating role of emotion regulation. *The Journal of General Psychology*, 147(1), 18-42. <https://doi.org/10.1080/00221309.2019.1609897>
- Fagan, P. F., & Churchill, A. (2012). The effects of divorce on children. *Marri Research*, 1, 1-48.
- Feyzioğlu, S., & Kuşçuoğlu, C. (2011). Tek ebeveynli aileler. *Aile ve Toplum*, 7(26), 97- 106.
- Flook, L., & Fuligni, A. J. (2008). Family and school spillover in adolescents' daily lives. *Child Development*, 79(3), 776-787. <https://doi.org/10.1111/j.1467-8624.2008.01157.x>
- Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). COVID-19 and remote learning: Experiences of parents with children during the pandemic. *American Journal of Qualitative Research*, 4(3), 45-65. <https://doi.org/10.29333/ajqr/8471>
- Garriga, A., & Pennoni, F. (2020). The causal effects of parental divorce and parental temporary separation on children's cognitive abilities and psychological well-being according to parental relationship quality. *Social Indicators Research*, 1–25. <https://doi.org/10.1007/s11205-020-02428-2>
- Geniş, M., Toker, B., & Şakiroğlu, M. (2019). Boşanmanın çocuklara etkisi, çocuğa söylenmesi ve ebeveyn yabancılaşması derleme çalışması. *Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*, 3(3), 190-199.
- Gentles, S. J., Charles, C., Ploeg, J., & McKibbin, K. A. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report*, 20(11), 1772-1789. <https://doi.org/10.46743/2160-3715/2015.2373>
- Gordon, M. K. (2016). *Phonological typology (Vol. 1)*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199669004.003.0001>
- Greene, S. M., Anderson, E. R., Forgatch, M. S., DeGarmo, D. S., & Hetherington, E. M. (2012). Risk and resilience after divorce. In F. Walsh (Eds.), *Normal family processes: Growing diversity and complexity* (pp. 102–127). The Guilford Press.
- Gülay Ogelman, H., & Akman, B. (2009). *Okul öncesi dönemde sosyal beceriler*. Pegem Akademi.
- Gülmez, Ç., & Karadağ, M. (2020). Ebeveynleri boşanmış çocuklarla ebeveynleri boşanmamış çocukların bazı dini davranışları ve dini motivasyonlarının karşılaştırılması. *Gümüşhane Üniversitesi İlahiyat Fakültesi Dergisi*, 9(18), 163-183.
- Gündüz, A. (2019). *Boşanmanın etkisinin çeşitli değişkenler açısından incelenmesi: Tarsus örneği* [Yayınlanmamış yüksek lisans tezi]. Ömer Halisdemir Üniversitesi.
- Günen, H., & Poyraz, T. (2017). Mardin'de gerçekleştirilen tercihli ve geleneksel evliliklerin nedenleri ve evliliğe karar verme süreci. *Hacettepe Üniversitesi Türkiyat Araştırmaları*, 26, 187-222.
- Güney, E. (2016). *Ebeveynleri boşanmış ve boşanmamış olan lise öğrencilerinin yılmazlık düzeyleri ile algıladıkları sosyal destek düzeyleri arasındaki ilişkinin incelenmesi*



- [Yayınlanmamış yüksek lisans tezi]. Necmettin Erbakan Üniversitesi.
- Güney, E., & Yalçın, S. B. (2020). Ebeveynleri boşanmış ve boşanmamış ergenlerin yılmazlık düzeyleri ile algıladıkları sosyal destek düzeyleri. *Necmettin Erbakan Üniversitesi Ereğli Eğitim Fakültesi Dergisi*, 2(2), 217-229. <https://doi.org/10.51119/creegf.2020.7>
- Güven, N., & Koroğlu, A. (2023). Boşanma Nedenleri ve Boşanma Sonrası Psikososyal Uyum: Trabzon İli Örneği. *Ordu Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Bilimler Araştırmaları Dergisi*, 13(Sosyal Bilimler Lisansüstü Öğrenci Sempozyumu Özel Sayısı), 1-24. <https://doi.org/10.48146/odusbodad.1279194>
- Häggström, F., Borsch, A. S., & Skovdal, M. (2020). Caring alone: The boundaries of teachers' ethics of care for newly arrived immigrant and refugee learners in Denmark. *Children and Youth Services Review*, 117, 105248. <https://doi.org/10.1016/j.chilyouth.2020.105248>
- Hashemi, L., & Homayuni, H. (2017). Emotional divorce: Child's well-being. *Journal of Divorce & Remarriage*, 58(8), 631-644. <https://doi.org/10.1080/10502556.2016.1160483>
- Hetherington, E. M. (2006). The influence of conflict, marital problem solving and parenting on children's adjustment in nondivorced, divorced and remarried families. *Families count: Effects on Child and Adolescent Development*, 203-237. <https://doi.org/10.1017/CBO9780511616259.010>
- Hoelter, L. (2009). Divorce and separation. In D. Carr (Ed.), *Encyclopedia of the life course and human development*. Boston: Gale Cengage.
- Holloway, I. (1997). *Basic concepts for qualitative research*. London: Blackwell Science.
- Huurre, T., Junkkari, H., & Aro, H. (2006). Long-term psychosocial effects of parental divorce: A follow-up study from adolescence to adulthood. *European Archives of Psychiatry and Clinical Neuroscience*, 256, 256-263. <https://doi.org/10.1007/s00406-006-0641-y>
- Iraklis, G. (2021). Children's emotional needs regarding contact with their parents during their placement: Professionals perceptions. *Residential Treatment for Children & Youth*, 38(1), 46-62. <https://doi.org/10.1080/0886571X.2019.1669097>
- İşler, Y. B. (2023). *Boşanmış ve boşanmamış aileye sahip ergenlerin temel psikolojik ihtiyaçlarının karşılanması, başa çıkma ve romantik ilişkilerde sorun çözme becerilerinin incelenmesi* [Yayınlanmamış yüksek lisans tezi]. Hasan Kalyoncu Üniversitesi.
- Jarwan, A. S., & Al-frehat, B. M. (2020). Emotional divorce and its relationship with psychological hardness. *International Journal of Education and Practice*, 8(1), 72-85. <https://doi.org/10.18488/journal.61.2020.81.72.85>
- Joyce, A. N. (2016). High-conflict divorce: A form of child neglect. *Family Court Review*, 54(4), 642-656. <https://doi.org/10.1111/fcre.12249>
- Kabaoğlu, F. (2011). *Anne-babası evli ve boşanma sürecinde olan çocuk ve ergenlerin anne ve babalarından algıladıkları kabul ya da red düzeyleri ile kişilik özellikleri arasındaki ilişki* [Yayınlanmamış yüksek lisans tezi]. Maltepe Üniversitesi.
- Karahan, A. S. (2022). Boşanma sürecinde psikolojik müdahaleler üzerine bir derleme. *AYNA Klinik Psikoloji Dergisi*, 9(1), 88-111. <https://doi.org/10.31682/ayna.943037>
- Karakuş, S. (2003). *Anne babası boşanmış ve boşanmamış çocukların depresyon düzeylerinin incelenmesi ve okul başarısına yansımaları* [Yayınlanmamış yüksek lisans tezi]. Dokuz Eylül Üniversitesi.
- Kasuto, M. (2017). *Boşanmış ailelerin çocuklarının boşanmamış ailelerin çocuklarına göre öz saygı ve ruh sağlığı değişkenlerinin incelenmesi* [Yayınlanmamış yüksek lisans tezi]. Işık Üniversitesi.
- Kaya, F. Ş., & Gündüz, İ. (2019). Anne-babası evli veya boşanmış olan çocukların algıladıkları ebeveyn tutumu ile somatizasyonu belirtirleri arasındaki ilişki. *Gaziantep Üniversitesi Eğitim Bilimleri Dergisi*, 35-56.
- Kelly, J. B. (2000). Children's adjustment in conflicted marriage and divorce: A decade review of research. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39(8), 963-975. <https://doi.org/10.1097/00004583-200008000-00007>
- Kelly, J. B. (2007). Children's living arrangements following separation and divorce. *Family Process*, 46, 35-52. <https://doi.org/10.1111/j.1545-5300.2006.00190.x>
- Kelly, J. B. ve Emery, R., (2003). Children's adjustment following divorce: risk and resilience perspectives. *Family Relations*, 52, 352-362. doi.org/10.1111/j.1741-3729.2003.00352.x
- Kesebir, S., Kavzoğlu, S. Ö., & Üstündağ, M. F. (2011). Bağlanma ve psikopatoloji. *Psikiyatride Güncel Yaklaşımlar*, 3(2), 321-342. <https://doi.org/10.1111/j.1741-3729.2003.00352.x>
- Khun-inkeeree, H., Yaakob, M. F. M., WanHanafi, W., Yusof, M. R., & Omar-Fauzee, M. S. (2021). Working on primary school teachers' preconceptions of organizational climate and job satisfaction. *International Journal of Instruction*, 14(3), 567-582. <https://doi.org/10.29333/iji.2021.14333a>
- Kızıltepe, Z. (2017). Content analysis. *Qualitative research: Method, technique, analysis and approaches*, 253-266.
- King, A. E., McQuarrie, F. A., & Brigham, S. M. (2021). Exploring the relationship between student success and participation in extracurricular activities. *SCHOLE: A Journal of Leisure Studies and Recreation Education*, 36(1-2), 42-58. <https://doi.org/10.1080/1937156X.2020.1760751>
- Kocabıyık, O. O. (2015). Olgubilim ve gömülü kuram: bazı özellikler açısından karşılaştırma. *Trakya Üniversitesi Eğitim Fakültesi Dergisi*, 6(1), 55-66.
- Korkmaz, Y.(2022). *Sosyal hizmet bilim dalı boşanma sürecinin öğrenci üzerindeki etkilerinin okul sosyal hizmeti temelinde değerlendirilmesi* [Yayınlanmamış doktora tezi]. İstanbul Sabahattin Zaim Üniversitesi.
- Kucur, F., & Kelebek, Ö. (2021, September). Boşanmış kadınların boşanma aşaması, süreci ve sonrasında yaşadıkları zorluklar: Esenler SHM örneği. *In Journal of Social Policy Conferences*, 80, 231-266. İstanbul University. <https://doi.org/10.26650/jspc.2021.80.0329>
- Kurt, T. (2013). *Ebeveynleri boşanmış ergenlerin yılmazlık, benlik saygısı, başa çıkma ve psikolojik belirtiler arasındaki ilişkinin incelenmesi: yılmazlığın aracı rolü*. [Yayınlanmamış yüksek lisans tezi]. Gazi Üniversitesi.
- Laletas, S., & Khasin, M. (2021). Children of high conflict divorce: Exploring the experiences of primary school teachers. *Children and Youth Services Review*, 12, 106072. <https://doi.org/10.1016/j.chilyouth.2021.106072>
- Laletas, S., Reupert, A., & Goodyear, M. (2017). "What do we do? This is not our area". Child care providers' experiences

- when working with families and preschool children living with parental mental illness. *Children and Youth Services Review*, 74, 71-79.  
<https://doi.org/10.1016/j.childyouth.2017.01.024>
- Laletas, S., Reupert, A., & Goodyear, M. (2022). Exploring the experiences of preschool teachers working with children living with parental mental illness. *Early Childhood Education Journal*, 50(1), 33-47.  
<https://doi.org/10.1007/s10643-020-01131-8>
- Lansford, J. E. (2009). Parental divorce and children's adjustment. *Perspectives on Psychological Science*, 4(2), 140-152.  
<https://doi.org/10.1111/j.1745-6924.2009.01114.x>
- Lebow, J. L. (2019). Current issues in the practice of integrative couple and family therapy. *Family Process*, 58(3), 610-628.  
<https://doi.org/10.1111/famp.12473>
- Lebow, J. L. (2020). The challenges of COVID-19 for divorcing and post-divorce families. *Family process*, 59(3), 967-973. <https://doi.org/10.1111/famp.12574>
- Lucas, N., Nicholson, J. M., & Erbas, B. (2013). Child mental health after parental separation: The impact of resident/non-resident parenting, parent mental health, conflict and socioeconomics. *Journal of Family Studies*, 19(1), 53-69.  
<https://doi.org/10.5172/jfs.2013.19.1.53>
- Lukefahr, A. (2019). *A Study of Kindergarten through Eighth-Grade Teachers' Perceptions of the Impact Gender Plays on Students Involved in Divorce* (Doctoral dissertation). Lindenwood University.
- Mahony, L. (2013). *Erken çocukluk öğretmenlerinin pedagojik uygulamaları: Ebeveyn ayrılığı ve boşanma yaşayan küçük çocuklarla bildikleri, düşündükleri ve yaptıkları* [Yayınlanmamış doktora tezi]. Queensland Teknoloji Üniversitesi.
- Mahony, L., Walsh, K., Lunn, J., & Petriwskyj, A. (2015). Teachers facilitating support for young children experiencing parental separation and divorce. *Journal of Child and Family Studies*, 24, 2841-2852.  
<https://doi.org/10.1007/s10826-014-0088-0>
- Mahrer, N. E., O'Hara, K. L., Sandler, I. N., & Wolchik, S. A. (2018). Does shared parenting help or hurt children in high-conflict divorced families?. *Journal of Divorce & Remarriage*, 59(4), 324-347.  
<https://doi.org/10.1080/10502556.2018.1454200>
- Makenzie, M. (2021). Roman Espejo: Divorce and children. *Journal of Youth and Adolescence*, 50(3), 583-586. <https://doi.org/10.1007/s10964-020-01359-y>
- Martin, M., A. (2012). Family structure and the intergenerational transmission of educational advantage. *Social Science Research*, 41(1), 33-47.  
<https://doi.org/10.1016/j.ssresearch.2011.07.005>
- Masarik, A. S., & Conger, R. D. (2017). Stress and child development: A review of the Family Stress Model. *Current Opinion in Psychology*, 13, 85-90.  
<https://doi.org/10.1016/j.copsy.2016.05.008>
- Maxwell, J. A. (2012). *A realist approach for qualitative research*. Sage.
- MEB. (2015). *Çocuğa yönelik şiddetin önlenmesi teknik destek projesi: revize erken uyarı uygulamaları* (Faaliyet 1.2.4). Ankara: Proje ofisi.
- Merriam, S. B. (2013). *Nitel araştırma desen ve uygulama için bir rehber*. (Çev. Ed.Selahattin Turan). Ankara: Nobel Yayınevi.
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage.
- Moldes, V. M., Biton, C. L., Gonzaga, D. J., & Moneva, J. C. (2019). Students, peer pressure and their academic performance in school. *International Journal of Scientific and Research Publications*, 9(1), 300-312.  
<https://doi.org/10.29322/IJSRP.9.01.2019.p8541>
- Nazlı, S., Halisdemir, D., Gülleroğlu, H. D., & Kiye, S. (2021). Yetişkin boşanmaya uyum ölçeği'nin geliştirilmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, (57), 336-361.
- Nock, M. K. (2010). Self-injury. *Annual review of Clinical Psychology*, 6, 339-363.  
<https://doi.org/10.1146/annurev.clinpsy.121208.131258>
- Nock, S. L. (2000). The divorce of marriage and parenthood. *Journal of Family Therapy*, 22(3), 245-263.
- Noddings, N. (2015). *The challenge to care in schools*, 2nd Editon. teachers college press.
- Noy C. (2008). Sampling knowledge: The hermeneutics of snowball sampling in qualitative research. *International Journal of Social Research Methodology*, 11(4), 327-44.  
<https://doi.org/10.1111/1467-6427.00150>
- Ogunode, N. J., & Edet, I. N. (2023). Students' Academic performance in schools. *American Journal of Public Diplomacy and International Studies* (2993-2157), 1(8), 112-122.
- Ögel, K., Tari, I., & Eke, C. Y. (2006). *Okullarda suç ve şiddeti önleme*. İstanbul: Yeniden Yayınları, 17, 9-23.
- Öngider, N. (2006). *Evlü ve boşanmış ailelerde algılanan ebeveyn kabul veya reddinin çocuğun psikolojik uyumu üzerindeki etkileri* [Yayınlanmamış doktora tezi]. Ege Üniversitesi.
- Özçelik, F. N. P. (2020). 6-10 yaş aralığındaki çocukların sosyal beceri gelişim düzeyleri ile anne baba tutumları arasındaki ilişkinin incelenmesi. *Ulakbilge Sosyal Bilimler Dergisi*, 8(46), 365-379.
- Öztop, H., Bıçakçı, M., Soylu, N., Oğurtan, S. G., Nadir, U., Taşoluk, E., . . . Tok, S. (2018). *ek Ebeveynli Aileler*, 1. Baskı. Ankara: Aile Çalışma ve Sosyal Politikalar Bakanlığı Aile Eğitim Programı.
- Öztürk, S. (2006). *Anne babası boşanmış 9 – 13 yaşlarındaki çocuklar ile aynı yaş grubundaki anne babası boşanmamış çocukların benlik saygısı ve kaygı düzeyleri ilişkisi* [Yayınlanmamış yüksek lisans tezi]. Dokuz Eylül Üniversitesi.
- Patton, M. Q. (2015). *Nitel araştırma ve değerlendirme yöntemleri*. (çev. M. Bütün ve S. B. Demir) Ankara: Pegem Akademi.
- Pirtik, Ş. (2013). *Boşanmış ve tam aileden gelen okul öncesi çocukların sosyal beceri ve akran tepkilerinin karşılaştırmalı olarak incelenmesi* [Yayınlanmamış yüksek lisans tezi]. Selçuk Üniversitesi.
- Polak, S., & Saini, M. (2019). The complexity of families involved in high-conflict disputes: A postseparation ecological transactional framework. *Journal of Divorce & Remarriage*, 60(2), 117-140.  
<https://doi.org/10.1080/10502556.2018.1488114>
- Prasso, S. (2020). China's divorce spike is a warning to rest of locked-down world. *Bloomberg Businessweek*, 31.
- Riggio, H. R. (2001). Relations between parental divorce and the quality of adults iblin grelationships. *Journal of Divorce & Remarriage*, 36(1-2), 67-82.

- [https://doi.org/10.1300/J087v36n01\\_04](https://doi.org/10.1300/J087v36n01_04)
- Riggio, H. R. (2004). Parental marital conflict and divorce, parent-child relationships, social support, and relationship anxiety in young adulthood. *Personal Relationships, Eroğlu ve Topkaya Türk Psikolojik Danışma ve Rehberlik Dergisi*, 11(1), 99–114.
- Riggio, H. R. ve Valenzuela, A. M. (2011). Parental marital conflict and divorce, parent-child relationships, and social support among Latino-American young adults. *Personal Relationships*, 18(3), 392–409. <https://doi.org/10.1111/j.1475-6811.2010.01305.x>
- Sadeghzadeh, Z., Ghodssi-Ghassemabad, R., Hamdih, M., Shariatpanahi, S., Babazadeh, F., Abdoli, M., & Samadaee Gelekholaee, K. (2023). The assessment of the related factors of emotional divorce among Iranian people during the Covid-19 pandemic: a descriptive study. *BMC Psychology*, 11(1), 360. <https://doi.org/10.1186/s40359-023-01395-w>
- Sağlam, M. (2011). *Boşanma sürecinde olan ailelerdeki çocukların aile algılarının ve sorunlarının resimler aracılığı ile incelenmesi* [Yayınlanmamış lisans tezi]. Ankara Üniversitesi.
- Sancaklı, D. (2014). *Boşanmış annelerin ve çocuklarının boşanma sürecinde ilişkin yaşantıları* [Yayınlanmamış yüksek lisans tezi]. Maltepe Üniversitesi.
- Sayar, K. (2021). Parçalanmış Ailelerde ve Çocuklarında Görülen Problemler. *kemalsayar.com/insanadair/parcalanmis-ailelerde-ve-cocuklarinda-gorulen-problemler*.
- Seijo, D., Fariña, F., Corras, T., Novo, M., & Arce, R. (2016). Estimating the epidemiology and quantifying the damages of parental separation in children and adolescents. *Frontiers in Psychology*, 7, 1611. <https://doi.org/10.3389/fpsyg.2016.01611>
- Semra, M. E. T. (2023). The effect of the fitted family status on the child's school success. *Route Educational & Social Science Journal*, 10 (1), 53-72
- Shek, D. T., & Wu, F. K. (2016). The influence of positive youth development and family functioning on adolescent academic adjustment in families with parental divorce or separation. *International Journal on Disability and Human Development*, 15(4), 443-453. <https://doi.org/10.1515/ijdh-2017-5011>
- Sigal, A., Sandler, I., Wolchik, S., & Braver, S. (2011). Do parent education programs promote healthy postdivorce parenting? Critical distinctions and a review of the evidence. *Family Court Review*, 49(1), 120-139. <https://doi.org/10.1111/j.1744-1617.2010.01357.x>
- Sorek, Y. (2019). Children of divorce evaluate their quality of life: The moderating effect of psychological processes. *Children and Youth Services Review*, 107, 104533. <https://doi.org/10.1016/j.childyouth.2019.104533>
- Spremo, M. (2020). Children and divorce. *Psychiatria Danubina*, 32(3), 353-359.
- Stacey, R., And McCabe, M.P. (2001). Parental divorce during adolescent adjustment in early adulthood. *Adolescence*, 36, 467-489.
- Stallman, H. M., & Ohan, J. L. (2016). Parenting style, parental adjustment, and co-parental conflict: Differential predictors of child psychosocial adjustment following divorce. *Behaviour Change*, 33(2), 112-126. <https://doi.org/10.1017/bec.2016.7>
- Størksen, I., Røysamb, E., Moum, T., & Tambs, K. (2005). Adolescents with a childhood experience of parental divorce: A longitudinal study of mental health and adjustment. *Journal of Adolescence*, 28(6), 725–739. <https://doi.org/10.1016/j.adolescence.2005.01.001>
- Sun Y, Li Y. (2011). Effects of family structure type and stability on children's academic performance trajectories. *Journal of Marriage and Family*, 73, 541–556. <https://doi.org/10.1111/j.1741-3737.2011.00825.x>
- Şirvanlı Özen, D. (1998). *Eşler arası çatışma ve boşanmanın farklı yaş ve cinsiyetteki çocukların davranış ve uyum problemleri ile algıladıkları sosyal destek üzerindeki rolü* [Yayınlanmamış doktora tezi]. Hacettepe Üniversitesi.
- Tahiroviç , S., & Demir, G. (2018). *Influence of parental divorce on anxiety level of adolescents*. Nicola Yelland (Ed.). Contemporary Perspective on Child Psychology and Education, 85-101. <https://doi.org/10.5772/intechopen.71287>
- Tanrıverdi, D., & Özgüç, S. (2019). Parçalanmış ve tam aileye sahip çocukların/ergenlerin şiddete yönelik tutumları ve saldırganlık davranışlarının karşılaştırılması. *Psikiyatri Hemşireliği Dergisi*, 10(3), 165-172.
- Taş, B. (2018). Parental divorce and the importance of fathers' roles in children's lives. *Academic Studies In Educational Sciences*.
- Tatlıoğlu, K. ve Demirel, N. (2016). Sosyal bir gerçeklik olarak boşanma olgusu: Sosyal psikolojik bir değerlendirme. *Akademik Sosyal Araştırmalar Dergisi*, 4(22), 59-73. <https://doi.org/10.16992/ASOS.987>
- Tebeka, S., Hoertel, N., Dubertret, C., & Le Strat, Y. (2016). Parental divorce or death during childhood and adolescence and its association with mental health. *The Journal of Nervous and Mental Disease*, 204(9), 678-685. <https://doi.org/10.1097/NMD.0000000000000549>
- Tebeka, S., Hoertel, N., Dubertret, C., & Le Strat, Y. (2016). Parental divorce or death during childhood and adolescence and its association with mental health. *The Journal of Nervous and Mental Disease*, 204(9), 678-685. <https://doi.org/10.1097/NMD.0000000000000549>
- Tolan, Ö. Ç. (2023). Boşanma ve Etkileri: Çocuklar ve ergenler üzerindeki psikolojik sonuçları. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (50), 321-338. <https://doi.org/10.52642/susbed.1221560>
- Treloar, R. (2018). High-conflict divorce involving children: Parents' meaning-making and agency. *Journal of Social Welfare and Family Law*, 40(3), 340-361. <https://doi.org/10.1080/09649069.2018.1493652>
- Turgut, S. İ. (2021). *Boşanmış ailelerin 13-17 yaş grubu çocuklarında ebeveyne yabancılaşma sendromunun depresyon düzeyine etkisinin incelenmesi* [Yayınlanmamış yüksek lisans tezi]. Hacettepe Üniversitesi.
- Turğut, M. (Ed.). (2015). *Türkiye boşanma nedenleri araştırması: TBNA 2014. TC Aile ve Sosyal Politikalar Bakanlığı*.
- Tuzun, H. (2004). *Motivating learners in educational computer games*. Indiana University.
- TÜİK (2020) Evlenme ve boşanma istatistikleri. <https://tuikweb.tuik.gov.tr/PreHaberBultenleri.do?id=37211>. (Accessed 03.12.2023).
- TÜİK (2023) <https://data.tuik.gov.tr/Bulten/Index?p=Evlenme-ve-Bosanma-Istatistikleri-2022-49437>. Erişim Haziran 2023.
- Türkarşlan, N. (2007). Boşanmanın çocuklar üzerine olumsuz etkileri ve bunlarla başetme yolları. *Sosyal Politika Çalışmaları Dergisi*, 11(11), 99-108.



- Uzun, Ç. (2013). *Anne-babası boşanmış ve boşanmamış çocuklarda depresyon ve sosyal becerilerin değerlendirilmesi* [Yayınlanmamış yüksek lisans tezi]. İstanbul Arel Üniversitesi.
- Üzbe, N., & Bacanlı, H. (2015). Başarı hedef yönelimi, benlik saygısı ve akademik başarının kendini engellemeyi yordamadaki rolü. *Türk Eğitim Bilimleri Dergisi*, 13(1), 33-50.
- Van der Wal, R. C., Finkenauer, C., & Visser, M. M. (2019). Reconciling mixed findings on children's adjustment following high-conflict divorce [Divorce & Remarriage 2953]. *Journal of Child and Family Studies*, 28(2), 468–478. <https://doi.org/10.1007/s10826-018-1277-z>
- Veas, A., Castejón, J. L., Gilar, R., & Miñano, P. (2015). Academic achievement in early adolescence: The influence of cognitive and non-cognitive variables. *The Journal of General Psychology*, 142(4), 273-294. <https://doi.org/10.1080/00221309.2015.1092940>
- Veas, A., Castejón, J. L., Miñano, P., & Gilar-Corbí, R. (2019). Actitudes en la adolescencia inicial y rendimiento académico: el rol mediacional del autoconcepto académico. *Revista de Psicodidáctica*, 24(1), 71-77. <https://doi.org/10.1016/j.psicod.2018.11.001>
- Velasquez, A., West, R., Graham, C., & Osguthorpe, R. (2013). Developing caring relationships in schools: A review of the research on caring and nurturing pedagogies. *Review of Education*, 1(2), 162-190. <https://doi.org/10.1002/rev3.3014>
- Wallerstein, J. S., Lewis, J., & Blakeslee, S. (2000). *The unexpected legacy of divorce: A 25 year landmark study*. New York: Hyperion.
- Warren, C. A. B. (2002). Qualitative interviewing. In J. F. Gubrium & J. A. Holstein (Eds.), *Handbook of interview research: Context and method* (pp. 83–102). Thousand Oaks, CA: Sage.
- Weiss, R. S. (1994). *Learning from strangers: The art of method of qualitative interview studies*. New York: Free Press.
- Wolf, S. (2004). *Problem Çocuklar*, Çev. A. Oral ve S. Kara, (6. Baskı), Say Yayınları, İstanbul.
- Wolfinger, N. H. (2000). Beyond the intergenerational transmission of divorce: Do people replicate the patterns of marital instability they grew up with?. *Journal of Family Issues*, 21(8), 1061-1086. <https://doi.org/10.1177/019251300021008006>
- Wolfinger, N. H. (2005). *Understanding the divorce cycle: The children of divorce in their own marriages*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511499616>
- Yalvaç, M. (2000). *Aile sosyolojisi: İlk el toplumdan modern topluma aile*. Evin Ofset Matbaacılık.
- Yılmaz, N.D. (2011). *Çatışma yaşayan ve boşanmış ailelerin ilköğretim çağındaki 7-12 yaş çocuklarının benlik algıları ve kaygı düzeyleri açısından çatışma yaşamayan ailelerin çocukları ile karşılaştırılması* [Yayınlanmamış yüksek lisans tezi]. Maltepe Üniversitesi.
- Yıldırım, A., & Şimşek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seckin.

## Extended Summary

### Introduction

In recent years, the institution of the family has been questioned and faced with new challenges due to changing social conditions, especially extraordinary situations such as COVID-19 (Lebow, 2020; Prasso, 2020). In particular, the COVID-19 pandemic has brought a huge wave of stress to family life, increasing the likelihood of divorce (Prasso, 2020). This pandemic, combined with other stress factors such as unemployment, increased responsibilities, and fear of losing loved ones, strained family cohesion (Greene et al., 2012; Lebow, 2019). It has been determined that children are the most affected group in this process where family integrity is disrupted (TUIK, 2023).

It has been demonstrated that the negative effects of divorce persist in children and their children, and they carry a long-lasting and traumatic burden years after divorce, especially in terms of psychological well-being and social relationships (Amato, 2000, 2014; Amato & Cheadle, 2005; Dohaney, 2018; Hetherington, 2006; Korkmaz, 2022; Sancaklı, 2014; Tatlıoğlu & Demirel, 2016; Stallman & Ohan, 2016; Wolfinger, 2000, 2005). Teachers are key influencers in a child's mesosystem, and as such, they can help children develop emotional skills and social functioning by teaching them healthy ways to cope with adversity (Chiappetta, 2019).

As a result, teachers also have a responsibility after the divorce process. A number of studies in the literature aiming to understand the needs of children of divorced families have emphasized that teachers play an important role in facilitating the positive adaptation of children separated or divorced from their parents (Angelo, 2018; Lukefahr, 2019; Mahony et al., 2015). In this context, it is accepted that primary school teachers, who spend a long time with their students at school and manage the general education process, play an important role in helping students acquire social skills, care about individual differences, and play a key role in supporting and guiding students' emotional well-being (Angelo, 2018; Laletaş & Khasin, 2021; Lukefahr, 2019; Mahony, 2015). Accordingly, this study was conducted to determine the effects of parental divorce on children through the views of primary school teachers. For this purpose, answers to the following research questions are sought:

1. What are the differences in the classroom behavior of students whose parents are divorced?
2. What are the effects of parental divorce on students' academic performance?
3. What are the effects of parental divorce on students' social relationships?
4. Are the support programs implemented at school for students whose parents are divorced appropriate?
5. What support and resources can be useful for students whose parents are divorced?

### Method

This study was conducted with a case study design, one of the qualitative research methods. Qualitative research provides an in-depth understanding by focusing on how individuals make sense of and interpret their experiences (Holloway, 1997). In order to obtain detailed information in the study, the phenomenological design (phenomenology), one of the qualitative research methods, was used to collect and analyze the data (Holloway, 1997; Patton, 2015). The phenomenological design is an inquiry strategy that aims to

reveal human experiences by examining the phenomena that exist in daily life but are not generally known in detail (Creswell, 2013; Merriam, 2018; Yıldırım & Şimşek, 2008).

The study group consisted of twenty-eight primary school teachers (19 female and 9 male) working in primary schools in a city in Turkey in the 2023–2024 academic year (Table 1). In this study, participants were determined by the purposive sampling method. Purposive sampling is a technique commonly used in qualitative research to identify and select information-rich cases for the most effective use of limited resources. This sampling method involves identifying and selecting individuals or groups who are knowledgeable and experienced in the topic of interest (Gentles et al., 2015). Primary school teachers were chosen as the appropriate study group because they directly experience daily life with children and have more contact with children than other professionals. Participants were selected using purposive sampling and a snowball sampling process in which participants referred other potential participants (Warren 2002; Weiss 1994). In this method, a reference person related to the subject of the study is selected, and other people are reached through this person (Biernacki & Waldorf, 1981).

In this study, the opinions of primary school teachers on the effects of the divorce process on children were described through content analysis. Researchers collected data through individual interviews. The main purpose of the study was to understand teachers' opinions about the effects of divorce on children and to analyze the data coded based on the research questions through content analysis (Merriam & Tisdell, 2015).

The data were collected through semi-structured interview forms prepared by the researcher. These forms were used because they provide space and flexibility for original and unexpected problems to emerge. The interviews, which lasted an average of 30–35 minutes, were conducted by the researcher and recorded on voice recorders.

### Conclusion and Discussion

This study was conducted to determine the effects of parental divorce on children through the opinions of primary school teachers. Within the scope of the study, themes, subcategories, and codes belonging to these themes were determined.

According to the research findings, five main themes were identified: differences in the classroom behavior of students with divorced parents, the impact of parental divorce on students' academic performance, the impact of parental divorce on students' social relationships, support programs implemented at school for students with divorced parents, and support and resources that can be useful for students with divorced parents. The results of the research show that students are negatively affected by their parents' divorce process in social, behavioral, economic and psychological aspects.

According to the research results, in the theme of differences in the classroom behavior of students with divorced families, the subcategories of decreased achievement and distraction were identified in the category of academic problems. In the category of emotional problems, the subcategory of communication problems was identified. The researcher identified the subcategory of discipline problems as a subcategory within the behavioral problems category. In parallel with the studies in the literature, the findings show that children whose parents are divorced have various negative behaviors such as decreased academic achievement, increased distraction, increased discipline problems, and more reluctance to communicate. In parallel with the studies in the



literature, the findings show that children whose parents are divorced show various negative behaviors such as decreased academic achievement, increased distraction, increased discipline problems, and more reluctance to communicate (Amato, 2000; Amato & Cheadle, 2005; Aral & Gürsoy, 2000; Aysan & Uzbaş, 2004; Bacanlı 2002; Baysal, 2003; Büyükaşahin, 2009; Dohaney, 2018; Geniş et al., 2019; Hoelter, 2009; Huurre et al., 2006; Kabaoğlu, 2011; Kelly, 2007; Kelly & Emery, 2003; Korkmaz, 2022; Mahrer et al., 2018; Nock, 2000; Wolf, 2004). In children whose parents are divorced, various negative behaviors such as decreased academic achievement, increased attention problems, increased discipline problems, and a lack of communication negatively affect children's general development and learning processes.

Based on research findings, it has been determined that children whose parents are divorced experience a decrease in their academic performance (Alkan, 2014; Altuntaş, 2012; Bilici, 2018; Hashemi & Homayuni, 2017; Korkmaz, 2022; Lületaş & Khasin, 2021; Seijo et al., 2016; Sun & Li, 2011). There is a significant inverse relationship between family breakdown and children's academic achievement (Alkan, 2014). One of the reasons underlying this situation is the increase in students' responsibilities within the family as a result of divorce (Güven & Köroğlu, 2023). In particular, divorce may increase the responsibilities of the child if the parent with whom the child stays cannot adequately meet the needs of the child. In some cases, the child may need to support other family members in addition to their own needs (Korkmaz, 2022). This may cause the child to take on too many responsibilities at an early age and try to fulfill them. As a result, the child may come to school angry, confused, upset, and unfocused, which may lead to a decrease in motivation and difficulty focusing on lessons (Bilici, 2018; Korkmaz, 2022).

In the theme of the effects of divorced families on children's social relations, two categories emerged: emotional effects and economic effects. In the category of emotional-social effects, the subcategories of withdrawal, feeling excluded from the circle of friends, and an increase in aggressive behaviors were formed. In the economic effects category, the subcategory of distancing from friends emerged. Research findings show that the divorce process affects children most negatively (Geniş et al., 2019; Korkmaz, 2022; Tuzun, 2004; Uzun, 2013). In support of the research findings, losing a secure bond with the family as a result of divorce can cause children to experience increased levels of depression and anxiety (İşler, 2023), feelings of shame (Cebeci & Ceylan, 2009), and emotional difficulties (Afifi et al., 2009; Bloch et al., 2007; Huurre et al., 2006; Kaya & Gündüz, 2019; Tebeka et al., 2016). These difficulties may cause children to experience social difficulties (Sancaklı, 2014; Tatlıoğlu & Demirel, 2016), withdraw themselves emotionally (Cebeci & Ceylan, 2009), deteriorate their friendship relationships (Cebeci & Ceylan, 2009), and have a tendency to withdraw (Atabey, 2017; Kasuto, 2017). At the same time, children feel excluded after divorce (Wallerstein et al., 2000), and this situation has a negative impact on their social relationships. Research findings indicate that aggressive behaviors increase in children in divorced families. This may be due to the antisocial and aggressive behaviors that parents in the divorce process model for children (Bandura, 1989).

The study examined support programs implemented at school for children of divorced families under the category of counseling. According to the findings, it was determined that teachers had both positive and negative opinions about the

adequacy of the support programs applied to students during this process. It is emphasized that teachers, school counselors, and other school stakeholders in the school should play an active role in supporting students in order to ensure the adaptation of children affected by the divorce process at school and to support their academic success. To best support the adjustment of elementary school students affected by divorce, it is important to maintain open lines of communication with both parents, support parents and children, and strengthen communication (King et al., 2021).

In the theme of support and resources that may be useful for children of divorced parents, emotional-social support and academic support categories were identified. In the emotional support category, the subcategories of guidance service and school-teacher-family cooperation were formed; in the academic support category, the subcategories of peer help and cooperation between teachers were formed.

The divorce process has negative psychological, social, and economic effects on family members (Tatlıoğlu & Demirel, 2016). For this reason, it is necessary to provide support for family members to adapt to the new order. In all the processes of divorce, it was found that children generally concealed their parents' divorce from their school and friend circles. However, some children share this situation with their trusted teachers and friends (Korkmaz, 2022). In this context, teachers' views supporting the focus of teachers' actions on facilitating emotional support are supported by previous studies (Cottongim 2002; Ellington 2003; King et al., 2021) and emphasize the important role of caring teachers and supportive schools. In the research findings, it was pointed out that guidance counselors should counsel students whose parents are divorced, and classroom teachers should play an active role in referring children and their parents to their colleagues for counseling (Cottongim, 2002; King et al., 2021). Psychological counseling programs are available for children from divorced families. Research also shows that academic achievement decreases in children from divorced families (Geniş et al., 2019; Korkmaz, 2022). This is associated with the fact that children lose a reliable source of support with the divorce of their parents, which increases their feelings of loneliness and abandonment (Spremo, 2020). According to the research findings, cooperation between teachers and help from peers can be beneficial for students in terms of declining academic achievement. Caring for students, which is the central feature of an effective teacher, plays a critical role in reducing the negativity in the academic achievement of children from divorced families (Noddings, 2015; Velasquez et al., 2013). At this point, support can be provided, especially through methods such as peer support, organizing additional activities, and allocating additional time (Veas et al., 2015). Teachers can create a supportive environment by encouraging students to establish positive relationships with other teachers and friends (Cottongim, 2002; Ellington, 2003; King et al., 2021).

In general, the findings of the study show that children are negatively affected by the divorce process in many aspects, including social, behavioral, and psychological. Based on the findings, primary school teachers should guide the development of support and resources that schools can provide for children from divorced families.

### **Author Contributions**

The author declares that no other author has contributed to the study and that he has read and approved the final version of the study.

### **Ethical Declaration**

In this article, journal writing rules, publication principles, research and publication ethics rules and journal ethics rules were followed. The responsibility for any violation that may arise regarding the article belongs to the author. Within the scope of the research, ethics committee permission was obtained with Fırat University Social and Human Sciences Scientific Research and Publication Ethics Committee evaluation decision date=18.01.2024, ethics evaluation document number=21728.

### **Conflict of Interest**

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

**Analysing Science Textbooks in Terms of Inquiry Levels of Activities and The Nature of Scientific Inquiry****Etkinliklerin Sorgulama Düzeyleri ve Bilimsel Sorgulamanın Doğası Açısından Fen Ders Kitaplarının İncelenmesi**Eda Erdaş Kartal<sup>1</sup>  Yasemin Karabaş<sup>2</sup>  Eda Nur Kaya<sup>3</sup>  Samet Hartamacı<sup>4</sup> <sup>1</sup> Assist. Prof., Kastamonu University/Educational Faculty/Department of Educational Science Kastamonu Türkiye<sup>2</sup> Teacher, Kastamonu University/Educational Faculty/Department of Educational Science Kastamonu Türkiye<sup>3</sup> Teacher, Kastamonu University/Educational Faculty/Department of Educational Science Kastamonu Türkiye<sup>4</sup> Teacher, Kastamonu University/Educational Faculty/Department of Educational Science Kastamonu Türkiye**Makale Bilgileri**Geliş Tarihi (Received Date)

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**\*Sorumlu Yazar**

Eda Erdaş Kartal

Department of Educational

Science, Education Faculty,

Kastamonu University, Türkiye

erdaseda@gmail.com

**Abstract:** Textbooks are one of the main elements determining student experiences during science classes. The importance of textbooks in gaining the knowledge (nature of scientific inquiry) and the skills needed in scientific inquiry (SI) cannot be denied. This research aims to analyze science textbooks in terms of inquiry levels of activities and the nature of scientific inquiry (NOSI). Document analysis was used as the research method. A descriptive analysis technique is used to analyze the data. The textbooks were analyzed regarding the level of inclusion of NOSI themes using a framework developed by the researchers. The inquiry levels of the activities, which are thought to be inquiry activities, were determined according to the classification suggested by Rezba et al. (1999). It is found that some of the NOSI aspects are not included in the textbooks. Some expressions were found in textbooks that may cause misconceptions in students. It is concluded that the activities considered scientific inquiry are mainly at the confirmation level and the structured level.

**Keywords:** Document analysis, nature of scientific inquiry, inquiry levels, science textbooks

**Öz:** Ders kitapları fen derslerinde öğrenci deneyimlerini belirleyen temel unsurlardan biridir. Bilimsel sorgulamada ihtiyaç duyulan bilgi (bilimsel sorgulamanın doğası) ve becerilerin kazandırılmasında ders kitaplarının önemi yadsınamaz. Bu araştırma, fen bilimleri ders kitaplarını etkinliklerin sorgulama düzeyleri ve bilimsel araştırmanın doğası açısından incelemeyi amaçlamaktadır. Araştırma yöntemi olarak doküman incelemesi kullanılmıştır. Verilerin analizinde betimsel analiz tekniği kullanılmıştır. Ders kitapları, araştırmacılar tarafından geliştirilen çerçeve kullanılarak NOSI temalarının dâhil edilme düzeyi açısından analiz edilmiştir. Sorgulama etkinliği olduğu düşünülen etkinliklerin sorgulama düzeyleri Rezba ve diğerleri (1999) tarafından önerilen sınıflandırmaya göre belirlenmiştir. Bilimsel araştırmanın doğasına ilişkin bazı hususların ders kitaplarında yer almadığı tespit edilmiştir. Ders kitaplarında öğrencilerde kavram yanlışlığına sebep olabilecek bazı ifadeler rastlanmıştır. Bilimsel araştırma olarak değerlendirilen etkinliklerin ağırlıklı olarak doğrulama ve yapılandırılmış düzeyde olduğu sonucuna varılmıştır.

**Anahtar Kelimeler:** Döküman analizi, bilimsel sorgulamanın doğası, sorgulama düzeyleri, fen ders kitapları

Erdaş Kartal, E., Karabaş, Y., Kaya, E. N. & Hartamacı, S. (2024). Analysing science textbooks in terms of inquiry levels of activities and the nature of scientific inquiry. *Erzincan University Journal of Education Faculty*, 26(2), 250-262 <https://doi.org/10.17556/erziefd.1388445>

**Introduction**

In the information age and economic competition environment, citizens are greatly affected by today's employment problem and cannot make informed decisions on many issues on which there is no consensus. Individuals benefit from new business opportunities based on innovation, not being open to pseudo-scientific views, their ability to make informed decisions on issues such as diet, smoking, vaccination, screening programs, and safety at home and at work depends on their scientific literacy (Laugksch, 2000; Thomas & Durant, 1987; Walberg, 1983).

Scientific literacy represents the information general people need to know about science (Durant, 1993), it requires to appreciate the nature of science and its aims and general limits and understand more (Jenkins, 1994). Scientific literacy, an internationally well-known educational slogan, buzzword, catchphrase, and contemporary education goal, means everyone should have a helpful idea about science and its role in society. The term is generally accepted to be synonymous with 'science conception of public' and is mainly used in this way in England. As the 'scientific literacy' term is used in the United States of America, the 'La Culture Scientifique (scientific culture)' is used in France (Durant, 1993). Literacy in science and scientific literacy terms can be confused.

Literacy in science and scientific literacy are not the same, though they are interconnected. Literacy in science refers to literacy strategies and practices that enable people to understand, synthesize, and communicate science content knowledge through viewing, reading, writing, listening, and speaking practices used to obtain, understand, and transfer scientific knowledge. Scientific literacy refers to individuals understanding the scientific terms, phenomena, and processes and using this knowledge in nonscientific cases from time to time (OECD, 2018).

Scientific literacy is closely related to the welfare of a country. National prosperity depends on competing in international markets accomplished in one aspect (Laugksch, 2000; Walberg, 1983). Global competitiveness is to produce the technologies to maintain this competition and rely on a complex national research and development program to take advantage of minor markets (Laugksch, 2000). Access to scientists, engineers, and technically educated staff forms the basis of such a research and development program. Only the nations whose citizens have scientific literacy at the proper level can maintain this supply (Walberg, 1983). In this context, the science education offered in schools must raise scientifically literate individuals to meet this need. With the rising importance of scientific literacy, the primary vision of many science curricula, including our country, Türkiye, is

determined to raise science literate individuals ([Western Australia] Curriculum Council, 1998; National Research Council [NRC], 2012; Ministry of National Education [MoNE], 2018).

Scientifically literate individuals are the ones who possess scientific knowledge and understand the nature of scientific knowledge and how this knowledge is produced. They have positive attitudes and values about science and technology and realize how science-technology society affects each other. Scientifically literate individuals also use this knowledge and awareness to solve the problems faced in daily life (NRC, 1996). An individual's understanding of how scientific knowledge is produced refers to scientific inquiry (SI) procedures and having knowledge and skills about the characteristics of these procedures. Researchers have a consensus that SI is one of the essential components of scientific literacy (Flick & Lederman, 2006; Lederman et al., 2014). With the revision carried out in 2018, two special aims were added to the Turkish Science Curriculum to raise science-literate individuals. These are 'exploring nature and understanding the human-environment relationship, adopting scientific process skills and scientific research approach, and problems encountered in these areas in the process of solving' and 'helping to understand how scientists produce scientific knowledge, the procedures of the generated knowledge and how it is used in new research'. As seen from these special objectives, the usage of SI and understanding the nature of scientific inquiry (NOSI) are emphasized separately and particularly (MoNE, 2018).

SI generally states the concrete procedures the scientist experiences producing the scientific knowledge (Lederman et al., 2014); at the school level, it refers to the activities in which students structure various research questions, collect and analyze different data accordingly, and answer research problems. In some inquiry activities, the teacher can define research questions and methods. Accepting an activity at the school level as SI is considered decent to begin with a research question and make a data analysis. The inquiry level differentiates from the confirmation level to open inquiry

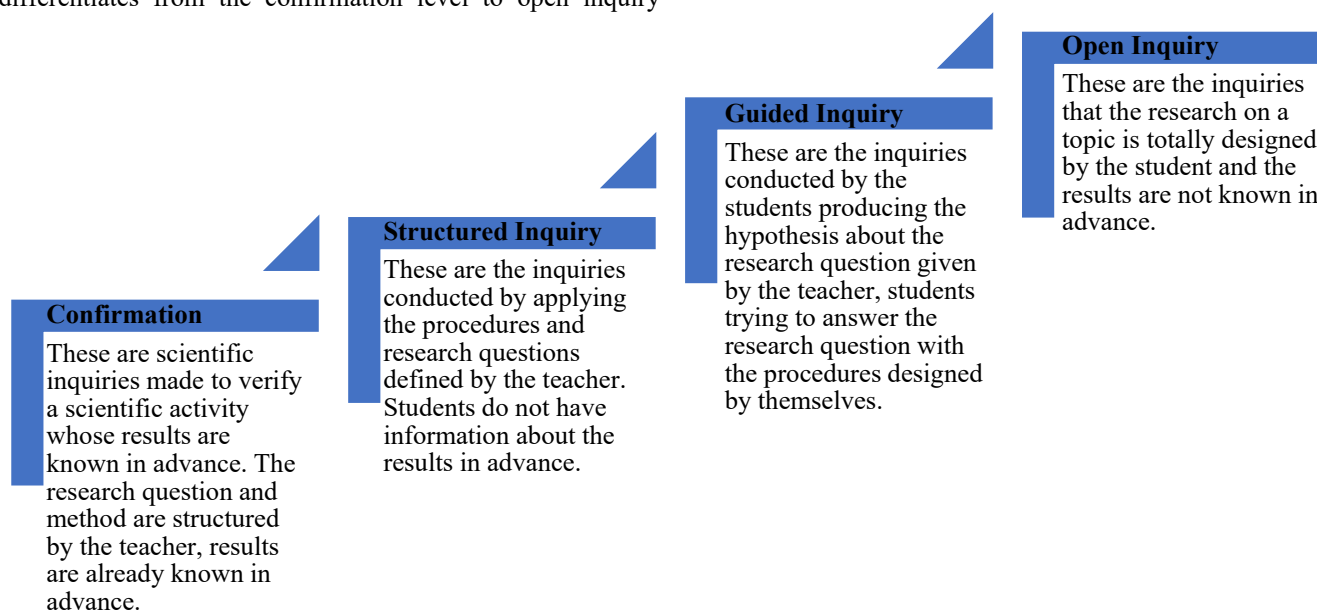
according to procedures being structured by students (Bell et al., 2005). Inquiry levels can be summed up as shown in Figure 1.

Students need more than just the SI procedures and get involved in SI experiences with activities at the school level to reach aimed outputs at the school level (Lederman, 2006). The SI at the school level must have two primary outputs: to conduct the scientific procedures in the SI process and to understand the characteristics of these procedures. It means that SI must be structured on two primary outputs: skill and knowledge (New Generation Science Standards [NGSS], 2013). Understanding the characteristics of SI procedures is called the NOSI. The characteristics of SI procedures, in other words, the aspects of the NOSI can be summarized in Table 1:

**Table 1.** Aspects of NOSI (Lederman et al., 2014)

1	All scientific investigations must begin with a question and do not necessarily test a hypothesis
2	There is no single scientific method or sequence of steps followed in all investigations
3	Inquiry procedures are guided by the question asked
4	All scientists performing the same procedures may not get the same results
5	Inquiry procedures can influence results
6	Research conclusions must be consistent with the data collected
7	Scientific data are not the same as scientific evidence
8	Explanations are developed from a combination of collected data and what is already known

Students can conduct inquiry experiences without knowing the characteristics of inquiry procedures (Lederman et al., 2019). Thus, providing SI experiences does not ensure that students understand these procedures (Lederman et al., 2014). The characteristics of SI procedures must be emphasized during inquiry experiences in an explicitly reflective way (Crawford, 2014).



**Figure 1.** Levels of the SI (Bell et al., 2005; Rezba et al., 1999)

## The Importance of Textbooks in Teaching SI and NOSI

The learning outcomes in the curriculum are concretized via textbooks. Textbooks are one of the main elements determining the student experiences during science classes (Chiang-Soong & Yager, 1993; Devetak & Vogrinc, 2013). Teachers mainly compose the content of science classes based on textbooks. Teachers care more about the content of the textbook than the curriculum. Textbooks are considerable tools for teachers to make contact between students and teachers. Textbooks guide teachers in teaching students in their individual learning experiences (Güzel & Şimşek, 2012). The importance of the textbook can not be denied in achieving the vision and aims of the curriculum and realizing the outputs aimed in accordance. Therefore, it can be said that equipping students with the needed information and skills about SI and the NOSI depends on structuring the textbooks in a qualified way. In the literature, studies investigating the inclusion of NOSI themes in textbooks, the level of expressions that may lead to misunderstandings on this subject, and the questioning levels of the activities in the textbooks are quite limited. The findings of this study are considered as essential both in terms of filling the gap in the literature and the potential of guiding book writing studies in the future.

### Aim of the Study

This study aims to analyze the middle school textbooks in terms of the NOSI and the SI levels. In this context, the questions below are searched for an answer;

1. What is the inclusion level of the NOSI aspects in science textbooks?
2. What is the inclusion level of the statements that may cause misunderstanding about the NOSI in science textbooks?
3. What is the inquiry level of the activities included in science textbooks?
4. What is the inquiry level of the activities included in science textbooks?
5. What is the inquiry level of the activities included in science textbooks when the textbooks are examined separately according to grade levels?

### Methodology

#### Research Design

Document analysis was used as the research method. According to Yıldırım and Şimşek (2021), document analysis enables examining and analyzing the written or visual materials including information about the facts and events aimed at the research. Document analysis can be used with observation and interview, or can be used alone. In this study, only the document analysis method was used.

### Sample

**Table 2.** The identity disc of middle school science textbooks taught in Türkiye

Grade	Year of Publication	Publishing House
5	2018	MoNE Publishing
5	2018	SDR Dikey Publishing
6	2019	MoNE Publishing
6	2018	Sevgi Publishing
7	2019	MoNE Publishing
7	2018	Aydın Publishing
8	2018	Adım Adım Press Publishing

The sample of the study consists of 5th, 6th, 7th, and 8th-grade science textbooks offered by the MoNE since the 2018-2019 education year. The information about the textbooks is as shown in Table 2.

### Data Collection Method

In qualitative research, the data collection tool is the researcher. In accordance with the aim of this qualitative study, the middle school science textbooks are obtained from EBA (Education Informatics Web) which is affiliated with MoNE. In analyzing the textbooks, (1) completed paragraphs, (2) figures with subtitles, (3) tables with subtitles, (4) images with subtitles, (5) interpretations and explanations on the page margins, (6) steps of the experiment or activities are identified as analysis units (Chiappetta et al., 2004).

### Data Analysis Method

The descriptive analysis technique is used in analyzing the data. In the descriptive analysis, the data are analyzed according to the themes determined in line with the research problem and subproblems (Yıldırım & Şimşek, 2021). In this study, a frame was developed by the researchers to analyse the textbooks in terms of the level of inclusion of NOSI themes. The analysis frame used to analyze the books in terms of the NOSI includes the themes of the NOSI on one side of the frame and a section to mark whether these themes are found in the relevant context on the other side. The presence of the NOSI aspects in textbooks is symbolized with  $\surd$ , the presence of an explanation conflicting with these aspects is symbolized with X, and the absence of aspects in textbooks is symbolized with NR. The textbooks were analyzed according to these frames. In analyzing the inquiry levels of the activities in the textbooks, firstly it is evaluated whether the activity is appropriate to the nature of inquiry. Secondly, the inquiry levels of the activities which are thought to be inquiry activity are determined according to the classification suggested by Rezba et al., (1999). The SI activities' number and the range of these activities according to inquiry levels are stated with percentages and frequencies.

### Validity and Reliability

To increase the persuasiveness (internal validity) of the findings, the researcher worked together with two domain experts. To increase the study's transferability (external validity), all the textbooks suggested by MoNE and taught in the middle school classes were analyzed and the sample size was kept at a maximum level. While presenting the findings, the data analysis process was explained in detail, and direct quotes from the textbooks were used. To evaluate the consistency (internal reliability) of the study 10 percent of the data were analyzed independently by the researchers and a domain expert (Neuendorf, 2002). The inter rater reliability was calculated as 84 percent by using the reliability formula of Miles and Huberman'ın (1994) [Reliability = Concensus / (Agreement + Disagreement)]. A standard view was tried to be adopted by taking the opinion of the field expert regarding the differences between the coders. With the aim of increasing verifiability (external reliability), the information about the textbooks was presented in a detailed way.



**Findings**

**The Inclusion Level of The NOSI Aspects in the Textbooks**

It is determined that, in the 5th-grade science textbook of MoNE Publishing, most of the NOSI aspects are not mentioned, and among the mentioned ones the ‘explanations are developed from a combination of collected data and what is already known’ aspect is mentioned more than the others (Table 3).

It is seen that half of the NOSI aspects are not mentioned in the SDR Dikey Publishing 5th grade science textbook, and among those mentioned, the ‘there is no single scientific method’ part of the ‘there is no single scientific method or sequence of steps followed in all investigations’ aspect is mentioned more than the other aspects (Table 4). However, as seen in the table, there are contrasting statements with the ‘there is no sequence of steps followed in all investigations’ part (Table 4).

**Table 3.** The inclusion level of the NOSI aspects in the 5th-grade textbook of MoNE publishing

Aspects of the NOSI	5th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(p11, 1st, s2)
<i>All scientific investigations do not necessarily test a hypothesis</i>	×	(p11,4th)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	NR	
<i>There is no sequence of steps followed in all investigations</i>	NR	
Inquiry procedures are guided by the question asked.	NR	
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	√	(p22, 1st, s1-s4)
<i>The scientists performing the different procedures may get the same results.</i>	NR	
Inquiry procedures can influence results.	√	(p22, 1st, s1-s4)
	√	(p56, 2nd, s4)
Research conclusions must be consistent with the data collected.	√	(p11)
Scientific data are not the same as scientific evidence.	NR	
Explanations are developed from a combination of collected data and what is already known.	√	(p102,1st,s7-s8)
	√	(p105, 3rd, s3)
	√	(p182, 3rd, s3)
	√	(p260, 2nd, s5)

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

**Table 4.** The inclusion level of the NOSI aspects in the 5th-grade textbook of SDR Dikey publishing

Aspects of the NOSI	5th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(p12, 1st, s10-12)
	√	(p13, 2nd, s1)
<i>All scientific investigations do not necessarily test a hypothesis</i>	×	(p176, 2nd, s2-3)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	√	(p12, 1st, s8)
	√	(p12, 1st, s15)
	√	(p13, 3th, s1)
	√	(p23, 2nd, s3-5)
	√	(p81, 2nd, s1-2)
	√	(p125, 1st, s1)
<i>There is no sequence of steps followed in all investigations</i>	x	(p12, 2nd, s1-6)
	x	(p125, 7th, s1)
	x	(p160, 6th, s1) (p179, 7th, s1)
Inquiry procedures are guided by the question asked.	√	(p12, 1st, s13)
	√	(p13, 3rd, s2)
	√	(p29, 1st, s5-6)
	√	(p176, 2nd, s2-3)
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	√	(p16, 2st, s3-4)
	√	(p140, 3st, s6)
<i>The scientists performing the different procedures may get the same results.</i>	NR	
Inquiry procedures can influence results.	NR	
Research conclusions must be consistent with the data collected.	NR	
Scientific data are not the same as scientific evidence.	NR	
Explanations are developed from collected data and what is already known.	NR	

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

When the 6th-grade science textbook of MoNE Publishing is analyzed, it is determined that all of the NOSI aspects are not mentioned, and among the mentioned ones, the ‘there is no sequence of steps followed in all investigations’ part of the ‘there is no single scientific method or sequence of steps followed in all investigations’ aspect is mentioned more than the others (Table 5).

When the 6th-grade science textbook of Sevgi Publishing is analyzed, it is determined that most of the NOSI aspects are not mentioned, and among the mentioned ones the ‘research conclusions must be consistent with the data collected’ and ‘all scientific investigations must begin with a question’ aspects are mentioned more than the others (Table 6).

**Table 5.** The inclusion level of the NOSI aspects in the 6th-grade textbook of MoNE publishing

Aspects of the NOSI	6th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(p12)
<i>All scientific investigations do not necessarily test a hypothesis</i>	×	(p12)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	√	(p12)
<i>There is no sequence of steps followed in all investigations</i>	×	(p12, 1st, s2)
	×	(12p)
	×	(p39, 2nd, s3)
	×	(p81, 3rd, s1-s2)
	×	(p105, 2nd, s1-s2)
	×	(p145, 2nd, s1-s2)
	×	(p161, 2nd, s1-s2)
	×	(p192)
Inquiry procedures are guided by the question asked.	NR	
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	NR	
<i>The scientists performing the different procedures may get the same results.</i>	NR	
Inquiry procedures can influence results.	√	(p28, 2nd, s1)
Research conclusions must be consistent with the data collected.	√	(p12)
Scientific data are not the same as scientific evidence.	NR	
Explanations are developed from a combination of collected data and what is already known.	NR	

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

**Table 6.** The inclusion level of the NOSI aspects in the 6th-grade textbook of Sevgi publishing

Aspects of the NOSI	6th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(p12,1st,s1)
<i>All scientific investigations do not necessarily test a hypothesis</i>	√	(p262,2nd,s2-3)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	×	(p12,4th,s1)
<i>There is no sequence of steps followed in all investigations</i>	NR	
Inquiry procedures are guided by the question asked.	×	(p12)
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	NR	
<i>The scientists performing the different procedures may get the same results.</i>	NR	
Inquiry procedures can influence results.	NR	
Research conclusions must be consistent with the data collected.	√	(p146,4th,s1)
	√	(p170,3rd,s3)
Scientific data are not the same as scientific evidence.	NR	
Explanations are developed from a combination of collected data and what is already known.	NR	

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

It is determined that most of the NOSI aspects are mentioned in the 7th-grade science textbook of MoNE Publishing; however, the ‘inquiry procedures are guided by the question asked’ aspect is never mentioned. It is determined that ‘all scientific investigations must begin with a question and do not necessarily test a hypothesis’ aspect is mentioned more than the other aspects (Table 7).

It is determined that most of the NOSI aspects are not mentioned in the 7th-grade science textbook of Aydın Publishing, and among the mentioned ones the ‘all scientists performing the same procedures may not get the same results’ aspect is mentioned more than the others (Table 8).

**Table 7.** The inclusion level of the NOSI aspects in the 7th-grade textbook of MoNE publishing

Aspects of the NOSI	7th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(p14, 2nd, s1) (p111,2nd, s2)
<i>All scientific investigations do not necessarily test a hypothesis</i>	×	(p14, 2nd, s3)
	√	(p111, 2nd, s4)
	√	(p111, 3rd, s1)
	√	(p112, 1st, s3)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	√	(p111, 3rd, s1-2)
	√	(p112, 1st, s3)
<i>There is no sequence of steps followed in all investigations</i>	×	(p14, 15, 16)
	×	(p28, 3rd, s1)
	×	(p36, 3rd, s2)
	×	(p52, 2nd,s2)
	×	(p100, 2nd, s2)
	×	(p114)
	×	(p137, 2nd, s2)
	×	(p176)
	×	(p216)
Inquiry procedures are guided by the question asked.	NR	
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	√	(p37, 1st, s2)
<i>The scientists performing the different procedures may get the same results.</i>	√	(p56, 2nd, s3)
Inquiry procedures can influence results.	√	(p56, 3rd, s2) (p57, 4th, s3)
	√	(p112, 3rd, 1st)
Research conclusions must be consistent with the data collected.	√	(p14, 3nd, s5)
Scientific data are not the same as scientific evidence.	√	(p111, 4th, s1)
Explanations are developed from a combination of collected data and what is already known.	√	(p26, 1st, s1)
	√	(p57, 2nd, s1)
	√	(p100, 5th,s1)

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

**Table 8.** The inclusion level of the NOSI aspects in the 7th-grade textbook of Aydın publishing

Aspects of the NOSI	7th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√	(pXII)
<i>All scientific investigations do not necessarily test a hypothesis</i>	×	(pXIII,1st,s1)
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	NR	
<i>There is no sequence of steps followed in all investigations</i>	×	(pXII)
Inquiry procedures are guided by the question asked.	NR	
All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i>	√	(p16,4th)
	√	(p82-83)
<i>The scientists performing the different procedures may get the same results.</i>	√	(p29,2nd,s1-2)
Inquiry procedures can influence results.	NR	
Research conclusions must be consistent with the data collected.	√	(p200, 4th, s4)
Scientific data are not the same as scientific evidence.	NR	
Explanations are developed from a combination of collected data and what is already known.	√	(p30, 2nd, 1st)

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.

It is determined that most of the NOSI aspects are not mentioned in the 8th-grade science textbook of Adim Adim Publishing, and among the mentioned ones the ‘explanations are developed from a combination of collected data and what is already known’ aspect is mentioned more than the others (Table 9).

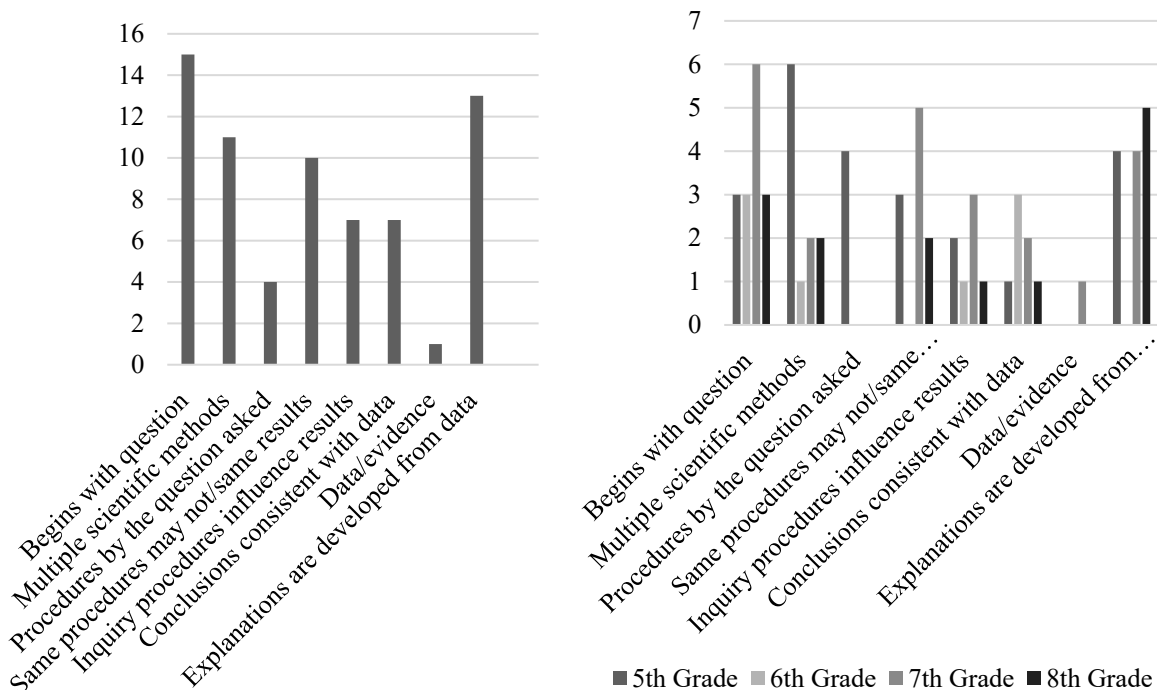
When all the textbooks are analyzed together and according to their grades, it is determined that during middle school education, ‘scientific data are not the same as scientific

evidence’ aspect is mentioned quite limitedly (just once) in the textbooks (Figure 2). Similarly, the ‘inquiry procedures are guided by the question asked’ aspect is only mentioned in 5th-grade textbooks. It is seen that most of the NOSI aspects are not mentioned in all grades. It is determined that 6th-grade textbooks are more limited than the textbooks of the other grades in terms of emphasizing the NOSI aspects explicitly (Figure 2).

**Table 9.** The inclusion level of the NOSI aspects in the 8th-grade textbook of Adim Adim publishing

Aspects of the NOSI	7th grade textbook	
	Case	Reference (Page, Paragraph, Sentence)
All scientific investigations must begin with a question and do not necessarily test a hypothesis <i>All scientific investigations must begin with a question</i>	√ √ √	(p9, 1st,s2) (p9, 4st,s1) (p35, 2nd,s3)
<i>All scientific investigations do not necessarily test a hypothesis</i>	NR	
There is no single scientific method or sequence of steps followed in all investigations. <i>There is no single scientific method</i>	√ √	(p9, 1st,s1) (p160,3rd-5th)
<i>There is no sequence of steps followed in all investigations</i>	× ×	(p9,2nd,s11-19) (p10,1st,s4)
Inquiry procedures are guided by the question asked. All scientists performing the same procedures may not get the same results. <i>All scientists performing the same procedures may not get the same results.</i> <i>The scientists performing the different procedures may get the same results.</i>	NR √ √	 (p58,4th,s1-3) (p88,1st,s3)
Inquiry procedures can influence results. Research conclusions must be consistent with the data collected.	√ √	(p160,2nd-4th) (p105, 6th, s1-2)
Scientific data are not the same as scientific evidence. Explanations are developed from a combination of collected data and what is already known.	NR √ √ √ √	 (p35,2nd) (p88,2nd,s1-2) (p138,2nd,s1) (p151,3rd,s2) (p160,3rd-5th)

√: Explanations verify this statement. X: Explanations contradict with this statement. NR: There is no reference.



**Figure 2.** Frequency of the NOSI aspects in the textbooks

It is determined that, during middle school education ‘*all scientific investigations must begin with a question and do not necessarily test a hypothesis*’ aspect is emphasized (Graph 1). A sample of how this aspect is mentioned is as follows:

*‘Scientific research begins with a question and proceeds looking for the answers to these questions.’ (7th-Grade, MoNE Publishing, p 111)*

After the ‘*all scientific investigations must begin with a question and do not necessarily test a hypothesis*’ aspect, the ‘*explanations are developed from a combination of collected data and what is already known*’ aspect is the most emphasized aspect in the textbooks (Figure 2). A sample of how this aspect is mentioned is as follows:

*‘The tools we use in daily life were invented as a result of humanity’s long-standing knowledge.’ (8th-Grade, Adım Adım Publishing, p 138)*

After the ‘*all scientific investigations must begin with a question and do not necessarily test a hypothesis*’ aspect, ‘*there is no single scientific method or sequence of steps followed in all investigations*’, and ‘*all scientists performing the same procedures may not get the same results*’ aspects are mentioned the most respectively (Graph 1). Some samples of how these aspects are mentioned are as follows:

*‘To make a scientific observation, it is not necessary to experiment. Sometimes, to understand the natural world measurements and natural observations are conducted.’ (7th-Grade, MoNE Publishing, p 111)*

*‘Even if their methods were different, these two scientists had similar findings while unaware of each other.’ (8th-Grade, Adım Adım Publishing, p 88)*

A sample of the NOSI aspect ‘*research conclusions must be consistent with the data collected*’ is as below:

*‘Do your evaluation looking at the difference between the measurement at home and school with not insulated bag and the measurement at home and school with an insulated bag.’ (6th-Grade, Sevgi Publishing, p 146)*

A sample of the NOSI aspect ‘*inquiry procedures can influence results*’ is as below:

*‘The number of satellites may change due to the studies conducted by scientists. Such as; while Neptune was known to have 13 satellites, it has proven that it has 14 satellites.’ (6th-Grade, MoNE Publishing, p 28)*

A sample of how the NOSI aspect ‘*inquiry procedures are guided by the question asked*’ is mentioned in the textbooks is as follows:

*‘To solve a problem, the solutions are compared and the most appropriate one is chosen.’ (5th Grade, SDR Publishing, p 13)*

When the textbooks are analyzed separately according to their grades in terms of MoNE Publishing and other publishing houses, it is determined that 5th, 6th, and 7th-grade textbooks of MoNE Publishing are better at mentioning NOSI aspects than the textbooks of other publishing houses (MoNE Publishing does not have a science textbook for 8th-grades). The insufficiency of 6th-grade textbooks in mentioning the NOSI can be seen in the graphic in Figure 3.

### **The Inclusion Level of The Statements That May Cause Misconceptions About the NOSI in Textbooks**

It is considered that some statements in the textbooks may cause students to have misconceptions, like ‘*scientific research must test a hypothesis*’, and ‘*there is a sequence of steps followed in all investigations*’. There are conflicting statements with the ‘*do not necessarily test a hypothesis*’ part of the ‘*all scientific investigations must begin with a question and do not necessarily test a hypothesis*’ aspect in all textbooks except the 8th-grade textbook (Table 3-8). Except for the 5th-grade MoNE Publishing textbook, there are conflicting statements with the ‘*there is no sequence of steps followed in all investigations*’ part of the ‘*there is no single scientific method or sequence of steps followed in all investigations*’ aspect (Table 4-9).

The samples of conflicting statements with the ‘*do not necessarily test a hypothesis*’ part of the ‘*all scientific investigations must begin with a question and do not necessarily test a hypothesis*’ aspect in textbooks are as below:

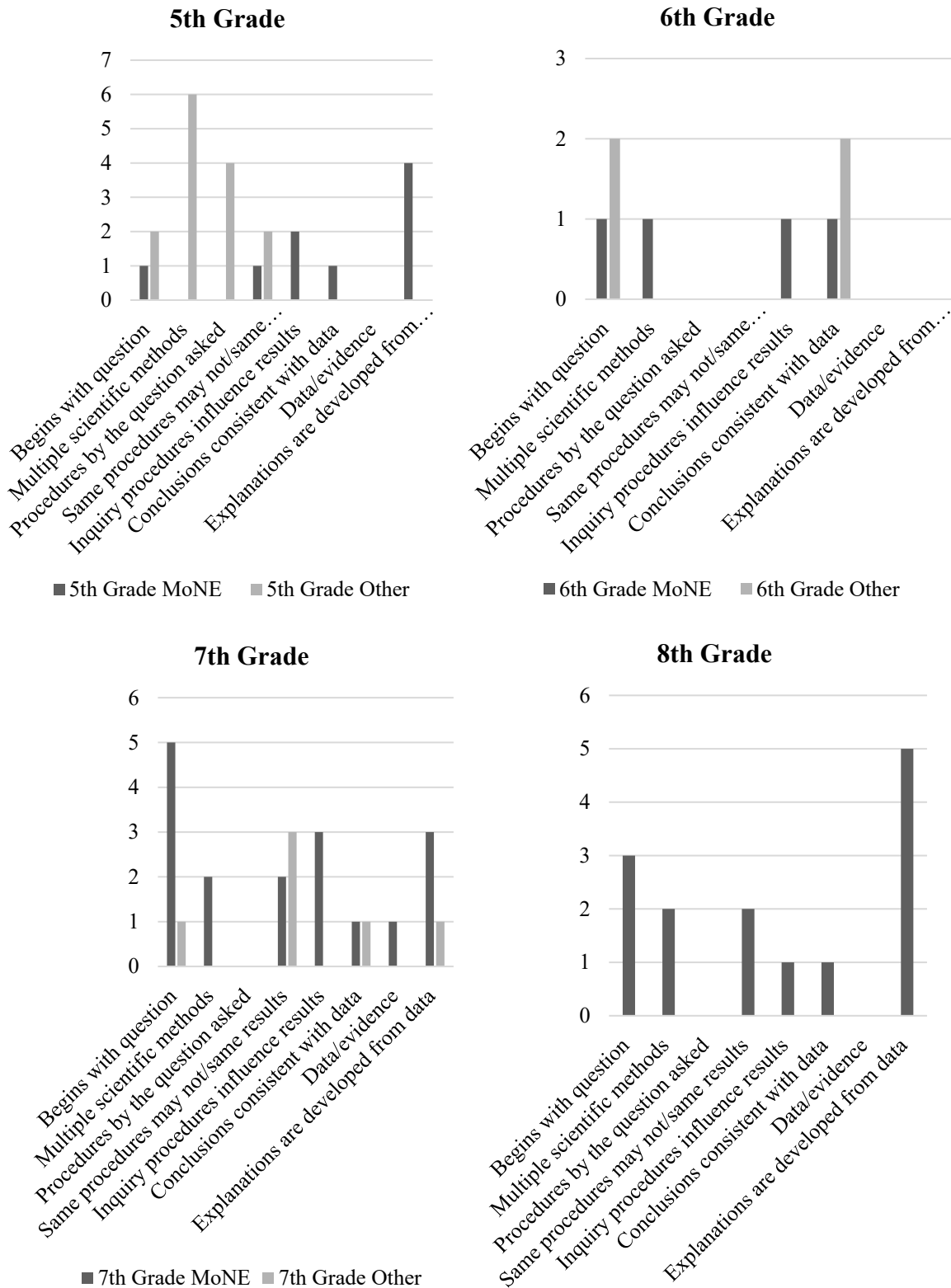
*‘Scientific process skills include observing, classifying, measuring, predicting, saving data, using data and modeling, interpreting data, having a conclusion, defining the variables, changing the variables and controlling, hypothesizing and survey, doing experiment skills.’ (5th-Grade, SDR Publishing, p 176)*

*‘Scientific research begins with wondering about the mystery lying under the cases and phenomena in the universe. To gain knowledge about the themes wondered, research and observations are conducted. At the end of experiments and observations, new hypothesis are set to be able to test. By conducting experiments, hypothesis are tested whether they are true or not. The information obtained at the end of the observations and experiments is organized and interpreted.’ (7th-Grade, MoNE Publishing, p 14)*

A sample of conflicting statements with the ‘*there is no sequence of steps followed in all investigations*’ part of the ‘*there is no single scientific method or sequence of steps followed in all investigations*’ aspect in textbooks is as below: ‘*The scientific method steps to follow in solving a problem are as follows:*

1. *The problem is defined.*
2. *Observation and research are conducted about the problem.*
3. *Hypothesis (temporary solution ways) are set. Predictions depending on the hypothesis are made.*
4. *Experiments are designed and conducted.*
5. *Deductions are made from the results of the experiment.*
6. *The results are evaluated and interpreted. If the results verify the hypothesis, the hypothesis is accepted.*
7. *The hypothesis is not accepted if the results do not verify the hypothesis. The hypothesis is changed, a new hypothesis is set and the steps from the fourth level are repeated’ (6th Grade, MoNE Publishing, p 12)*





**Figure 3.** Frequency of the NOSI aspects in terms of the textbooks of MoNE publishing and other publishing

**The Inquiry Levels of the Activities in the Textbooks**

It is seen that 18 of 76 activities (%38) in the 5th-grade textbook of MoNE Publishing can be considered as SI activities, it is determined that half of the SI activities are confirmation and structured level; in other words, low-level

inquiries. In its current state, only half of the inquiry activities allow students to determine the research problem by themselves. Students are directed to inquiries in which they can predict the result of the inquiry activities or the research question, and research procedures are explained step by step (Table 10).

**Table 10.** Inquiry levels of the activities in the 5th-grade textbook of MoNE publishing

<b>5th grade science textbook</b>		
<b>Inquiry level</b>	<b>Case</b>	<b>Reference (Page)</b>
Confirmation	√	p23, p147, p199
Structured	√	p35, p92, p138, p165, p257, p259
Guided	X	
Open	√	p44, p71, p86, p103, p109, p155, p200, p241, p265

√: Exists. X: Absent

**Table 11.** Inquiry levels of the activities in the 5th-grade textbook of SDR publishing

<b>5th Grade Science Textbook</b>		
<b>Inquiry level</b>	<b>Case</b>	<b>Reference (Page)</b>
Confirmation	√	p65, p76, p118
Structured	√	p79, p88, p91, p105, p114, p120, p172, p174
Guided	√	p149
Open	√	p32, p46, p67, p96, p124, p146, p150, p153, p159, p178

√: Exists. X: Absent

**Table 12.** Inquiry levels of the activities in the 6th-grade textbook of MoNE publishing

<b>6th grade science textbook</b>		
<b>Inquiry level</b>	<b>Case</b>	<b>Reference (Page)</b>
Confirmation	√	p89, p115, p159, p160
Structured	√	p23, p96, p116, p117, p153, p154, p155, p156, p163, p169, p188, p211, p215, p216/1st, p216 /2nd
Guided	X	
Open	√	p39, p81, p105, p145, p161, p192

√: Exists. X: Absent

**Table 13.** Inquiry levels of the activities in the 6th-grade textbook of Sevgi publishing

<b>6th grade science textbook</b>		
<b>Inquiry level</b>	<b>Case</b>	<b>Reference (Page)</b>
Confirmation	√	p93, p101, p114, p124, p126, p129, p131, p165, p170, p183
Structured	√	p89-90, p92, p138, p163/1, p163/2, p166, p171, p212, p217, p245, p246, p255, p256, p257
Guided	X	
Open	√	p21, p30, p45, p106, p146, p174, p190, p261

√: Exists. X: Absent

It is seen that 22 of 43 activities (%51,2) in the 5th-grade textbook of SDR Publishing can be considered as SI activity, it is determined that half of the SI activities are confirmation and structured level, in other words, low-level inquiries (Table 11). In its current state, only half of the inquiry activities, provide students the opportunity to determine the research method by themselves, and less than half of the activities to determine the research problem by themselves. Students are directed to the inquiries in which the research question and research procedures are explained step by step. Compared to the textbook of MoNE Publishing, the textbook of SDR Publishing is determined to have more inquiry activities and open inquiry activities. Thus, it can be said that the textbook of SDR Publishing is better in terms of including high-level inquiry activities (Table 11).

It is seen that 25 of 49 activities (%51) in the 6th-grade textbook of MoNE Publishing can be considered as SI activity, it is determined that most of the SI activities are at a structured level. It is determined that the open inquiry activities, which allow students to make more decisions during the inquiry process, are included less, the guided inquiry is not included. In most of the activities, students are expected to search for a solution to a question determined by the teacher by following

the method determined by the teacher again. There are only six activities in which the research problem and the method are defined by students (Table 12).

It is seen that 32 of 94 activities (%34) in the 6th-grade textbook of Sevgi Publishing can be considered as SI activities, it is determined that most of the SI activities are at structured level. It is determined that the inquiry activities are mostly at confirmation and structured levels, in other words, low-level inquiries. It is determined that the open inquiry activities, which allow students to make more decisions during the inquiry process, are included less, the guided inquiry is not included. Compared to the textbook of MoNE Publishing, the textbook of Sevgi Publishing is determined to have more inquiry activities and open inquiry activities (Table 13).

It is seen that 16 of 42 activities (%38,1) in the 7th-grade textbook of MoNE Publishing can be considered as SI activities, it is determined that half of the SI activities are at a structured level at which students determine the research question and methods by themselves (Table 14). In half of the inquiry activities, students are directed to the inquiries in which they know the result of the research question, or even if they do not know the result, the research procedures are explained step by step (Table 14).

**Table 14.** Inquiry levels of the activities in the 7th-grade textbook of MoNE publishing

7th grade science textbook		
Inquiry level	Case	Reference (Page)
Confirmation	√	p70, p131, p162
Structured	√	p47, p127, p131, p153, p166
Guided	X	
Open	√	p27, p36, p51, p100, p114, p137, p176, p216

√: Exists. X: Absent

**Table 15.** Inquiry levels of the activities in the 7th-grade textbook of Aydın publishing

7th grade science textbook		
Inquiry level	Case	Reference (Page)
Confirmation	√	p69, p100, p141
Structured	√	p61, p63, p65, p101, p106, p107, p108, p127, p128, p129, p136, p137, p144, p196, p200
Guided	X	
Open	√	p10, p69/2, p114, p115, p148, p201

√: Exists. X: Absent

**Table 16.** Inquiry levels of the activities in the 8th-grade textbook of Adım Adım publishing

8th grade science textbook		
Inquiry level	Case	Reference (Page)
Confirmation	√	p70, p75, p76, p95, p99, p103, p106, p114, p116, p118, p140, p142, p144, p161, p199, p203, p205
Structured	√	p74, p78, p107, p115, p119
Guided	X	
Open	√	p150, p182, p213, p224

√: Exists. X: Absent

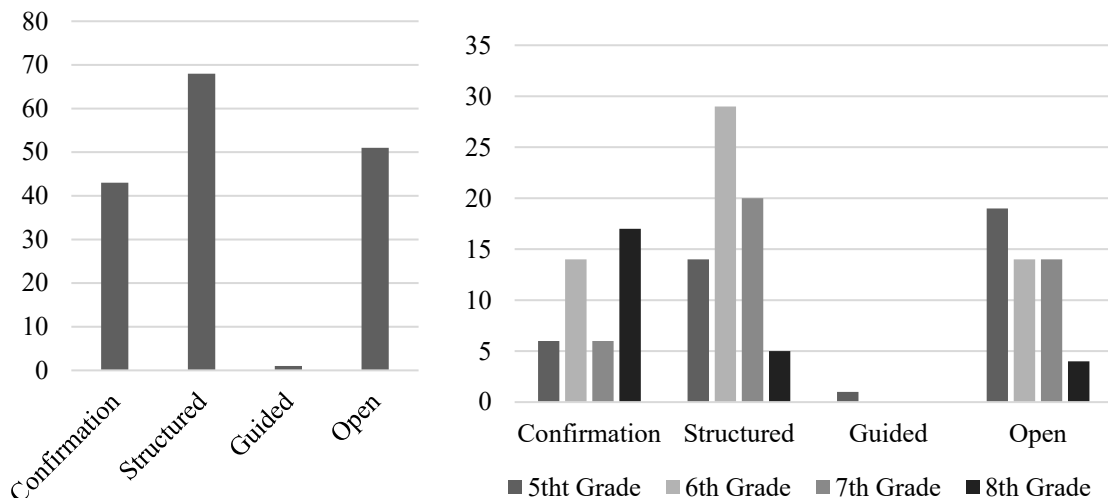
It is seen that 24 of 52 activities (%46,2) in the 7th-grade textbook of Aydın Publishing can be considered as SI activity, it is determined that a very limited number of the SI activities (%25) enables students to have the opportunity of identifying the research problem and method by themselves (Table 15).

Compared to the textbook of MoNE Publishing, the textbook of Aydın Publishing includes more activities providing high-level inquiries, however, in general, the textbook of Aydın Publishing includes more inquiry activities.

It is seen that 26 of 49 activities (%53,1) in the 8th-grade textbook of Adım Adım Publishing can be considered as SI activities, it is determined that most of the SI activities are at a

structured level. In other words, students are directed to the inquiries in which the students can predict the result of the research or research question, and research procedures are explained. In a very limited part of the inquiry activities in the books (%15,1), the students are given the opportunity to determine the research question and method (Table 16).

When the textbooks are analyzed in general, it can be said that the inquiry activities are at a structured level in which the research question and the steps to follow are given to students. Compared to the other grades, in the 8th-grade textbook, it is seen that the scientific inquiries conducted by the students themselves are included less (Figure 4).



**Figure 4.** Frequency of the SI levels of the activities in the textbooks

## Discussion, Conclusion and Suggestions

In conclusion, it is found that the aspects of NOSI are not emphasized enough, some aspects are not mentioned in some grades in middle school textbooks. Generally, it is determined that 5th, 6th, and 7th-grade MoNE textbooks are better at including NOSI aspects than the other publishing houses. It is determined that 6th-grade textbooks are insufficient in terms of including the NOSI. During middle school education, the 'all scientific investigations must begin with a question and do not necessarily test a hypothesis' and 'explanations are developed from a combination of collected data and what is already known' aspects are mentioned the most. However, the emphasis is mainly about the scientific inquiries beginning with a question. There are some statements in the books contradicting the aspect that scientific inquiries do not necessarily test a hypothesis and some statements that may cause students to have some misconceptions about this theme. During middle school education, the 'scientific data are not the same as scientific evidence' aspect is the most frequently emphasized. Many textbooks contain contradicting statements with the 'there is no sequence of steps followed in all investigations' part of the 'there is no single scientific method or sequence of steps followed in all investigations' aspect. It is a common misconception that there is a universal scientific method and this method is composed of standard steps (McComas, 1998). It is not possible to mention procedures followed step by step and unique and universal scientific method in the course of scientific inquiries. The methods scientists use to produce scientific knowledge are affected by individual education, foreknowledge, imagination, and creativity. Imagination and creativity are essential and influential in every step of producing scientific knowledge (Lederman et al., 2014). It can be said that the formation of this misconception was triggered by the scientific method descriptions and steps included in most of the books (İrez & Turgut, 2008). The creating a hypothesis step emphasizes mentioning the scientific research method and may direct the students to think there must always be a hypothesis in scientific research. That is why the books are suggested to be organized in these terms. Emphasizing clearly the relevant aspect in relevant parts may prevent potential misconceptions. When the middle school science textbooks are analyzed in terms of SI levels, it is seen that confirmation and structured inquiry levels are included more often, but guided and open inquiry levels are included limitedly. The science projects prepared to be presented at science festivals can be samples for the activities of open scientific inquiry level (Sadeh & Zion, 2009). Conventional laboratory activities during which both the question and the procedures to be followed step by step used to solve the problem are presented to students can be sampled for the confirmation and structured level (Bell et al., 2005). The activities in the textbooks analyzed are mostly conventional laboratory activities. There is no harm in using low-level inquiries as long as they do not exclude more complex, higher-level inquiries included in the curriculum. Beginning with low-level inquiry and gradually increasing the level of inquiry throughout the term can help students form a basis for themselves about inquiry (Bell et al., 2005). From this point, it is seen that the inquiries at the guided and open level which must be included more often in 8th-grade, are included less compared to the other grades. It is suggested that planning may be done by grades while presenting the inquiry activities in the textbooks and inquiry activities should be included

gradually with increasing emphasis according to the grade level. Although teaching science aims to raise students to the open inquiry level, it is suggested that the role of progressing gradually in preparing students for this level of inquiry should not be ignored. Also, it is suggested that all the activities related to inquiry in the classroom should not be expected to be carried out at open inquiry level (Bell et al., 2005). On the other hand, one of the problems with existing textbooks is that guided and open inquiries are clearly included less. The structured inquiry-level activities in the textbooks can be transformed into guided inquiry-level activities by excluding the step-by-step procedures required in these inquiries (Banchi & Bell, 2008; Bunterm et al., 2014). Therefore, it is suggested that instead of changing the activities in the textbooks, the activities in the books can be moved to higher levels in terms of inquiry level by making minor adjustments to the existing activities.

This study attempted to contribute literature by analyzing the NOSI, SI levels, and misconceptions about the NOSI in middle school science textbooks in Türkiye. The research can be expanded by analyzing primary school science textbooks and high school Physics, Chemistry, and Biology textbooks.

### Author Contributions

The first author contributed to the writing of the article and the data analysis. Other authors contributed to the data analysis.

### Ethical Declaration

Ethics committee permission was not required for the research and the rules determined by the Committee on Publication Ethics (COPE) were followed throughout the study.

### Conflict of Interest

The authors have no relevant financial or non-financial interests to disclose.

### References

- Banchi, H., & Bell, R. (2008). The many levels of inquiry. *Science and Children*, 46(2), 26–29.
- Bell, R. L., Smetana, L., & Binns, I. (2005). Simplifying inquiry instruction. *The Science Teacher*, 72 (7), 30–33.
- Bunterm, T., Lee, K., Ng Lan Kong, J., Srikoon, S., Vangpoomyai, P., Rattanavongsa, J., & Rachahoon, G. (2014). Do different levels of inquiry lead to different learning outcomes? A comparison between guided and structured inquiry. *International Journal of Science Education*, 36(12), 1937–1959. <https://www.doi.org/10.1080/09500693.2014.886347>
- Chiang-Soong, B., & Yager, R. E. (1993). Readability levels of the science textbooks most used in secondary schools. *School Science and Mathematics*, 93(1), 24–27. <https://www.doi.org/10.1111/j.1949-8594.1993.tb12186.x>
- ChiaChiappetta, E. L., Sethna, G. H., & Fillman, D. A. (2004). *Procedures for conducting content analysis of science textbooks of the nature of science*. University of Houston.
- Curriculum Council. (1998). *Curriculum framework for Kindergarten to Year 12 education in Western Australia*. Osborne Park, WA: Author.
- Crawford, B. (2014). From inquiry to scientific practices in the science classroom. In N. G. Lederman & S. K. Abell (Eds.), *Handbook of Research on Science Education* (Vol. 2, pp. 515–541).

- Devetak, I. & Vogrinc, J. (2013). The Criteria for Evaluating the Quality of the Science Textbooks. Myint Swe Khine (Ed.), In *Critical Analysis of Science Textbooks* (s. 3- 17). Springer: Perth.
- Durant, J. R. (1993). What is scientific literacy? In J. R. Durant & J. Gregory (Eds.), *Science and culture in Europe* (pp. 129–137). London: Science Museum.
- Flick, L. B., & Lederman, N. G. (2006). *Scientific inquiry and nature of science; Implication for teaching, learning and teacher education*. Dordrecht: Springer.
- Güzel, D., & Şimşek, A. (2012). The textbooks in the national educational councils. *The Journal of SAU Education Faculty*, (23), 172, 216.
- Irez, S. & Turgut, H. (2008). Fen eğitimi bağlamında bilimin doğası. Ö. Taşkın (Ed.). *Fen ve Teknoloji Öğretiminde Yeni Yaklaşımlar*, (ss. 234-263). Ankara: Pegem Akademi Yayıncılık.
- Jenkins, E. W. (1994). Scientific literacy. In T. Husen & T. N. Postlethwaite, (Eds.), *The International Encyclopedia of Education* (Volume 9, 2nd ed., pp. 5345–5350). Oxford, UK: Pergamon Press.
- Lederman, N.G. (2006). Research on nature of science: Reflections on the past, anticipations of the future. *Asia-Pacific Forum Science Learning and Teaching*, 7 (1), 1- 11
- Lederman, N. G., Antink, A., & Bartos, S. (2014). Nature of science, scientific inquiry, and socio-scientific issues arising from genetics: A pathway to developing a scientifically literate citizenry. *Science & Education*, 23, 285-302.
- Lederman, N., & Lederman, J. (2012). Nature of scientific knowledge and scientific inquiry: Building instructional capacity through professional development. In B. J. Fraser, K. Tobin & C. J. McRobbie (Eds.), *Second International Handbook of Science Education* (24th ed.), (pp. 335–359). Dordrecht: Springer
- Lederman, J.S., Lederman, N.G., Bartels, S., Jimenez, J., Akubo, M., vd. (2019). An international collaborative investigation of beginning seventh grade students' understandings of scientific inquiry: Establishing a baseline. *Journal of Research in Science Teaching*, 56(4), 486-515. <https://doi.org/10.1002/tea.21512>
- Lederman, J. S., Lederman, N. G., Bartos, S. A., Bartels, S. L., Meyer, A. A., & Schwartz, R. S. (2014). Meaningful assessment of learners' understandings about scientific inquiry. The views about scientific inquiry (VASI) questionnaire. *Journal of Research in Science Teaching*, 51(1), 65-83. <https://doi.org/10.1002/tea.21125>
- Laugksch, R. C. (2000). Scientific literacy: A conceptual overview. *Science Education*, 84(1), 71-94 .
- McComas, W.F. (1998). The principal elements of the nature of science: Dispelling the myths (53-70).In McComas (Ed.) *The nature of science in science education: Rationales and strategies*. The Netherlands: Kluwer Academic Publishers.
- Miles, M, B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded Sourcebook*. (2nd ed). CA: Sage.
- Millî Eğitim Bakanlığı [MEB]. (2018). Fen bilimleri dersi öğretim programı. <https://mufredat.meb.gov.tr/Dosyalar/201812312311937>
- National Research Council [NRC] (1996). *National science education standards*. Washington, DC: National Academic Press.
- National Research Council (NRC). (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. DC: The National Academies Press
- Neuendorf, K. A. (2002). *The content analysis guidebook*. CA: Sage Publications.
- NGSS Lead States. (2013c). *Appendix H - understanding the scientific enterprise: The nature of science in the next generation science standards*. NGSS. DC: The National Academies Press
- OECD. (2018). *The future of education and skills: Education 2030*. Retrieved from <https://www.oecd.org/education/2030/E2030%20Position%20Paper%20>
- Rezba, R.J., T. Auldridge, & L. Rhea. (1999). *Teaching & learning the basic science skills*. Available online at [www.pen.k12.va.us/VDOE/instruction/TLBSSGuide.doc](http://www.pen.k12.va.us/VDOE/instruction/TLBSSGuide.doc)
- Sadeh, I., & Zion, M. (2009). The development of dynamic inquiry performances within an open inquiry setting: A comparison to guided inquiry setting. *Journal of Research in Science Teaching*, 46(10), 1137-1160.
- Thomas, G., & Durant, J. (1987). Why should we promote the public understanding of science? In M. Shortland (Ed.), *Scientific literacy papers* (pp. 1-14). Oxford, UK: Department for External Studies, University of Oxford.
- Walberg, H. J. (1983). Scientific literacy and economic productivity in international perspective. *Daedalus*, 112(2), 1-28. Erişim: <https://www.jstor.org/stable/20024851>
- Yıldırım, A. & Şimşek, H. (2021). Sosyal bilimlerde nitel araştırma yöntemleri. Seçkin Yayıncılık.



## Matematik Öğretmen Adaylarının Gözünden Eğitsel Oyun Materyallerinin Tasarımı, Geliştirilmesi ve Değerlendirilmesi

### Design, Development and Evaluation of Educational Game Materials from the Perspective of Mathematics Teacher Candidates

Bilal Özçakır<sup>1</sup>  Duygu Özdemir<sup>2</sup> 

<sup>1</sup> Doç. Dr., Alanya Alaaddin Keykubat Üniversitesi, Eğitim Fakültesi, Antalya, Türkiye

<sup>2</sup> Doç. Dr., İstanbul Aydın Üniversitesi, Eğitim Fakültesi, İstanbul, Türkiye

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##### \*Sorumlu Yazar

Bilal Özçakır

Alanya Alaaddin Keykubat  
Üniversitesi – Eğitim Fakültesi,  
Kestel Mah. Alanya, Antalya

[bilal.ozcakir@alanya.edu.tr](mailto:bilal.ozcakir@alanya.edu.tr)

**Öz:** Montaigne'in de dediği gibi "Çocukların oyunu, oyun değil, onların en ciddi uğraşdır." Çünkü çocuklar oyun oynarken bilişsel, sosyal ve duygusal anlamda aktif ve gelişime çok açıktır. Ancak öğrenciyeye olan yakınlığına rağmen, oyunla öğrenme ya da pekiştirme sağlayacak materyaller hakkında ortaokul matematik eğitimi ile ilgili erişilebilir alan yazında ve uygulama alanında önemli eksiklikler bulunmaktadır. Bu bağlamda, matematik öğretimini oyunlarla desteklemeye yönelik oyun materyallerinin öğretmen adayları tarafından tasarlanması ve sürecin değerlendirilmesi amaçlanmaktadır. Tasarım tabanlı araştırma yöntemi çerçevesinde yürütülen bu çalışmada, prototipler şeklinde tasarlanan, sürekli değerlendirilerek düzenlenen ve uygulama olanakları ile geliştirilen matematik eğitim materyali olarak oyunlar oluşturulmuş ve bu sürece yönelik tasarım ilkelerine yönelik çıkarımlar yapılmıştır. Bu tasarım ve uygulama deneyiminin öğretmen adaylarının profesyonel gelişimine ve pedagojik bilgi ve beceri birikimlerinin genişlemesine de önemli katkılar sağladığı görülmüştür.

**Anahtar Kelimeler:** Matematik eğitimi, oyun materyal tasarımı, öğretmen adayları, tasarım tabanlı araştırma

**Abstract:** As Montaigne said, "Children's play is not a game, but their most serious occupation". As children are cognitively, socially and emotionally active and open to development while playing. However, despite its closeness to the student, there are significant deficiencies in the accessible literature and application area regarding middle school mathematics education and game materials that will provide learning or reinforcement through games. In this context, it is aimed to design game materials to support mathematics teaching with games by prospective teachers and to evaluate the process. This study was carried out within the framework of the design-based research method. In this study, games were designed as mathematics education materials through the processes of prototypes and constantly evaluation. Inferences were made regarding the design principles for this process. It has been observed that this design and implementation experience makes significant contributions to the professional development of teacher candidates, the expansion of their pedagogical knowledge and skill repertoire.

**Keywords:** Mathematics education, game material design, teacher candidates, design-based research

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#### Giriş

Oyun, tarih boyunca insanlığın var oluşuyla birlikte hayatımızın her evresinde yer bulmuş (Miller, 2008; Tuğrul, 2010) ve sadece eğlence değil, aynı zamanda öğrenmeye yardımcı olan bir araç olarak da kabul edilmiştir (Yörükoğlu, 1986). Günümüzde de birçok eğitimci oyunların eğitimin önemli bir parçası olduğunu kabul etmekte (Moursund, 2006; Tural, 2005) ve öğrencilerin uzun süre hareketsiz oturarak öğrenmeye çalışmasının etkili bir eğitim ortamı oluşturmadığına dair sunulan çalışmalar aracılığıyla bu bakış açısı desteklenmektedir (Oblinger, 2006; Tural, 2005). Çocukların sosyal beceriler kazanmalarına, yeni bilgiler edinmelerine ve yaşamla ilgili anlam oluşturmalarına yardımcı olan oyunlar (Karadeniz, 2017; Tural, 2005; Umay 2002), öğrencilere eğlenme fırsatı sunarken, aynı zamanda onların genel öğrenme deneyimini zenginleştiren bir araç olmaktadır (Miller, 2008). Yani oyun, sadece bir eğlence aracı değil, aynı zamanda çocuğun potansiyelini en üst düzeyde kullanmasını teşvik eden, kelime dağarcığını genişleten ve aktif öğrenmeyi destekleyen bir yöntemdir (Tural, 2005).

Gredler (2004) oyunu, oyuncuların belirli bir bilgiyi elde etmek amacıyla yaptığı rekabetçi alıştırmalar olarak tanımlar. Çocukların dikkatlerini toplamalarına ve enerjilerini harcamalarına yardımcı olarak derslere daha iyi odaklanmalarını sağlayan oyun (Tural, 2005), deneme yanılma

yoluyla doğru ve yanlış öğrenme fırsatı sunar (Çakmak, 2000). Gerçekleştirilen çeşitli çalışmalarda da oyunun beceri kazandırma, yaratıcılığı teşvik etme, tutum geliştirme ve akademik başarıyı artırma üzerindeki etkilere dikkat çekilmiştir (Aksoy, 2010; Altunay, 2004; Arı vd., 2014; Dinçer, 2008, Tural, 2005). Bu noktada, oyunların akademik başarıyı elde etmek amacıyla matematik eğitimi kapsamında da ele alındığı görülmektedir. Gerçek hayatta karşılaşılabilecekleri problemleri çözme fırsatı sunan eğitim araçları olarak görülen oyun temelli öğrenme ile öğrencilere, eleştirel düşünme ve yaratıcı düşünme gibi beceriler kazandırırken, aynı zamanda öğrencilerin kendi öğrenme süreçlerini yönetmelerine olanak tanınabilir. Böylece, öğrencinin öz-yeterlilik duygusunu ve öğrenmeye olan motivasyonunu güçlendirmeye yönelik önemli bir adım atılmış olur (Mangır & Aktaş, 1993; Tural, 2005; Uğurel & Moralı, 2008). Oyunun bu eğitici yönü, çocukların öğrendikleri bilgi ve becerileri aktif bir şekilde kullanmalarını teşvik eder (Gee, 2003). Günümüzde matematik öğrenme yaklaşımlarında da çocuklara yaparak ve yaşayarak öğrenme fırsatları sunmanın önemi vurgulanmakta iken, bu noktada oyunun duylulara hitap edebilen, kalıcı ve etkili bir öğrenme ortamı sunmaktaki rolü dikkat çekicidir (Tural, 2005; Van de Walle, vd., 2022).

## Matematik Eğitiminde Oyunun Önemi

Alanyazında, oyun ile matematik eğitiminin iç içe olduğu ve oyunla öğrenmenin matematik eğitimine olumlu katkılar sağladığı görüşü yaygındır. Örneğin, Altunay'ın (2004) 4.sınıf geometri konularının öğretiminde oyunla öğretim yönteminden destek alan çalışmasında, bu yöntemin erişimi ve kalıcılığa pozitif etkisi ortaya çıkarılmıştır. Benzer şekilde Aksoy (2010) çalışmasında, kesirler konusunun oyun destekli matematik öğretimi ile sunulmasının başarıyı, derse karşı tutumu ve öz yeterlik algılarını olumlu yönde etkilediği sonucuna ulaşmıştır. Dinçer (2008) müziklendirilmiş matematik oyunları ile 'uzunlukları ölçme, sıvıları ölçme, geometrik cisimler ve çarpım tablosu' gibi konuların öğretim yapıldığı grubun, geleneksel yöntem uygulanan gruba göre akademik başarı ve matematik dersine karşı tutumlarının olumlu yönde farklılaştığını ortaya çıkarmıştır. Canbay (2012) çalışmasında ise eğitsel oyunlarla yapılan öğretimin akademik başarı, öz düzenleyici öğrenme stratejileri ve motivasyonel inançlar üzerindeki olumlu etkisine vurgu yapmıştır. Bunlara ek olarak, matematik öğretmen adaylarının geleneksel çocuk oyunlarının uygulama sürecinde karşılaştıkları zorluklar ve kazanımlarını (Karadeniz, 2017); 'ritmik saymalar, toplama, çıkarma, çarpma, bölme' gibi matematik konularında oyun ve etkinliklerle öğretimin erişimi ve tutuma etkisini (Tural, 2005) ve oyunun insan yaşamındaki yeri, insanı oyun oynamaya iten nedenleri ve farklı kültürlerde uygulanan oyun örneklerini (Uğurel & Moralı, 2008) inceleyen çalışmalar aracılığıyla da, matematik eğitime oyun unsurlarını entegre etmenin olumlu katkıları görülmektedir. Ayrıca, öğretmen adaylarının matematik öğretimi oyunlarla destekleme konusunda bilgi ve deneyim kazanmaları çağdaş eğitim programlarında büyük önem taşımaktadır. Bu bağlamda, Meletiou-Mavrotheris ve Prodromou (2016) tarafından belirtildiği üzere, eğitsel oyunların matematik müfredatına etkili bir şekilde entegre edilmesi öğretmen adaylarını, öğrencilerin matematiksel kavramları içselleştirmelerine yardımcı olacak ve matematiksel düşünme becerilerini geliştirecek oyun tabanlı öğrenme ortamlarını tasarlamaya ve uygulamaya yönlendirebilmektedir. Buna ek olarak, Plass ve arkadaşları (2013) tarafından yapılan araştırmalar, oyun tabanlı öğrenme ortamlarının, öğrencilerin matematiksel kavramları daha iyi anlamalarına, matematiksel düşünme becerilerini artırmalarına ve matematiğe karşı daha olumlu tutumlar geliştirmelerine olanak tanıdığını göstermektedir. Bu durum, öğrenme süreçlerini daha ilgi çekici ve etkileşimli hale getirerek, öğrencilerin matematiği keşfetme isteklerini artıran bir unsur olarak öne çıkmaktadır. Afari (2012) ise, matematik öğretiminde oyun kullanımının, öğretmenler için pedagojik bir araç olarak önemli bir potansiyele sahip olduğunu belirtmiştir. Öğretmenler, matematiksel oyunların tasarımı ve kullanımı konusunda bilgilendirilmeli ve bu oyunların sınıf içi uygulamalarını etkili bir şekilde gerçekleştirebilmelidirler. Bu sayede, öğrencilerin matematik öğrenimindeki başarıları oyunlar ile desteklenerek olumlu etkilenmekte ve matematiğe olan ilgileri güçlenmektedir. Öğretmenlerin oyunla eğitime yönelik bu yeteneklerinin geliştirilmesi, öğrencilerin matematiksel bilgilerini derinleştirmelerine ve bu alandaki düşünme yeteneklerini genişletmelerine yardımcı olmaktadır. Bu nedenle, oyun tabanlı öğrenme, matematik eğitiminde stratejik bir öneme sahip olmaya devam etmektedir.

## Çalışmanın Önemi ve Araştırma Soruları

Oyun ve oyun elementlerinin matematik eğitime entegrasyonu, öğrencilerin motivasyonu, algıları ve öğrenme sonuçları üzerinde olumlu etkileri olduğu için önemli ve gerekli kabul edilmektedir. Eğitimde oyun kullanımının, öğrencilerin matematiğe karşı tutumlarını olumlu yönde etkileyebileceği ve matematik öğrenme sürecini daha çekici hale getirebileceği belirtilmiştir (Mavridis vd., 2017). Ayrıca, oyun tasarımı ve kullanımı öğrencilerin matematiksel kavramları anlamalarını ve matematiksel düşünme becerilerini geliştirmelerini destekleyebilir. Araştırmalar, oyun bazlı öğrenme ortamlarının matematik eğitimi üzerindeki pozitif etkisinin, öğrencilerin motivasyonunu ve katılımlarını artırdığını göstermiştir (Vandercruysse vd., 2016). Bu süreçte öğretmenlerin rolü ve desteği kritik öneme sahiptir (Jackson & McNamara, 2013) ancak, bazı durumlarda öğretmenler oyunu sınıf içi uygulamalarına dahil etmek konusunda olumlu tutum ve düşüncelere sahip olmayabilmektedirler. Tural'ın (2005) da belirttiği gibi, bu durumun sebepleri bulunmaktadır. Örneğin, öğretmenlerin bu anlamda üretebileceği etkinliklerin ve kaynaklarının sınırlı olması ya da kendilerinin oyun materyallerinin üretimi için yeterince hevesli ya da yaratıcı olmamaları bu sebeplerden bazılarıdır. Ayrıca amacına uygun bir oyun materyalinin ve ortamının sağlanmasının da zor olduğu ve oyun tasarımı ve hazırlama sürecinin özel yetkinlik ve beceri gerektirmesi de oyunun bir araç olarak ele alınmasını zorlaştırmaktadır. Bu nedenlerle, oyun ve oyun elementlerinin matematik eğitime entegrasyonu, öğrencilerin motivasyonunu ve öğrenme deneyimlerini iyileştirebileceği görülmektedir; ancak, bu entegrasyonun başarılı olması için öğretmenlerin yeterli bilgi, beceri ve desteğe sahip olmaları gerekmektedir.

Tarascenkova ve diğerlerinin (2020) de belirttiği gibi, öğretmenlerin bilgisi ve farkındalığı, sınıflardaki uygulamaların kalitesini doğrudan etkilemektedir. Dolayısıyla, öğretmen eğitiminden başlayarak oyunla matematik öğretimi konusunda duyarlı, bilgi ve farkındalık sahibi öğretmenlerin yetiştirilmesi kritik bir öneme sahiptir. Öğretmen adaylarının eğitsel oyunlar geliştirme konusundaki araştırmalar incelendiğinde, Meletiou-Mavrotheris ve Prodromou (2016) tarafından yapılan bir çalışmada, dijital eğitsel oyunlarla çalışan öğretmen adaylarının matematik müfredatına eğitsel oyunları entegre etme konusunda yetkinliklerinin arttığı ve oyunları amaca uygun değerlendirebilmekte yetkinlikler geliştirdiği görülmüştür. Aldemir Engin (2023) tarafından yapılan bir başka çalışmada ise, öğretmen adaylarının dijital oyun tasarımı deneyimlerini ve bu oyunların matematik eğitiminde nasıl kullanılabilirliği incelenmiş, bu süreçte adayların kendi oyunlarını tasarlama ve oynama sürecinden keyif aldıkları, eğlenerek öğrenme, akılda kalıcılık ve konuyu basitleştirmeyi hedefledikleri bulunmuştur. Bir başka araştırmada, öğretmen adaylarının eğitsel bilim panosu oyunları geliştirme deneyimlerini incelenmiş ve bu sürecin onların pedagojik ve profesyonel gelişimine olumlu katkılarda bulunduğu ortaya çıkarılmıştır (Botes, 2022). Holden (2016), öğretmen adaylarının mobil ve oyun tabanlı öğrenme aktiviteleri aracılığıyla matematik konularını nasıl keşsettiklerini incelemiş ve bu sürecin öğretmen adaylarının disiplinlerarası sorgulama yeteneklerini desteklediğini bulmuştur. Ayrıca, Almarashdi, Zaitoun ve Alarabi (2023) tarafından yapılan bir çalışmada, öğretmen adaylarının eğitsel oyun kullanmalarının olumlu tutumlar sergilemelerine sebep olduğu ve bu oyunları sınıf içi

öğretimde kullanma yeteneklerinin de geliştiği vurgulanmaktadır. Bu çalışmalar, öğretmen adaylarının eğitsel oyun tasarımı ve kullanma süreçlerine dahil edilmelerinin önemli olduğunu ve bu süreçlerin öğretmen eğitimi programlarına başarılı bir şekilde entegre edilebileceğini göstermektedir. Bu bağlamda, öğretmen adaylarının oyunla matematik öğretimi hakkında eğitilmeleri ve bu süreci deneyimleyebilecekleri olanakların sunulması büyük bir gereklilik arz etmektedir. Bu nedenlerle bu çalışmada, matematik öğretimini oyunlarla desteklemeye yönelik oyun materyallerinin öğretmen adayları tarafından tasarlanması ve sürecin değerlendirilmesi amaçlanmaktadır. Bu çalışma süresince, oyun temelli eğitimin ana felsefesinde yer aldığı gibi matematik öğretmen adaylarının sürekli aktif olarak katılım gösterebileceği bir tasarı tabanlı araştırma süreci tasarlanmıştır. Çalışma kapsamında aşağıdaki araştırma sorularına yanıtlar aranmıştır:

1. Matematik öğretmen adaylarının matematik eğitimine yönelik tercih ettikleri oyun tasarım ilkeleri nelerdir?
2. Matematik eğitimine yönelik eğitsel oyun materyallerinin tasarım ve uygulama sürecinin öğretmen adaylarına katkıları nelerdir?

## Yöntem

Öğretmen adaylarının oyun materyallerini aktif olarak tasarlamalarını ve uygulamalarını teşvik eden bu çalışmada, eğitim materyalinin tasarım, uygulama ve değerlendirme süreçlerini kapsayan tasarı tabanlı araştırma yöntemi kullanılmıştır. Van den Akker vd. (2006), tasarı tabanlı araştırmada teori ve pratiğe, sonuçtan çok sürece odaklanmanın, uygulayan kişi ve katılımcıların iş birliği ile gerçek yaşam problemine çözüm üretmenin önemini belirtmişlerdir. Yani tasarı tabanlı araştırma yöntemiyle, gerçek yaşamda var olan bir problemin çözümüne yönelik, sistematik çalışmalar yardımıyla eğitim ürünlerinin tasarlanması, geliştirilmesi ve değerlendirilmesi gerçekleştirilebilir (Bannan-Ritland, 2003; Kelly, 2006; Nieveen & Folmer, 2013; Plomp, 2013). Ayrıca bu yöntem, eğitim alanında gelişmelere, yeni teorik ve ampirik bilgiye dayalı kullanılabilir bir ürünün ortaya çıkmasına olanak sağlamaktadır (Trna, 2014; Trna & Trnova, 2012). Bu sayede, tasarı tabanlı araştırma yöntemi süzgecinden geçen çalışmalarla hem teoriye katkıda bulunurken hem de kullanılabilir bir ürünün tasarımı, geliştirilmesi ve değerlendirilmesi sağlanabilir (Kennedy-Clark, 2013; Masole, 2011; Van den Akker vd., 2006). Bu durum, tasarı tabanlı araştırma yaklaşımının temel bir özelliği olan katılımcıların aktif katılımını ve iş birliğini de yansıtmaktadır. Eğitim pratiğini geliştirmek ve aynı zamanda bu gelişmeleri teorik anlamda desteklemek için kullanılan tasarı tabanlı araştırma yöntemi, eğitimde karşılaşılan gerçek dünya problemlerini çözmek için teori ve pratiği birleştiren yenilikçi bir yaklaşımdır. Bu sebeple, çalışma kapsamında araştırma sorularına uygun olarak, matematik öğretmen adayları ile oyun materyali geliştirme sürecinde tasarı tabanlı araştırma yöntemi tercih edilmiştir.

## Katılımcılar ve Araştırma Süreci

Çalışmanın katılımcılarını, elverişli ve amaçlı örneklem yardımıyla ulaşılan bir vakıf üniversitesinde, ilköğretim matematik öğretmenliği programı müfredatında yer alan

‘Oyunla Matematik Öğretimi’ seçmeli dersini alan 47 (34’ü kız, 13’ü erkek) matematik öğretmeni adayı oluşturmaktadır. Öğretmen adaylarının eğitim gördüğü vakıf üniversitesinin aynı zamanda bir ortaokulu da bünyesinde barındırması araştırma sürecinde yer alan uygulama adımı açısından önemli görülmüş ve bu sebeple öğretmen adaylarının belirlendiği üniversitenin seçimi gerçekleştirilmiştir. Katılımcı profilleri incelendiğinde, çalışmaya katılan öğretmen adaylarının 19-21 yaş arası, transkriptlerindeki eğitim bilimleri temel derslerinin tamamından başarılı olmuş ve daha önceki dönemlerde Matematik Eğitiminde Materyal Geliştirme dersini almış öğrenciler olduğu görülmektedir. Bu kapsamda çalışmada yer alan katılımcıların öğretim materyali tasarlamaya ilişkin temel teorik ve uygulamalı bilgilere sahip olduğu görülmektedir.

Çalışma süreci toplamda 14 hafta sürmüştür ve bu süreçte tüm katılımcılar araştırmacılar ile birlikte, matematik öğretimi içerikli oyun materyallerinin tasarlanması, geliştirilmesi ve uygulanması sürecini içeren Seçmeli Oyunla Matematik Öğretimi dersi kapsamında aktif rol almışlardır. Öğretmen adaylarının teorik bilgileri öğrenmelerinin yanında oyun tasarımı süreçlerine aktif olarak katılmaları ve tasarladıkları oyunları öğrenme ortamlarında uygulamalarına yönelik imkanlar da sağlanmıştır. Ders içinde yer alan hazırlık, tasarım ve uygulama süreçleri çalışmanın temelini oluşturan tasarı tabanlı araştırma yöntemi ile ele alınarak öğretmen adaylarının prototip geliştirme süreçleri kapsamında eğitsel oyunlar tasarlamaları ve ders sonunda ürün olarak anılacak oyun materyaline ulaşmaları sağlanmıştır. Bu kapsamda, tasarı tabanlı araştırma yönteminin ana hatları ışığında çalışma ön hazırlık evresi, prototip evresi ve değerlendirme evresi olarak üç aşamadan oluşmaktadır (Şekil 1).



Şekil 1. Oyun materyali geliştirme tasarı tabanlı araştırma süreci aşamaları

Tasarı tabanlı araştırma yöntemi ile tasarlanan bu çalışmanın ön hazırlık ve prototip geliştirme süreçlerinde öğretmen adaylarına oyun materyali tasarımı yapmaları için fırsatlar sağlanmıştır. Çalışmanın son süreci olan uygulama aşamasında ise öğretmen adaylarının bir ortaokulda öğrenim gören öğrencilere tasarladıkları oyunları oynatmaları ve gerçek ortam deneyimleri ile tasarladıkları oyunların etkililiğini değerlendirmeleri sağlanmıştır. Tasarı tabanlı araştırma yöntemi ile öğretmen adaylarının oyunları tasarımı ve uygulamanın yanında kendi tasarım süreçlerine ışık tutan temel tasarım ilkelerine de ulaşmaları da sağlanmıştır. Bu çalışmanın gerçekleştirilmesi sürecinde izlenen yol olan tasarı tabanlı araştırma metodu aşamaları aşağıda detaylı şekilde anlatılmıştır.

**Tablo 1.** Araştırma süreçleri

Hafta	Ders İçeriği
1. Hafta	Oyun ve Oyunun Tarihi
2. Hafta	Oyun Türleri, Eğitsel Oyun ve Oyunlaştırma
3. Hafta	Oyun Kuramları
4. Hafta	Matematik Öğretiminde Oyun
5. Hafta	Matematik Öğretiminde Oyunlaştırma
6. Hafta	Matematik Oyunları – Tarihsel, Kültürel, Dijital, Puzzle ve Kutu Oyunları
7. Hafta	Prototip 0 – Oyun Tasarımına Hazırlık (Taslak Oyun Senaryosu ve Taslak Tasarım İlkeleri)
8. Hafta	Hazırlık – Grup içi Değerlendirme (Taslak Senaryo ve Tasarım İlkeleri)
9. Hafta	Prototip 1 – Oyun Tasarımı (Oyun Senaryosu ve Tasarım)
10. Hafta	Değerlendirme – Pilot Uygulama (Ders İçi Oyun Süreçleri)
11. Hafta	Prototip 2 – Oyun Tasarımı (Oyun Senaryosu ve Tasarım)
12. Hafta	Değerlendirme – Uzman Görüşleri (Oyun Tanıtım ve Gösterim)
13. Hafta	Son Ürün – Oyun Düzenleme ve Tasarımı Tamamlama (Oyun Senaryosu ve Tasarım)
14. Hafta	Uygulama – Ürün Olarak Oyun ve Final Tasarım İlkeleri

### Aşama 1 – Ön Hazırlık

Araştırmanın ilk aşaması olan *ön hazırlık aşaması*, öğretmen adayları ve araştırmacılar açısından iki şekilde ele alınmıştır. Öncesinde de belirtildiği gibi bu çalışma, seçmeli ders kapsamında 14 hafta süresince ele alınmıştır. Bu kapsamda öncelikle, öğretmen adaylarının oyun materyalinin tasarımı süreçlerine aktif olarak dahil olabilmelerine yönelik gerekli teorik bilgiler ve uygulama örneklerinin planlanması için ön hazırlıklar yapılmıştır. Tasarım tabanlı araştırmalarda ön hazırlık aşaması var olan durumu anlamak ve teorik çerçeve oluşturmak adına gerekli ve önemli görülmektedir (Kennedy-Clark, 2013). Bu aşamada, ilk olarak oyun materyallerinin tasarımına ilişkin ulusal ve uluslararası alan yazın araştırmacılar tarafından detaylı bir şekilde incelenmiştir. Ön hazırlık kapsamında oyunla matematik öğretimi dersi için yapılan 14 haftalık planlama Tablo 1’de sunulmuştur.

Tablo 1’de tanımlanan ders kapsamında öğretmen adaylarına 6 hafta süresince teorik ve uygulamalı Oyunla Matematik Öğretimi eğitimi gerçekleştirilmiştir. Bu ders araştırmacılarından birinin kontrolünde sürdürülmüştür. Ancak değerlendirme haftalarında ve ortak görüş oturumlarında her iki araştırmacı da uzman ve gözlemci olarak süreçte yer almıştır. Bunu takiben öğretmen adayları 4’er kişilik çalışma grupları oluşturarak oyun tasarım ve uygulama süreçlerine başlamışlardır. Öğretmen adayları için ön hazırlık aşaması bu şekilde başlamış olup, öncelikli olarak tasarım öncesi Prototip-0 süreçleri kapsamında ortaokul matematik öğretim programındaki kazanımlara ilişkin oyun materyallerinde olması gereken özellikleri belirlemeleri ve süreçte tasarlayacakları oyunların taslak senaryolarını geliştirmeleri istenmiştir. Bu süreçte öğretmen adayları kazanım ve sınıf konusunda serbest bırakılmıştır. Öğretmen adaylarının oluşturdukları taslak senaryolar ve taslak tasarım ilkeleri bu aşamanın veri kaynaklarını oluşturmuştur. Ayrıca araştırma kapsamında katılımcıların tasarım tabanlı prototip geliştirme süresince oyunla matematik öğretimi ve oyun materyali tasarlama süreçlerini incelemek amacıyla ön görüşme formları toplanmıştır. Böylece, ön hazırlık aşamasından elde edilen tüm veriler, oyunların oluşturulmasına yönlendirme sağlayarak çalışmanın dışsal geçerliliğine (Masole, 2011; Van den Akker vd., 2006) ve taslak tasarım ilkelerinin şekillenmesine katkıda bulunmuştur (Masole, 2011). Bu taslak ilkeler, oyun materyallerinin tasarım fikirleri, oyun özellikleri ve taslak senaryolar, öğretmen adayları tarafından grup içi olarak değerlendirilmiş ve ön hazırlık aşaması tamamlanarak oyun

tasarım süreçlerini kapsayan prototip geliştirme süreçlerine başlanmıştır.

### Aşama 2 - Prototip Geliştirme ve Değerlendirme

Araştırmanın ikinci aşaması olan *prototip geliştirme ve değerlendirme* aşamasında ise ön hazırlık aşamasında öğretmen adaylarının hazırladıkları ve grup içi çalışmalarla süzgeçten geçirdikleri taslak oyun senaryoları ve tasarım ilkelerinden yola çıkarak oyun tasarım süreçlerine başlamaları sağlanmıştır. Bu kapsamda Tablo 1’de belirtilen Prototip-1 ve Prototip-2 süreçleri ele alınmış ve ön hazırlık süreci yapılmış tasarımların ürüne dönüştürülmesi sağlanmıştır (Kennedy-Clark, 2013; Van den Akker vd., 1999). Prototiplerin geliştirilmesi, gerçek yaşam problemlerinin çözümü sürecinde tasarım ürünlerinin sürekli ve sistematik bir şekilde değerlendirilerek düzenlemeler yapılmasına olanak sağlar (McKenney vd., 2006). Böylece, tasarım ilkeleri teori ve uygulama ile beslenerek son halini almış olur (Masole, 2011). Bu süreçte, öğretmen adayları öncelikle oyunun test edilebilir bir sürümünü (Prototip-1) tasarlamış ve ardından sınıf içerisindeki diğer gruplara oyunun prototip-1 halini takdim ederek oynamalarını sağlamış (Şekil 2) ve tasarımlarına ilişkin notlar almışlardır. Böylece, tasarladıkları prototip için pilot uygulama fırsatı bulan öğretmen adayları, diğer arkadaşlarının kendi oyunlarını oynarken göstermiş oldukları tepkileri, duygu ve heyecanları ve varsa oyun materyallerindeki eksik-hatalı ya da geliştirilmesi gereken noktaları gözlemleyebilmişlerdir. Ardından oyunda tespit edilen eksiklikler ve oynayan kişilerin görüşleri doğrultusunda, oyununun tasarımını ve gereken durumlarda tasarım ilkelerini güncellemişlerdir.

Prototip-2 şeklinde revize edilerek tasarlanan oyunlar ve pilot uygulama raporları öğretmen adayları tarafından araştırmacılara ve sınıfın diğer üyelerine sunulmuştur. Bu kapsamda her grup yaklaşık 20 dakika süren sunumlar gerçekleştirmiştir. Ayrıca öğretmen adaylarının prototip geliştirme süreçleri devam ederken oyunla matematik öğretimi ve oyun materyali geliştirme süreçlerine ilişkin görüşlerinin tespit edilmesi için bir önceki aşamada yapılan görüşme formları tekrar edilmiştir. Böylece bu aşamanın verilerini öğrencilerin görüşlerine ilişkin raporlar, yapılan değişikliklere ilişkin tasarım karar raporları, sunum raporları ve tasarım ilkelerindeki değişimler oluşturmuştur.





Şekil 2. Öğretmen adaylarına sunum ve pilot uygulama görselleri

Bu aşamada yönetilen Prototip-1 ve Prototip-2 tasarım süreçleri ile öğretmen adaylarının uygulama öncesi son ürünleri ve bu ürünlere yönelik hazırlanan raporlar, sunumlar ve veri toplama olanakları elde edilmiştir. Öğretmen adayları tasarımlarını, pratikten gelen bilgiler ışığında bir süzgeçten geçirerek, aldıkları geri bildirimler ve gözlem notları kapsamında güncelleyebilmişlerdir. Böylece, oyunlarının ortaokul öğrencileriyle yapacakları gerçek uygulama öncesindeki son halini tasarlama imkanı sağlanmıştır. Yapılan bu revizyonlar ve alınan geri dönütler doğrultusunda, bir sonraki başlık altında aktarılan, oyun materyallerine ilişkin son ürün tasarım sürecine (3. Aşama – Uygulama) geçilmiştir.

### Aşama 3 - Uygulama ve Değerlendirme

Araştırmanın *uygulama ve değerlendirme* aşamasında öğretmen adayları, prototip geliştirme evresinde tasarladıkları oyunları düzenleyerek son ürün haline getirmişlerdir. Bu oyun materyalleri, araştırmacıların gözetiminde belirlenen bir vakıf üniversitesinin bünyesinde faaliyet gösteren özel bir ortaokuldaki öğrencilere uygulanmıştır (Şekil 3). Öğretmen adayları tarafından bir hafta boyunca farklı şubelerdeki öğrencilere oyunların oynatılması yoluyla kazanımların aktarılması, pekiştirilmesi ve beceri geliştirilmesi hedeflenmiştir. Bu süreçte öğretmen adayları, gerçek sınıf ortamı içerisinde, gerçek kullanıcılar olan ortaokul öğrencileri ile oyun materyallerini test etme ve öğrencileri kendi doğal ortamları ve süreç içinde gözleme olanağı bulmuşlardır.

Uygulama sırasında öğretmen adayları ve gerçekleştirdikleri uygulamalar araştırmacılar tarafından gözlemlenmiş ancak herhangi bir müdahalede bulunulmamıştır. Ayrıca öğretmen adaylarının prototip geliştirme süreçleri sonrası ve uygulama aşamasına yönelik oyunla matematik öğretimi ve oyun materyali geliştirme süreçlerine ilişkin görüşlerinin tespit edilmesi için bir önceki aşamada yapılan görüşme formları tekrar edilmiştir.

Öğretmen adaylarından bu aşama sonunda da uygulamaya ilişkin görüşleri içeren raporlar, son ürün olarak oyunlar, son ürün olarak tasarım ilkeleri ve son ürün olarak oyun senaryoları derlenmiştir. Toplanan veriler ışığında hem materyallerin gerçek ortamlarda, gerçek kullanıcılar tarafından kullanılabilirliği ve uygunluğu değerlendirilmiş, hem de sürecin matematik öğretmen adaylarının mesleki gelişimine yönelik katkıları ortaya çıkarılmıştır.



Şekil 3. Ortaokul öğrencileriyle uygulama görselleri

Özetle; bu aşamada öğretmen adaylarının, tasarladıkları oyun materyallerinin güçlü ve zayıf yönleri, öğrencilerin öğrenme süreçleri, tepkileri, ilgi, yetenek, başarı ve motivasyonları üzerindeki olası rolleri ve oyunla matematik öğretiminin temel gereklilikleri ile oyun materyallerinin tasarım ilkelerinde geliştirilmesi gereken noktalar hakkında deneyim sahibi olmaları amaçlanmıştır. Ayrıca, öğretmen adaylarının oyunlarını gerçek ortamda gerçek kullanıcılarla, gerçek zamanlı olarak değerlendirmelerine ve gerektiğinde düzenlemeler yaparak son ürün oyun materyallerini elde etmelerine olanak sağlanmıştır.

### Veri Toplama ve Analiz Süreçleri

Öncesinde de belirtildiği gibi matematik öğretimine yönelik oyun materyalleri geliştirme ve uygulama süreci, tasarım tabanlı araştırma yöntemi çerçevesinde, matematik öğretmen adayları tarafından gruplar halinde sürdürülmüştür. Bu süreçte öğretmen adaylarının gelişimleri ve görüşlerinin yanı sıra bu oyunların tasarım ve uygulama süreçlerinin incelenmesi de yapılmıştır.

Çalışmanın aşamaları süresince öğretmen adaylarının ders içi çalışmaları ve uygulamalarını kapsayan gözlem notları alınmış ve bu gözlem notları da öğretmen adaylarına geri bildirim olarak sunulmuştur. Bu sayede çalışmada veri toplama ve analiz sürecinin, süreklilik halinde devam etmesi sağlanmıştır. Ayrıca, tamamlanan her araştırma aşaması sonunda öğretmen adaylarından önceki araştırma süreçlerine ilişkin anlatımlarda da bahsedilen ve Tablo 2'de sunulan formlar ve raporlar toplanmış ve bu sayede ürünler elde edilmiştir.



**Tablo 2.** Aşamalar ve veri kaynakları

Aşama	Formlar	Raporlar	Ürün
Hazırlık	Ön görüşme formu	Tasarım kararları	Taslak senaryo Taslak tasarım ilkeleri
Tasarım-Değerlendirme	Tasarım-Değerlendirme görüşme formu	Değişikliklere ilişkin tasarım kararları Pilot uygulama raporu Sunum raporu	Oyun prototip-1 Oyun prototip-2 Tasarım ilkeleri-1 Tasarım ilkeleri-2
Uygulama	Uygulama görüşme formu	Uygulama raporu Son rapor	Ürün-1: oyun Ürün-2: tasarım ilkeleri Ürün-3: senaryo

Çalışma yönteminin doğasında var olan sürekli iyileştirme çalışmaları sebebiyle, Tablo 2’de de görülebildiği gibi, öğretmen adaylarından sunmaları istenen formlar ve raporlar araştırma aşamalarına göre çeşitlik göstermiştir. Her aşama sonunda sunulan *Ön görüşme*, *Tasarım-Değerlendirme* ya da *Uygulama* formları yardımıyla ilgili aşamadaki süreçlerine yönelik öğretmen adaylarının görüşleri toplanmıştır. Bunun yanı sıra, adaylardan hazırladıkları raporları teslim etmeleri ve sunmaları da beklenmiştir. Bu doğrultuda öncelikle, hazırlık aşamasında öğretmen adaylarından grup olarak taslak senaryosunu oluşturdukları oyunu tasarlamak için gerekli olan yol haritasını oluşturmaları ve sunmaları *tasarım kararlarına ilişkin rapor* kapsamında istenmiştir. Tasarım ve Değerlendirme aşamasında ise prototip geliştirme ve değerlendirme süreçlerinde karşılaşılan durumlar ve buna yönelik *değişikliklerine ilişkin tasarım kararları raporu* yazmaları istenmiştir. Ek olarak, öğretmen adaylarının gerçekleştirdikleri pilot uygulamada karşılaşılan durumlar, gözlemleri ve görüşlerini içeren *pilot uygulama raporu* ile pilot uygulama sonrası yeniden güncelledikleri oyunun sınıf ortamında tanıtımında elde edilen geri bildirimleri içeren *sunum raporu* da bu aşamada talep edilmiştir. Çalışmanın son aşaması olan uygulama aşamasında ise öğretmen adaylarının oyun tasarımlarını gerçek ortamda ve gerçek kullanıcılar olan ortaokul öğrencileri ile kullanmalarına ilişkin *uygulama raporu* ve varsa fark ettikleri eksiklikler ve bu uygulama deneyimine ilişkin gözlemlerini içeren *son rapor* istenmiştir. Bunun dışında öğretmen adaylarının oyunla matematik öğretimi ve oyun materyali geliştirme süreçlerine ilişkin görüşlerini belirlemek için Tablo 3’te örnek sorularına yer verilen görüşme süreçleri gerçekleştirilmiştir. Araştırmanın yöntemi dolayısıyla önemli sonuçlarını oluşturacak olan ürün ve tasarım ilkelerinin geliştirilme süreçlerini incelemek için her aşamada öğretmen adaylarından o aşamadaki tasarladıkları ürünler ve bu ürünleri tasarlariken dikkat ettikleri ilkeler talep edilmiştir.

**Tablo 3.** Örnek görüşme soruları

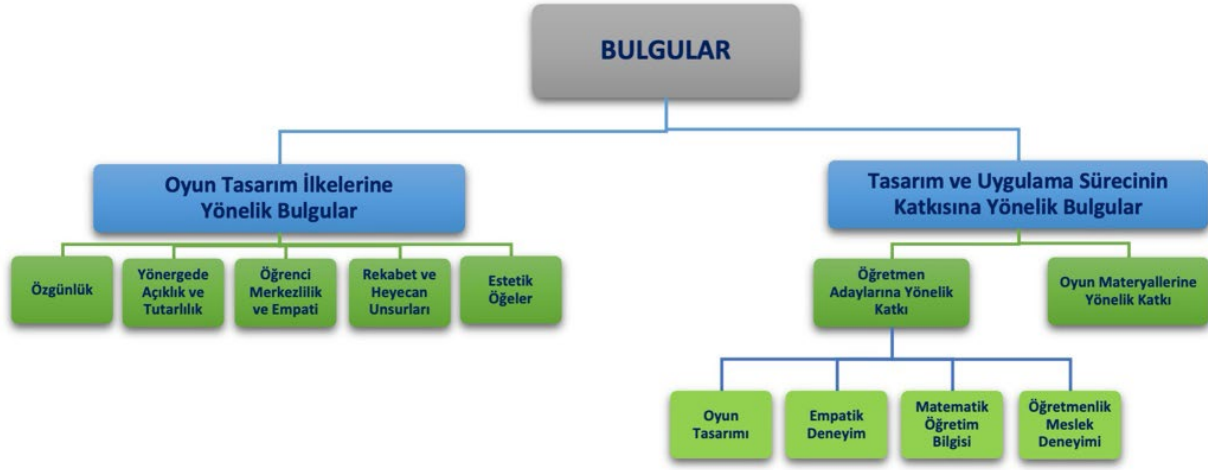
Tema	Örnek Soru
Genel Görüş	Oyunun matematik dersinde kullanımı hakkında ne düşünüyorsunuz?
Tasarım	Oyun materyali oluşturma ve bu materyali kullanarak ders işleme konusunda kendinize güveniyor musunuz? Neden?
Uygulama	Matematik dersinde oyun materyali kullanımının öğretmene ve ders sürecine katkıları neler olabilir?

Bu süreçte, araştırmacı gözlemleri ve Tablo 2’de belirtilen diğer veri kaynakları aracılığıyla elde edilen nitel veriler,

sistemik bir düzen içerisinde verilerin yorumlanmasına olanak sağlayan nitel veri analizi yöntemleri (Strauss & Corbin, 1990) kapsamında analiz edilmiştir. Miles ve Huberman (1994) tarafından ifade edilen adımlar takip edilerek, elde edilen tüm veriler bir araya getirilmiş ve verilerin detaylı incelenmesine olanak sağlayan nitel veri analizi sürecinde öncelikli olarak verilerin kodlanması yapılmıştır (Creswell & Poth, 2016). Katılımcıların gizliliği ve önyargıların önlenmesi için öğretmen adayları için takma isimler kullanılmış ve bulgular kısmında aktarılan söylemlerde de bu takma adların kullanımı tercih edilmiştir. Tüm veri setinin kodlanmasının ardından, elde edilen kodlar bir araya getirilerek incelenmiş ve ardından, araştırmacılar tarafından elde edilen kodlar arasındaki anlaşma düzeyinin bir ölçüsü olan değerlendiriciler arası güvenilirlik (IRR – Interrater Reliability) ölçümü yapılmış ve elde edilen 0,93 sonucu ile Landis ve Koch (1977) tarafından “mükemmele yakın anlaşma” olarak ifade edilen aralıkta sonuç elde edilmiştir (Hallgren, 2012). Sürekli karşılaştırmalı analiz yöntemi yardımıyla kodlanan verilerden benzer olanları kategoriler altında toplanmış ve elde edilen verilerin uygun kategorilerin başlıkları altında toplanarak sunulması sağlanmıştır (Strauss & Corbin, 1990). Araştırmacıların birlikte yürüttüğü süreç sonucunda elde edilen bu kategoriler, tasarım tabanlı araştırma süreci yoluyla elde edilen oyun materyalleri tasarım ilkeleri ve bu sürecin matematik öğretmen adaylarının mesleki gelişimlerine katkısına yönelik çalışma bulguları olarak aşağıdaki bölümde detaylandırılarak aktarılmıştır.

### Bulgular

Çalışma süresince merkeze alınan tasarım tabanlı araştırma yöntemi kapsamında öğretmen adaylarının ön hazırlık, prototip geliştirme ve uygulama aşamalarında gerçekleştirdikleri çalışmalar incelenmiş ve oluşturdukları ürünlere ilişkin görüşleri ve süreçleri göz önünde bulundurulmuştur. Genel olarak, ön hazırlık aşaması öğretmen adaylarının oyun tasarımına nasıl başladıklarını, ilk taslaklarını ve senaryolarını nasıl oluşturduklarını ve bu süreçte neler öğrendiklerini detaylandıran bulgularla şekillenmiştir. Prototip geliştirme ve değerlendirme aşamasında ise öğretmen adaylarının oyun prototiplerini geliştirme süreçleri, pilot uygulamaları, aldıkları geri bildirimler ve bu geri bildirimler doğrultusunda nasıl iyileştirmeler yaptıklarına yönelik süreçleri ve görüşleri incelenmiştir. Çalışmanın son aşaması olan uygulama aşamasında ise, öğretmen adaylarının oyunlarını gerçek sınıf ortamında nasıl uyguladıkları, öğrenci tepkilerine yönelik görüşleri, aldıkları geri bildirimler ve bu süreçte edindikleri deneyimleri kapsayan bir inceleme yapılmıştır.



Şekil 3. Çalışmanın bulgularına yönelik ana hatlar

Tüm bu süreci içeren tasarlama ve uygulama deneyimleri hakkındaki değerlendirmelere ilişkin bulgular iki ana kategori altında toplanmıştır. Tasarım ve uygulama süreci sonunda hem oyun tasarım ilkelerinin elde edilmesine hem de bu sürecinin katkısına yönelik ‘Oyun Tasarım İlkelerine Yönelik Bulgular’ ve ‘Tasarım ve Uygulama Sürecinin Katkısına Yönelik Bulgular’ olmak üzere iki ana kategori altında toplanan bulgular ve alt kategorileri Şekil 3’te özetlenmiş ve ilerleyen başlıklarda detaylandırılarak aktarılmıştır.

### Oyun Tasarım İlkelerine Yönelik Bulgular

Öğretmen adaylarının tüm süreç boyunca tasarım, uygulama ve matematiksel içerik bağlamında değerli ve önemli buldukları bazı noktalara göre materyallerini revize ederek en kullanılabilir ve etkili matematiksel öğretim aracı elde etmeye çalıştıkları görülmüştür. Bu doğrultuda belirtilen özellikler çalışma bulgularının matematik eğitiminde oyun tasarım ilkelerine yönelik bulgular olarak ana kategorilerden biri olarak dikkat çekmiştir. Öğretmen adaylarının oyun tasarımına ilişkin, oyun materyalinin özgün olması, yönergelerin belirgin ve tutarlı olarak verilmesi, içerik ve uygulama tasarımında öğrenci merkezli yaklaşımın ön planda olması, oyunların rekabet içererek heyecanı sağlaması ve estetik öğeler açısından zengin olması gerektiğine dikkat ettikleri görülmüştür. Bu doğrultuda, tasarı tabanlı araştırma yönteminin değerli bulgularından biri olan tasarım ilkelerine yönelik bu çalışmada elde edilen bulgular tasarım ilkelerinin aşağıdaki beş alt başlık altında toplanarak detaylandırılmasını sağlamıştır.

### Özgünlük

Öğretmen adaylarının ifadelerinde ve uygulama sürecinde oyunun özgün olmasının önemi sıkça vurgulanmıştır. Bulgulara göre çalışmada yer alan öğretmen adayları, oyunun öğrencilere etkili olabilmesi için farklı ve özgün olması gerektiğine inanmaktadırlar. Oyun tasarımlarında başlangıç teşkil eden ilk taslak senaryolarının bu inanç doğrultusunda şekillendiği görülmektedir. Bu durum bir öğretmen adayı ile yapılan görüşmede şu şekilde ifade edilmiştir:

*“Bulduğumuz ... oyunu farklı hale getirip, matematiksel bilgilerle bütünleşip farklı bir şekilde öğrencilere nasıl katkı sağlayacağını düşündük.”*

Başka bir örnekte ise öğretmen adayı, labirent oyununu temele alarak bu oyunu matematiksel bilgilerle bütünleştirmeye çalıştığını ve bu bütünleşmenin oyunu farklılaştıracağını belirtmiştir. Buradan çıkarımla öğretmen adaylarının, mevcut oyunları temel alsalar bile bu oyunları

matematiksel bilgilerle bütünleştirmeye ve öğrencilere katkı sağlayacak şekilde farklılaştırmaya çalıştıkları görülmüştür. Bazı öğretmen adayları, oyun tasarım sürecinde kendi yaratıcılıklarını ve özgün fikirlerini nasıl dahil edecekleri konusunda zorlandıklarını da belirtmişlerdir:

*“Oyunun diğerlerinden farklı ve özgün olması gerektiğini biliyordum, ancak özgün bir oyun tasarlamakta biraz zorlandık.”*

Buna benzer ifadeler, adayların bu süreçte nasıl bir denge kurmaları gerektiğine dair içsel bir sorgulama yaşadıklarını göstermektedir. Bu nedenle öğretmen adaylarının oyun tasarımlarında aldıkları ilk kararın oyunun sıradan olmaması gerektiğine yönelik olduğu ve özgün bir yaklaşımla öğrencilerin ilgisinin oyun aracılığıyla derse çekebileceğini vurguladıkları görülmüştür. Öğretmen adaylarının bu ortak görüşleri oyun tasarım sürecine başlarken dikkat edilmesi gereken en önemli husus olarak **“özgünlük”** kriteri olarak adlandırılmış ve öğretmen adayları gözünden oyun tasarım ilkelerinin en önemlisi olarak yer almıştır.

### Yönergede Açıklık ve Tutarlılık

Özgünlüğün yanı sıra, oyunun işleyişini belirleyen yönerge ve kuralların da öğretmen adayları için oldukça önemli olduğu görülmektedir. Öğretmen adayları, oyunun kurallarını belirlerken adil, tutarlı ve öğrenciler için anlaşılır olmalarına özen gösterdiklerini ifade etmişlerdir. Yönergedeki açıklığın ve öğrencilerin eşit şartlarda katılım sağlamasına olanak tanımamasının önemli olduğunu bir öğretmen adayı şu şekilde anlatmıştır:

*“Oyunun kurallarının çok net anlaşılır, adil ve tutarlı olması için çaba gösterdik.”*

Öğretmen adaylarına göre oyun kurallarının öğrencilere açıkça anlatılması, oyunun daha etkili bir öğrenme aracı olmasını sağladığı için, kurallarının oyuna başlamada detaylı bir şekilde tanımlanmış ve anlatılmış olmasının önemli olduğunu ifade ettikleri görülmüştür. Ayrıca, bazı öğretmen adayları kuralların sadece başlangıçta değil, oyun sırasında da gerektiğinde tekrarlanması gerektiğini vurgulamışlardır.

*“Oyun yönergesinin anlaşılabilir olmasının ne kadar önemli olduğunu anladım çünkü yönerge açık olmayınca hiçbir şey anlaşılıyor.”*

*“Oyunumuzun oyunculara aktarımında çok dikkatli olmamız gerektiğini gördüm. Oyunu hazırlarken yönerge çok açık olmazsa hiçbir şey anlaşılmadığını fark ettim. Hatta gerekirse çocuklar oyun oynarken bile oyun*

*kurallarını tekrar etmek gerekiyor. Oyunun adil oynanması ve amacına ulaşması için bu çok önemliydi.”*

Benzer ifadeler, kuralların ve yönergenin oyunun işleyişi için belirleyici olduğunu ve bu kuralların net ve anlaşılır olması gerektiğini göstermektedir. *“Ayrıca hızlı olmak için, düşünmeden cevapları atan öğrencileri engellemek amacıyla da soruları düzenledik ve kurallar koyduk”* görüşünde de olduğu gibi oyun kurallarının öğrencilere oyunun nasıl oynanacağı konusunda yol gösteren bir kılavuz işlevi gördüğünü belirttikleri de görülmektedir.

Öğrencilerin yaratıcılıklarını serbest bırakacak bir kural-özgürlük dengesi kurmanın önemli olduğuna yönelik görüşler de vurgulanmıştır. Genel olarak incelendiğinde öğretmen adayları kuralların oyunun işleyişini düzenlemek ve oyunun amacına ulaşmasını sağlamak için gerekli olduğunu, ancak bu kuralların kısıtlayıcı olmaktan çok yol gösterici ve açık olmasının oyunun amacına ulaşmasında kritik rol oynadığını ifade etmişlerdir. Öğretmen adaylarının bu görüşleri doğrultusunda oyun tasarım sürecine başlarken dikkat edilmesi gereken bir diğer durumun da *“yönergede açıklık ve tutarlılık”* olduğu ortaya çıkmış ve bu kriter de diğer oyun tasarım ilkesi olarak belirlenmiştir.

### Öğrenci Merkezlilik ve Empati

Öğretmen adaylarının görüşleri incelendiğinde oyunun öğrencilere hitap etmesi ve öğrenci ilgisini çekmesi gerektiğine vurgu yapılmıştır. Bulgulara göre öğretmen adaylarının tasarımlarında oyunun öğrenci merkezli bir yaklaşım ile ele alınmasına dikkat ettikleri ve bu empatik bakış açısının eğitsel oyunların etkili olması için kritik olduğu anlaşılmaktadır. Bu doğrultuda öğretmen adaylarının öncelikle öğrencilerin zorlanmaması adına soru seviyelerini ayarlamak gibi değişikliklere gitmek zorunda kaldıklarını sıklıkla ifade ettikleri görülmüştür. Örneğin, bir öğretmen adayı bu duruma yönelik açıklaması ile öğrenci düzeyine uygun bir tasarım için gerçekleştirdikleri çabadan bahsetmiştir:

*“Oyunu tasarlama sürecinde zorluklar yaşadık. Onlar için hem fazla zorlamayacak hem de gerçekten öğrenmelerine katkıda bulunacak bir oyun tasarlayabilmek biraz zor.”*

Benzer şekilde bir başka öğretmen adayı da *“Oyunu tasarlama ve tamamlama sürecinde zorluklar yaşadık, öğrenci zorluk seviyesine göre uygunluk için tasarımı sürekli değiştirmemiz gerekti.”* şeklinde bir görüş belirterek bu durumu desteklemiştir.

Tasarımlara ilişkin raporlar ve görüşlerden çıkarımla öğretmen adaylarının hem öğrencilere uygun zorluk seviyesinde olmasını sağlamanın hem de öğrencilere gerçekten öğrenme katkısı sunulmasının arasında denge kurmak için çaba sergiledikleri görülmektedir. Böyle bir tasarım çalışması sayesinde öğrenci merkezli bir tasarıma ulaşarak öğrencilerin oyunda aktif rollere sahip olmasının ve derse katılımlarının da arttırılacağına öne sürmüşlerdir. Bu konuda bir öğretmen adayı *“Diğer oyunda olduğu gibi bu oyunda da şunu fark ettim. Matematiği böyle öğrenci gözünden ele alıp, onların sevebileceği oyunlarla daha ilgi çekici bir hale getirebiliriz ve bu sayede öğrencilerin derse katılımlarını da arttırabiliriz.”* görüşünde bulunarak oyunlar ile matematiği daha ilgi çekici hale getirmenin mümkün olduğunu ve matematiksel konuları keşfederek öğrenmenin teşvik edilebileceğinin farkına vardıkları görülmüştür.

Ayrıca öğretmen adaylarının tasarım süreçlerinde öğrencilerin seviyelerini tespit etmek ve onlara uygun oyunlar tasarlayabilmek için empati yeteneklerini ön planda tuttıkları da görülmüştür. Bir öğretmen adayı bu durumu *“Öğrencilerle*

*empati kurmak çok önemliydi. Yani onların yaş ve beceri seviyesine inmek, geliştireceğimiz hangi tarz oyundan zevk alıp almayacaklarını düşünmemiz başarılı bir oyun materyali hazırlayabilmemiz için çok önemliydi”* ifadesinde öğrencilerin seviyelerini ve oyun tercihlerini nasıl belirlediklerini ele almıştır. Oyunun öğrenci seviyesine uygun olması, oyunun öğretici ve eğlenceli olmasını garantilediği görüşü ile hareket ederek öğrencinin daha kolay öğrenmesini ve oyunun içeriğini daha iyi anlamasını sağlmasına çaba göstermişlerdir.

Bu bulgulardan çıkarımla öğretmen adaylarının tasarımlarında dikkate aldıkları bir diğer durumun **“öğrenci merkezlilik ve empati”** olduğu görülmüştür. Bu durum da oyun tasarım ilkeleri arasında tanımlanmıştır.

### Rekabet ve Heyecan Unsurları

Öğretmen adaylarının tasarladıkları oyunun daha ilgi çekici ve rekabetçi olması adına yeni düzeylerin eklenmesi, kuralların düzenlenmesi ve oyun sürelerinin değiştirilmesi gibi stratejilere başvurdukları görülmüştür. Oyunun dinamiklerinin öğrencilerde heyecan ve rekabeti desteklemesi için yapılan değişikliklerin sonucu olarak öğrencilerin sürekli olarak motive olmasının sağlanması vurgulanmıştır. Bu duruma ilişkin bir öğretmen adayı şu görüşü bildirmiştir:

*“[Oyundaki] Adım sayılarında değişiklik yaptık. Oyunun süresinin kısa olmaması ... [ve] ... aynı zamanda soruyu yanlış bilince geriye gitme kuralını getirdik. Bunun sebebi de oyunun daha heyecanlı olması için.”*

Öğretmen adayı ifadesinde oyunda yapılan değişikliklerden bahsederek, oyunun süresinin ve kurallarının, oyunun heyecan seviyesini doğrudan etkilediği belirtilmiştir. Bir oyun tasarımının rekabetçi olması ile öğrencilerin oyundaki heyecanlı davranışlarının da şekilleneceğini ve bu sayede oyuna olan bağlılığın artacağını anlatan görüşlerin de bulunduğu görülmektedir. Bir öğretmen adayı bu durumu şöyle örneklendirmiştir:

*“... Yani oyunda soruları bir an önce çözüp topu sonuca götürmek istemeleri öğrenciler için çok heyecan vericiydi. Bunu dikkate aldığımız için materyalimiz başarılı oldu bence.”*

Öğretmen adayının rekabetin öğrenci motivasyonunu ve heyecanını arttırdığı ve oyundaki rekabetçi unsurların öğrencilerin daha aktif ve ilgili olmalarını teşvik edebileceğini belirttiği görülmektedir. *“Rekabet duygusu olduğu için heyecanlılardı ... Öğrenciler takım arkadaşlarıyla soruyu birlikte çözüp, materyali sırayla oynadılar”* ifadesinde de olduğu gibi öğrenciler arasında işbirliği ve rekabetin bir arada bulunmasının, oyunun dinamiklerini zenginleştirdiği ve bunun yanında öğrencilerin hem birlikte çalışma becerilerini geliştirmelerine hem de rekabetçi bir ortamda başarıya ulaşma motivasyonunu arttırmalarına yardımcı olduğu görüşünün hakim olduğu görülmüştür. Bir başka görüşte de öğretmen adayı *“Ayrıca çarka pas veya iflas ekledik, oyun bir anda değişebilir, heyecan katsın çocuklara diye. Yoksa yenilen takımın sıkılabildiğini gördük”* ifadesiyle rekabet ve heyecanın önemine vurgu yaparak ilginin sürekliliğinin bu şekilde sağlanacağından bahsettiği dikkat çekmiştir.

Buradan çıkarımla, öğrencilerin oyunu oynarken sürekli olarak aktif ve motive olmalarını sağlamak için oyunun rekabetçi unsurlar içermesi ve öğrencilerde bir heyecan duygusu oluşturması gerekmektedir. Tasarım raporları ve görüşleri sonucunda oyun tasarımında öğretmen adaylarının oyunun rekabetçi unsurlarla desteklenerek heyecanlı olmasına dikkat ettikleri görülmüştür. Bu çerçevede **“rekabet ve**

**heyecan unsurları”** bir diğer tasarım ilkesi olarak ortaya çıkmıştır.

### **Estetik Öğeler**

Oyun tasarımında, öğrencilerin ilgisini çekmek, motivasyonlarını artırmak ve öğrenme süreçlerini zenginleştirmek için önemli bir unsur da estetik tasarım öğeleri olarak ortaya çıkmıştır. Öğretmen adaylarına göre, bir oyunun eğitsel olarak değerli olmasının yanı sıra estetik açıdan da çekici öğelere sahip olması gerekmektedir. Ayrıca estetik öğelerin, bir oyunun genel deneyimine katkıda bulunduğu ve öğrencilerin oyuna olan ilgisini sürdürmelerine yardımcı olduğu da sıklıkla ifade edilmiştir. Öğretmen adaylarının bu konudaki bazı görüşleri şu şekildedir:

*“Oyunun yapım aşamasında öğrencilerin ilgisini çekmesi için renkli kağıtlar kullanmaya özen gösterdik.”*

*“... için eğlenceli hale geldi. Öğrencilere konu anlattıktan sonra pekiştirme olarak test odaklı yaklaşmak yerine çeşitli oyunlarla renklendirerek konunun pekişmesine yarar sağlayacağını anladım.”*

*“... belirlediğimiz renklerin önemli olduğu ...”*

Görüldüğü üzere öğretmen adayları renkleri, grafikler, çarklar gibi estetik öğelerin doğru bir şekilde entegre edilmesinin, oyun içerisinde daha derinlemesine odaklanılarak etkileşimde bulunulmasını sağlayacağını deneyimlemişlerdir. Öğrencilere konu anlattıktan sonra testlerle pekiştirmek yerine oyunlarla renklendirerek konunun daha etkili bir şekilde pekiştirilebileceğini ifade eden öğretmen adayları tarafından öne çıkarılan bu öğelerin, oyunun estetik yönünü zenginleştirdiği ve öğrencilerin dikkatini çekmek için önemli bir unsur olduğu vurgulanmıştır. Bu hususta başka önemli bir duruma işaret eden öğretmen adayının görüşü de şu şekildedir:

*“Materyalimizi oluştururken çarkın üzerinde belirleyeceğimiz renklerin öğrenciler açısından herhangi bir cinsiyet ayrımcılığı olmamasına dikkat ettik. Bu yüzden renklerin [çeşitli] kullanılmasını gerektiğini belirledik.”*

Bu öğretmen adayının ifadesinde de örneklendiği gibi, oyun materyallerine yönelik estetik öğelerin seçiminde, öğrencilerin cinsiyet, kültür veya sosyal arka planlarına duyarlı olmanın da önemli olduğuna dikkat çekilmiştir. Bu çerçevede, eğitimde oyun tasarımında estetik öğelerin önemi, öğretmen adaylarının oyun tabanlı öğrenme materyallerini tasarlarken dikkate aldıkları kritik bir husus olarak görülmüş ve **“estetik öğeler”** kriteri temel tasarım ilkeleri arasında yerini almıştır.

### **Tasarım ve Uygulama Deneyiminin Katkısına Yönelik Bulgular**

Öğretmen adaylarının prototipler şeklinde hazırladıkları oyun materyallerini sınıf içinde diğer öğretmen adayları ile ve ortaokul öğrencileriyle deneyimleyerek oluşturmalarını içeren sürecin, yani tasarımı ve uygulama deneyimlerinin katkısına ilişkin bulguların elde edildiği dikkat çekmiştir. Sürecin katkısına yönelik açığa çıkan bu bulgular ise iki alt kategori altında toplanmıştır. Yani tasarım ve uygulama deneyiminin katkısına yönelik bulgular olarak sürecin ‘öğretmen adaylarına’ ve ‘oyun materyallerine’ yönelik katkıları olmak üzere elde edilen ana kategoriler, alt kategorileriyle desteklenerek ilerleyen başlıklar altında özetlenmiştir.

### **Öğretmen Adaylarına Yönelik Katkı**

Matematik eğitiminde oyun materyali tasarlamaya yönelik teorik ve uygulamalı deneyimler elde edilmesine olanak sağlayan bu sürecin öğretmen adaylarına olumlu katkılar

sağladığına yönelik bulgular ortaya çıkarılmıştır. Öğretmenlerin oyun tasarımı, matematik öğretim ve öğretmenlik meslek bilgisi ile empatik deneyimine yönelik olarak ifade edilen bu katkılar, aşağıdaki alt başlıklar halinde detaylandırılmıştır.

### **Oyun Tasarımı**

Dahil oldukları süreç sonunda öğretmen adaylarının oyun tasarımına yönelik farkındalık kazandıkları ve hatta oyun materyali hazırlamak hakkındaki fikirlerinin süreç içerisinde ve sonunda farklılaştığını ifade ettikleri görülmüştür. Öğretmen adayları, oyun materyali hazırlamanın sandıklarından daha sistematik, hem alan hem de pedagoji bilgisinin etkili bir şekilde entegrasyonunu gerektiren bir süreç olduğunu fark etmişlerdir. Örneğin birkaç öğretmen adayının durumu aşağıdaki ifadeler ile dile getirmişlerdir:

*“Hem matematik hem öğrencilere yaklaşım, onların tercihi ve motivasyonları, oyunla içeriğin uygun bir şekilde sunumu, adalet gibi bir çok kavramı bir anda düşünmemiz ve çok sistemli çalışmamız gereken bir işmiş bu oyun işi. Ben oyun tasarımı etkileyecek bu kadar faktör olduğunu bilmiyordum.”*

*“Oyunu hazırlayacağız ve bitecek, çok hızlı ve kolay ilerleyebilecek bir süreç olacak sanmıştım. Düşündüğüm gibi değilmiş, aksine bu süreç çok sistemli düşünmeyi gerektiriyor.”*

Ayrıca birçok öğretmen adayının, oyun materyali hazırlamanın aslında düşündüklerinden daha zor olduğunu ifade etmişlerdir. Bu zorlukları detaylandıran öğretmen adaylarının öğrencilerin hem öğrenmelerine hem de seviyelerine, ilgi ve heyecanlarına odaklanılarak bir ürün geliştirilmesine yönelik farkındalıklarını dile getirdikleri görülmüştür. Örneğin:

*“Onlar için hem eğlenebilecekleri hem de gerçekten öğrenmelerine katkıda bulunacak bir oyun tasarlayabilmek biraz zormuş, bunu gördük.”*

*“Özgün bir oyun tasarlamakta biraz zorlandık. Oyunun kurallarının adil ve tutarlı olması için çok çaba gösterdik. Hem bunları hem kazanımları, soruların kalitesini ve niteliğini düşünmek zormuş.”*

*“Öğrencilerin yaş ve beceri seviyesine inmek, geliştireceğimiz hangi tarz oyundan zevk alıp almayacaklarını düşünmek ve böyle bir oyun materyalini hazırlamak zordu.”*

Özetle öğretmen adaylarının, oyun materyalinin hazırlanmasına yönelik gerçekleşen öğrenmelerini ve farkındalıklarını dile getirdikleri görülmüştür. Bu anlamda kazandıkları farkındalığı özetleyen aşağıdaki öğrenci söylemlerinden de görüldüğü üzere, tasarımı tabanlı oyun materyali hazırlama süreci öğrencilerin oyun tasarımına yönelik becerilerinin gelişmesine yönelik olumlu katkı sağlamıştır:

*“Oyun materyali hazırlamak birçok bilgi, deneyim ve beceri gerektiriyormuş bunu öğrendik. Mesela oyun ve kazanım arasında mantıklı bir ilişki olması gerektiğini fark ettik. Öyle bir materyal hazırlamalısın ki hem tüm öğrencileri motive etme etmeli, hem öğretmeli, bu arada oyun kaç kişi ve kaç grup olmalı, herkeste aynı anda oynayacaklar mı, bekleyen öğrencilerin sıkılmaması için ne yapmak gerekli. Yani bir oyun tasarlama ve hazırlık sürecine yönelik gerçekten hiç tahmin edemeyeceğim kadar çok şey olduğunu öğrendim.”*

## Matematik Öğretim Bilgisi

Çalışma sürecinde elde edilen veriler, oyun materyali geliştirilmesi ve uygulanması sürecinin öğretmen adaylarının matematik öğretim bilgilerine yönelik önemli katkılar sağladığını da ortaya çıkarmıştır. İlk olarak öğretmen adaylarının neredeyse hepsinin, bu süreç sayesinde matematiksel bilgi ve kazanımlar ile öğrenci sınıf seviyeleri arasındaki bağlantı noktasında kendilerine olan katkıyı dile getirdikleri görülmüştür. Bu sürecin ilgili kazanım ve kazanımın hangi sınıf/yaş seviyesi ile uyumlu olduğunu öğrenebilmeleri bağlamındaki katkıyı vurgulayan öğretmen adaylarının kendi cümlelerinden örnekler aşağıda sunulmuştur:

*“Hangi sınıf seviyesinde hangi kazanımın olduğu hakkında bilgi edinmiş olduk.”*

*“Sınıf seviyelerinde kazanımlara olan hakimiyetimizi bir seviye üste taşıdı. Soru hazırlama ve kazanım değerlendirme gelişimine katkıda bulundu.”*

*“Akademik olarak konu ile ilgili eksikliklerimizi kapattık. 5.sınıflara negatif sayı oyunu hazırlayacaktık ki öğrencilerin negatif sayılar ile ilgili bilgilerinin 6.sınıf seviyelerinde olduğunu öğrendik.”*

Ayrıca öğretmen adaylarından bazıları, matematik konularına ilişkin kavram yanlışlarının ya da eksik bilgilerinin olduğunu fark ettiklerini, materyal hazırlama ve sınıfa sunma sürecinin onlara bu eksikliklerini giderme anlamında da katkıda bulunduğunu ifade etmişlerdir. Bu sürecin, kendileri için de matematik konu ve kavramlarını tekrar etme, pekiştirme, pratikleştirme ve hızlandırma gibi faydalarına değinen öğretmen adaylarının bu durumu ifade eden cümlelerinden örnekler aşağıda sunulmuştur:

*“İtiraf ediyorum, rasyonel sayı ile kesir arasındaki farkı bilmediğimi hatta bu konuda eksik ve yanlış bilgilerim olduğunu gördüm. Benim için matematik öğretici de oldu.”*

*“Bu oyun ile üslü sayılardaki kuralları tekrar etmiş oldum. Hatta sanırım bazı kuralların mantığını bu oyunla yeni keşfettim (gülüyor).”*

*“Çok yönlü düşünmemizi sağladı. Matematik müfredatının tamamına yakın kısmını incelememizi, konu tekrarı yapmamızı hatta bizim de öğrenmemizi sağladı.”*

*“Birinci dereceden denklemleri bana pratik bir şekilde çözmeyi öğretti. Öğrencilere yetişebilmem için matematiksel hesaplamalarda hızlanmam gerektiğini fark ettim.”*

Konuya yönelik eksik bilgilerini tamamlama ve tekrar edebilme fırsatı bulmuş olan öğretmen adaylarına ek olarak, bazı öğretmen adayları da bu sürecin konular ve kavramlar arasındaki ilişkileri fark edebilmelerine yönelik katkılarında değinmişlerdir.

*“Rakamların, pozitif sayıların, negatif sayıların, toplama, çıkarma, bölme işlemlerinin kısacası çoğu konunun birbiriyle ilişkili olduğunu ve önceki konulardan birini tam anlamıyla öğrenmeden diğer konunun anlaşılmasını, çözümlenmesini zorlaştırdığını öğrendim.”*

*“Seçtiğimiz konuların birbiriyle bağlantısını daha iyi kavradım ve birkaç konuyu birleştirerek oyunu tasarladık.”*

Konu-spesifik farkındalıklarına ek olarak, öğretmen adaylarının tamamının eğlenerek matematik öğrenmenin sınıf içerisindeki ortamı farklılaştırdığını fark etmelerine yönelik sağladığı katkı da elde edilen önemli bulgulardan biri olmuştur. Bu süreç onlara, öğrencilere bu yolla sunulacak olan imkanların önemini gözlemleyerek ve yaşatarak

deneyimlemelerini sağlamış olup, öğretmen adaylarının bu anlamdaki farkındalıklarını da sık sık dile getirdikleri görülmüştür. Ayrıca öğretmen adaylarının, oyunun öğrencilerde oluşmuş ya da oluşabilecek olan matematik korkusu ve olumsuz ön yargıları engellemek adına etkili bir araç olarak kullanılabileceği hakkında da dikkat çekici görüşler paylaştıkları görülmüştür. Örneğin:

*“Bu oyun sayesinde öğrencilerin korkusu olan matematiği oyunlaştırarak korkulacak bir şey olmadığını öğrencilere aşılayabileceğimi düşünüyorum”*

*“Şunu fark ettim: öğrenciler matematikten çok korkuyor, çok karışık gözüküyor öğrencilere. Bu etkinlik sayesinde öğrenciler oyun oynayarak bir sürü konuyla ilgili pekiştirme yapmış oluyor. Korkuları azaltıyor bence.”*

*“Anladım ki öğrenciler için matematik dersi zevkli geçeceği için oyun sayesinde matematiğe karşı ön yargılar ortadan kalkabilir.”*

Tüm bunlara ek olarak, genel anlamda matematik ve oyun ilişkisine yönelik öğretmen adaylarında önemli farkındalıklar oluştuğu görülmüştür. Neredeyse tüm öğretmen adayları, daha önce bu entegrasyonun bu denli önemini fark etmediklerini dile getirmişlerdir. Durumu ifade eden öğretmen adaylarından örnekler;

*“Bu dersi almadan önce matematik öğretiminde oyunun bu kadar önemli bir yer tuttuğunu bilmiyordum.”*

*“Matematikte her konu ile ilgili oyun yapılabileceğini fark ettim.”*

Ayrıca birçok öğretmen adaylarının bu süreci değerlendirirken, matematik eğitiminde sıkça karşılaşılan ‘test odaklı’ eğitim anlayışını sorguladıkları ve onun yerine oyun koymak konusunda da farkındalık yaşadıkları elde edilen verilerde sıkça karşılaşılan bir bulgu olarak ortaya çıkmıştır.

*“Öğrencilere test odaklı yaklaşım sürekli bunlarla sınav-quiz yapıp öğrencileri korkutmak yerine ileride bir konunun ardından öğrenip öğrenilmediğini değerlendirebilmek için oyunu kullanabileceğimi fark ettim.”*

*“Öğrenciler oyunla öğreneceklerini gördükleri zaman oldukça iyi güdülendiler ve bu sayede konuyu çok daha iyi öğrendiklerini fark ettim. Sınıfta kitapla ya da test çözerek öğrenseler bu konuları bu kadar ilgili olmazlardı bunu fark ettim.”*

## Öğretmenlik Meslek Deneyimi

Bu sürecin öğretmen adaylarına yönelik katkılarında bir diğerinin de öğretmenlik meslek deneyimine yönelik kazandıkları deneyim olduğu dikkat çekici bir alt kategori olarak bulunmuştur. Yani çalışma, matematik öğretmen adaylarının gelecekteki meslekleri olan öğretmenliğe yönelik olumlu tutumlar geliştirmesi ve mesleki becerilerine yönelik önemli bir deneyim yaşamaları anlamında da katkılar sağlamıştır. Öğretmen adayları kendi öğretmenlik becerilerini ve tutumlarını değerlendirmiş ve bu uygulama sürecinin öğretmenlik mesleklerine alışmalarına ve bu anlamdaki gelişmelerine olanak sağladığını sıkça ifade etmişlerdir. Ayrıca, öğretmenlik mesleğine yönelik değerlendirmelerini yapan öğretmen adaylarının, bu süreç içerisinde sınıf yönetimi hakkında da yaşadıkları deneyimi vurguladıkları görülmüştür. Bu deneyime ek olarak, sınıf yönetimine kendilerini geliştirmeleri gereken bir yönleri ya da zorlandıkları kısım olarak değindikleri dikkat çekmiştir. Örneğin:

*“Öğrenciler nerelerde takılıyor, kendilerini nerelerde eksik hissediyorlar, oyunun içinde nasıl konu anlatabilirim, öğrencilerimin seviyesine nasıl inebilirim, bunları hep sorguladım ve geliştim bence. Hiçbir zaman*



*unutamayacağım, öğretmenliğe bu kadar yakın hissettiğim ilk deneyimimdi.”*

*“Daha önce sınıf ortamını görmemişim ve ilk defa bu heyecanı yaşadım, harikulade bir deneyimdi. Bu konuda kendimize olan güvenimizin arttığını düşünüyorum.”*

*“Uygulama aşamasında sınıf yönetiminde eksiklerimin olduğunu gördüm bu konuda biraz daha kendimi geliştirmem gerektiğini düşünüyorum.”*

*“Küçük sınıflarda ortamı düzenlemek ve koordinasyonu sağlamak beni biraz zorladı.”*

Ayrıca, neredeyse tüm öğretmen adayları ilerideki öğretmenlik hayatında oyunu kullanacaklarına, sürecin onlarda bu yönde olumlu bir tutuma sahip olmalarını sağladığını belirtmişlerdir. Öğretmen adaylarının geleceğe yönelik beklentilerinin oyun tasarımı ile yeniden şekillendiği de görüşlerinden ortaya çıkarılmıştır. Bu konuyla ilgili birkaç öğretmen adayının görüşleri şu şekildedir:

*“İleride matematik öğretmeni olduğumda kesinlikle bu tarz yöntemler ve oyunlar geliştirerek çocuklara matematik öğreteceğim. Çünkü çocuklar teorik eğitim yerine uygulamalı eğitimi daha çok benimsiyor.”*

*“Böyle oyun geliştirmeye önceden erinirdim ama şimdi ne kadar zevkli olduğunu anladım, etkili bir öğretmen olmak istiyorsam üşenmeden, böyle şeyler sunmam gerektiğini anladım.”*

*“Oyun oynarken zamanın nasıl geçtiğini anlamadıklarını, çok eğlendiklerini ve hatta teneffüse çıkmak istemediklerini söylediler. Bunu ve tam sayılarla toplama kısmında eksiği olan öğrencinin oyunun sonlarına doğru daha az yanlış yaptığını görünce böyle hem eğlendiren hem öğreten bir öğretmen olmak istediğime karar verdim.”*

## **Empatik Deneyim**

Öğretmen adaylarının kendi ve diğer grupların oyun materyallerini sınıfta deneyimleme sürecinin, onlara eğitime öğrenci gözünden bakabilmeleri anlamında sağladığı katkıyı sıklıkla dile getirdikleri görülmüş ve öğretmen adaylarının yaşadıkları bu empatik deneyim de ayrı bir alt kategori olarak ele alınmıştır. Bu doğrultuda, öğretmen adaylarının kazandıkları empatik deneyim ve bu deneyim sayesinde öğrencilerin ilgi, ihtiyaç ve tercihleri bağlamında kendi öğretmenlik algılarını tekrar gözden geçirebildiklerine yönelik söylemleri dikkat çekmiştir. Öğrenci odaklı düşünebilme boyutlarında yaşadıkları farkındalığı ifade eden öğrenci ifadelerinden örnekler aşağıda sunulmuştur:

*“Fark ettim ki biz öğretmen adayları bile oyun oynarken çok eğlendik. Biz böyle eğleniyorsak öğrencileri düşünemiyorum. Matematiği böyle oyunlarla daha ilgi çekici ve aktif bir hale getirmeliyiz.”*

*“Öğrencilerle empati kurmamızı geliştirdi. Bir konuyu öğretirken çocukların gözüyle bakmam gerektiğini. Oyun oynarken nasıl hissedebileceklerini ve kazanımları öğrenmelerinin kolay ve eğlenceli olabileceğini fark ettim.”*

Öğretmen adaylarının bu süreci bizzat kendilerinin yaşamaları, eğitimde oyunun motivasyona yönelik katkılarını yaşayarak öğrenmelerini sağlamış ve edindikleri empatik deneyimi de sıklıkla dile getirdikleri görülmüştür. Aşağıdaki öğretmen adayları söylemlerinde de örneklediği gibi, öğretmen adaylarının gerçek öğrencilerle materyallerini karşılaştırmadan önce bu süreci arkadaşlarıyla kendilerinin yaşamalarının önemine ve eğlenceli yanlarına vurgu yaptıkları dikkat çekmiştir. Öğretmen adayları, kendileri gibi diğer arkadaşlarının da geliştirdikleri oyun materyallerini

gözleme ve deneyimleme sahibi olabilmenin faydalarına da değinmişlerdir.

*“Bu oyunu sınıfta oynamak oldukça eğlenceliydi. Cisimlerin farklı yönlerden görünümünü deneyerek oluşturmak ve diğer arkadaşlarla rekabet halinde olmak benim için de keyifli ve öğreticiydi.”*

*“Oyunu sınıfta oynadıkça eksiklerimizin farkına vardık. Değiştirmemiz gereken yerler olduğunu görmemize katkı sağladı. Ve arkadaşlarımızın oyunumuz hakkında düşüncelerini öğrenebildik. Onlar oynarken ne hissettiler, neler düşündüler, nasıl hamleler yaptılar gibi soruların cevaplarını bizzat görme şansını yakaladık.”*

Öğretmen adayları ayrıca, geliştirdikleri ürünlerin diğer arkadaşları tarafından oynanması, beğenilmesi takdir görmesinin kendilerini heyecanlandırıldığını, gururlandırdığını ifade etmişlerdir. Böylece öğretmen adaylarının yapılan ders içi değerlendirmelerin öğrenciler açısından ne gibi duygular oluşturabileceğini ve olumlu görüşlerin neden önemli olduğunu ilk elden deneyimleme fırsatı da yakalamışlardır. Bu konuya ilişkin bazı öğretmen adayları görüşleri şu şekilde tespit edilmiştir:

*“Sınıfta arkadaşlarımıza oynattığımızda oyunu oynarken eğlendiklerini fark ettim, bizleri tebrik edip oyunu oynarken çok keyif aldıklarını belirtmeleri bizi gururlandırdı.”*

*“Oyunu arkadaşlarımıza göstermek ve oynadıklarını görmek çok heyecanlıydı. Çünkü oyunumuzu beğenmeleri bize cesaret verdi. Birlikte eğlenmiş olduk. Her şey sandığımızdan daha eğlenceli ve öğretici hal almış oldu.”*

*“Oyunumuzu sınıfta sunarken arkadaşlarımız oyunu çok merak ettiklerini ve oynamak istediklerini söylediler. Oyunu beraber oynadığımızda farklı ve güzel olduğunu dile getirdiler. Hazırladığımız bir oyunun beğenilmiş olması beni fazlasıyla mutlu etti.”*

## **Oyun Materyaline Yönelik Katkı**

Çalışma doğasında var olan tasarım, sunum ve uygulama süreçleri sayesinde öğretmen adaylarının son ürün olarak etkili oyun materyalleri elde etmelerine olanak sağlandığı görülmüştür. Yani tüm bu tasarı tabanlı araştırma sürecinin, oyun materyallerinin matematik öğretim içeriğine uygun, kullanışlı ve başarılı bir ürüne dönüşebilmesine yönelik sağladığı katkı dikkat çekici bir bulgu olarak yorumlanmıştır. Daha etkili bir oyun materyali elde edilebilmeleri amacıyla, öğretmen adaylarının materyallerinde yaptıkları değişiklikten bahsettikleri görülmüştür. Hazırladıkları oyun materyalinin uygulanması sonrasında özellikle öğrenci seviyesine ve kazanımlarına uyarlanması konusunda değişiklik yapmak durumunda kaldıklarını sıklıkla belirtmişlerdir. Daha öncesinde müfredat, kazanımlar, sınıf seviyesi ve gerçek öğrenciler ile çalışma yapma noktalarında çok fazla deneyim sahibi olmayan öğretmen adaylarının sıklıkla, diğer öğretmen adayları arkadaşlarından ve dersi yürüten araştırmacılardan aldıkları geri dönütler ile hazırladıkları materyallerdeki kazanımları ve sınıf seviyeleri konusunda farkındalık yaşayarak, öğrenciye uyarlama noktasında değişiklikler yaptıkları görülmüştür. Örneğin, sınıf seviyesine uygun kazanım ile değiştirme ya da oyunun sınıf seviyesini değiştirmeye yönelik deneyimlerini aktaran öğrencilerden birkaçı bu durumu şu şekilde ifade etmişlerdir:

*“İlk önce, oyunumuzun kazanımını 5.sınıf doğal sayılarla işlemler olarak hazırlamıştık. Fakat sınıfta sunarken 5.sınıf öğrencisinin negatif ve pozitif tam sayıları bilmediğini fark ederek kazanımımızı 7.sınıf tam sayılarla*

işlemler olarak değiştirdik ve o sınıf seviyesine en uygun oyun materyali olacak hale getirdik.”

“Oyunda paralelkenarın alanını hesaplamak gerekiyordu ama öğrenciler daha bu konuyu öğrenmemiş oluyorlarmış. Bunu bilmediğimiz için kazanımı kare ve dikdörtgenin alanını hesaplamaya yönelik olarak değiştirdik.”

“Oyunumuz koordinat sistemi bilgisi de gerektirdiği için sınıf seviyemizi 8. sınıf oyunu olarak değiştirmek durumunda kaldık.”

Buna ek olarak, sınıf seviyesinde değişiklik yapmaları gerekmeden oyun materyallerinin bazılarında ise öğretmen adaylarının, oyunun içeriğindeki matematiksel bilgi ve soruların zorluk seviyesine yönelik yapmak durumunda kaldıkları değişiklikleri ifade ettikleri de görülmüştür. Bunun yanı sıra, oyun içeriğindeki matematiksel becerilerin zorluğunu fark eden bazı öğrenciler ise zorluk seviyesini değiştirmek yerine, öğrencilere tanınan süre üzerinde yaptıkları değişikliği dile getirmişlerdir. Örneğin,

“Öğrencilerin kolaylıkla yapabileceğini düşünürken sınıf arkadaşlarımız bile zorlandı. Bu yüzden, öğrencilerin çok zorlanacaklarını ve oyunun amacından çıkacağını düşünerek oyundaki soru ve görev seviyelerini kolaylaştırmaya karar verdik.”

“Uygulama sürecinin ardından, soruların çözümü için oyunculara 10 değil 30 saniye süre vermeye karar verdik.”

“Bazı işlemlerin fazla işlem becerisi gerektiğini düşünerek kaldırıp, yerine yenilerini yazdık, ayrıca bazı bölme işlemlerindeki sayılarda değişiklikler yaptık. Her grubun oyun süresi hakkını uzattık ve bazı zor sorular için de ek süre ya da joker hakkı ekledik.”

En sık karşılaşılan değişiklik sebeplerinden birinin de öğretmen adaylarının, oyun materyalinde ‘eğlence’ unsurunu artırmaya yönelik yaptıkları düzenlemeler olduğu çalışma verilerinden elde edilen dikkat çekici bulgulardan biri olmuştur. Aşağıdaki öğrenci söylemlerinden de görüldüğü gibi, öğretmen adayları hazırladıkları oyun materyallerinin kazanım ve öğrenme amacına ek olarak öğrenciler için daha heyecanlı, ilgi çekici ve eğlenceli olması yönünde değişiklikler de yapmışlardır.

“Oyunun daha heyecanlı olması için, soruyu yanlış bilince geriye gitme kuralını getirdik.”

“Önce dört kişilik bir oyun olmasına karar verdik ama oyun uzar ve heyecanı kalmaz diye iki kişilik olmasına karar kıldık.”

“Öğrencilerin ilgisini çekmesi için renkli kağıtlar kullanmaya özen gösterdik. Ayrıca çarka pas veya iflas ekledik, oyun bir anda değişebilsin, heyecan katsın çocuklara diye. Yoksa yenilen takımın sıkılabildiğini gördük.”

“.. sonucu negatif sayı çıkan sorular çok olunca sürekli geri gittiği zaman öğrenci oyunun bir türlü bitmeyeceğini düşünüp oyundan zamanla sıkıldığını fark ettik, bu yüzden yönergemizde ufak bir değişiklik yaptık, bir de sıradaki kişi soruyu çözemeyince takım olarak birlikte çözebilme hakkı ekledik.”

Bunlara ek olarak, oyun oynama sırasında işleyişi, oyunun akıcılığını ve mantığını koruyabilmek adına hazırladıkları oyun materyallerinin yönergelerinde eksiklikler olduğunu fark eden öğretmen adaylarının uygulama süreci sonunda oyun yönergelerinde yapılan değişiklikleri de dile getirdikleri görülmüştür.

“Oyunu tasarlarken zaten bunu uygulama sürecini düşünerek tasarlıyoruz. Fakat gerçekten oyunu oynattığımızda oyunun bizim anlattığımız gibi

algılanmadığını ya da düşünmememiz gereken farklı noktalar olduğunu gördük. Kartların üzerinde yazan sayılar oyun esnasında eşleşmeyecek şekilde geldi mesela. O yüzden bu durumda kartı bulunduğu kulenin en altına koyarak oyuna devam etme kuralı getirdik.”

“Oyundaki öğrenci sayısını değiştirip en uygun kişi sayısının 20 olduğuna karar verdik. En başta öğretmenin küplerden bir şekil göstermesini ve sonrasında da öğrencilerin o şekilleri çizmesini istemiştik. Ama sınıfta uygulama yapınca tam tersi şekilde yaptığımızda daha verimli olduğunu gördük.”

“İlk başta oyunumuz iç içe geçmiş 2 üçgenden oluşuyordu ama oyunun çok kısa sürdüğünü görüp iç kısıma 3. üçgeni ekledik. Ayrıca öğrencinin 20 saniye soru çözmesi için bir zaman ve soruyu ilk çözen öğrenci için ekstradan +2 saniye kuralı ekledik.”

Bunlara ek olarak öğretmen adayları, oyunu gerçekten kendileri oynattığında ve birer öğrenci yerine geçip onlar gibi düşündüklerinde, oyunun bazı boşlukları olabileceğini fark ettikleri için yaptıkları düzenlemeleri de dile getirmişlerdir. Oyunlarında yönlendirici içerikler bulunmaması gerektiği ya da oyun için hile olarak görülebilecek kısa yollar bulabileceklerini fark eden öğretmen adaylarının, yarışmanın adil ve tutarlı ilerleyebilmesi için yeni düzenlemeler yaptıkları da dikkat çekmiştir. Örneğin,

“Oyunu oynarken hocamız şunu fark etti, en üstteki kartların hiçbirinde eşlenik olmadı. O zaman da öğrenci istediği bir kartı bulunduğu kulenin en altına koyar ve yeni çıkan kartla oyuna devam etmeye çalışır. Bu da haksızlık olur. Bu yüzden bu durumda -10 ceza puanı kuralını ekledik biz de.”

“Grup içerisinde öğrencilerin kopya/yardımlaşma durumuna engel olacak yönergeler ekledik. Ayrıca hızlı olmak için, düşünmeden cevapları atan öğrencileri engellemek amacıyla da soruları düzenledik ve kurallar koyduk.”

“Ayrıca bir grup işlemi yapmadan sadece birler basamağından cevabı tahmin edebildiği için haksızlık olduğunu gördük, bu yüzen sayıları ve yönergeleri biraz değiştirdik.”

Özetle öğrenciler bu süreçte hazır olduklarını sandıkları oyun materyalinin aslında hazır olmadığını ve deneyimlemenin, anlaşılır yönergeler sunmanın ve öğrenci gözünden oyunlara yaklaşmanın oyun materyali için ne kadar önemli olduğunu fark etmişlerdir.

## Tartışma ve Sonuç

Tasarı tabanlı araştırma yöntemi çerçevesinde yürütülen bu çalışmada, matematik öğretimi oyunlarla desteklemeye yönelik oyun materyallerinin öğretmen adayları tarafından tasarlanması ve sürecin değerlendirilmesi amaçlanmıştır. Prototipler şeklinde tasarlanan, sürekli değerlendirilerek düzenlenen ve uygulama olanakları ile geliştirilebilen, kullanıcı ve düzenleyicilerin aktif katılımına olanak sağlayan bu süreç eğitim materyali olarak oyunlar ve onlara yönelik tasarım ilkelerinin geliştirilmesine olanak sağlamıştır. Buna ek olarak, bu süreç deneyimi öğretmen adaylarının profesyonel gelişimine ve pedagojik bilgi ve beceri repertuarlarının genişlemesine de önemli katkılar sağlamıştır.

Bu doğrultuda ilk olarak, matematik öğretmen adaylarının matematik eğitimine yönelik tercih ettikleri oyun tasarım ilkelerine yönelik bulgular elde edilmiştir. Öğretmen adaylarının tasarım ve uygulama süzgecinden geçen oyun materyalleri için özgünlük, yönergede açıklık ve tutarlılık,

öğrenci merkezlilik ve empati, rekabet ve heyecan unsurları, estetik öğeler oyun tasarımında göz önünde bulundurulması gereken ilkeler olarak belirlenmiştir. Öğretmen adayları ve uygulayıcı öğrenciler için bir oyun materyallerinin var olan materyallerden farklı olmasının özellikle öğrencilerin ilgisini çekmek ve özgün, alana çeşitlilik sağlayacak bir materyal elde edilebilmesi noktasında önemli olduğu görülmüştür. Ayrıca geliştirilen oyun materyallerinin öğrenci gözüyle ele alınabilmesinin, geliştiren kişilerin öğrencilerle empati kurarak, onların eğlenerek öğrenmesine olanak sağlayacak içerik, estetik öğeler ve yönergelerle zenginleştirilmesinin önemi vurgulanmıştır. Oyundaki heyecan ve eğlence unsurlarının sürekli tutulabilmesi ve öğrenme/pekiştirme sürecinin devam edebilmesi amacıyla oyun içeriği ve yönergelerin yerinde ve kararında rekabet ve heyecan unsurları göz önünde bulundurularak belirlenmesi de önemli noktalardan biri olarak dikkat çekmiştir. Bu noktalarda da oyuna yönelik oluşturulan kuralların ve sunulan yönergelerin herhangi bir soru işaretine ya da adaletsizliğe olanak vermeden, yeterince açık ve tutarlı olmasının hem oyun materyalini oynayan hem de derslerinde kullanan öğretmenler için kritik bir nokta olduğu bulgular bağlamında ifade edilmiştir. Bu kategori altında elde edilen bulguların öğretmen adaylarının dijital oyun tasarımı deneyimlerini inceleyen Aldemir Engin (2023) çalışmasında elde edilen eğlenerek öğrenme, kalıcılık ve konuyu basitleştirme hedefleri ile örtüştüğü görülmektedir.

Oyun temelli matematik eğitimi materyallerinin tasarım ve uygulama sürecine yönelik diğer ana kategori şeklinde elde edilen bulgularda ise bu sürecin katkılarına odaklanıldığı görülmektedir. Tasarı tabanlı araştırma modeli odaklı sürecin hem öğretmen adaylarına hem de etkili eğitsel materyal olarak oyun ürünlerinin elde edilebilmesine yönelik faydaları ve olumlu katkıları olduğu ortaya çıkarılmıştır. Matematik öğretmen adaylarına yönelik katkılar bağlamında ilk olarak, adayların oyun tasarımının önemi ve gereklilikleri noktasında yaşadıkları farkındalık dikkat çekmiştir. Buna ek olarak, bu süreç sayesinde hem matematik hem de matematik öğretim bilgilerini değerlendirme ve geliştirme olanağı bulan matematik öğretmen adaylarının öğretmenlik meslek deneyimi elde edebilmelerine de sağlanan katkı dikkat çekicidir. Tasarım, uygulama ve araştırma unsurlarının içi içe ilerleyebildiği böyle bir süreç sayesinde empatik deneyim yaşayabilen öğretmen adayları, matematik öğretme sürecinde öğrenci gözünden gözlem ve değerlendirme yapabilme olanağı bulmuşlardır. Elde edilen bu bulgular, öğretmen adaylarının tasarım sürecine dahil edilmesinin olumlu katkılarına değinen Aldemir Engin (2023) çalışmasında elde edilen bulgular ve oyunla matematik öğretim sürecinin öğretmen adaylarının tutum ve yeteneklerine yönelik katkılarına değinen çalışmalarda (Almarashdi, Zaitoun ve Alarabi, 2023; Holden 2016; Meletioui-Mavrotheris ve Prodromou, 2016) elde edilen bulgular ile de paralellik göstermektedir.

Öğretmen adaylarının gelecekteki donanımlarına ve mesleki hayatlarına yönelik bu denli önemli farkındalık ve deneyim olanağı sağlayan bu sürecin, etkili eğitim materyali olarak oyunların geliştirilmesine sağladığı katkılar da dikkat çekici bir diğer bulgu olarak görülmüştür. Kennedy-Clark (2013) ve Van den Akker ve diğerlerinin de (2006) belirttiği gibi, gerçek eğitim ortamlarındaki ihtiyaç durumuna çözüm sunmak noktasında etkili olan tasarı tabanlı araştırma yöntemi sayesinde, sınıf içinde kullanışlı, matematiksel içerik ve güncel öğretim bilgisi ile uyumlu oyun materyallerinin ortaya çıkması sağlanmıştır. Bu durum ayrıca Öztöp'un (2022) da

değindiği, sınıflarda kullanılacak olan oyun materyallerinin üretimi sürecinde öğrencilerin ve alanın özellikleriyle uyumluluğun göz önünde bulundurulması gerektiği önerisiyle de örtüşmektedir. Yani bu çalışma sayesinde, oyunu kullanacak olan öğrenciler ile geleceğin matematik öğretmenlerinin süzgecinden geçmiş ve bu yolla hem öğrencilere hem de öğretmenlere katkı sağlamış olan oyun materyallerinin oluşturulması sağlanmıştır. Bu bağlamda çalışmanın, oyunla matematik öğretimine yönelik daha fazla araştırma yapılmasına ilişkin ihtiyaç ile de uyumlu olduğu düşünülmektedir (Pan vd., 2022).

Özetle; bu çalışma ile teorik ve pratik alt yapı ile beslenmiş olan, gerçek yaşamda var olan problemin çözümüne yönelik tasarım tabanlı araştırmaların doğası gereği elde edilebilen (Nieveen & Folmer, 2013; Plomp, 2013), sınıf içinde uygulanabilir, etkili ürünler ortaya çıkarılması sağlanmıştır. Bu ürünler Öztöp (2022) çalışmasında da değinilen, matematik öğretiminde fiziksel ortam tabanlı tasarlanan oyunların geliştirilmesi önerisiyle de uyumlu bulgular olarak görülebilir. Diğer taraftan bu çalışmanın, sürece aktif olarak katılan öğretmenlere tasarı tabanlı araştırmaların yaygın bir ürünü olan profesyonel gelişim anlamında da büyük katkılar sağladığı görülmüştür. Bu tespitler, oyun temelli matematik eğitimi materyallerinin tasarımı ve uygulamasının yanında sınıf içi uygulama deneyimleri edinmenin, öğretmen adaylarının mesleki gelişimleri için kritik bir öneme sahip olduğunu da ortaya koymaktadır. Dondio, Gusev ve Rocha'nın (2023) oyun temelli müdahalelerin matematik kaygısına küçük de olsa olumlu etkisini ortaya çıkaran meta analiz çalışmasında da vurguladığı gibi matematik kaygısını azaltmaya yönelik tasarlanacak matematik oyunlarına yönelik ihtiyaç vardır. Matematik öğretiminde oyunun önemli bir pedagojik araç olduğu (Afari, 2012) ve bu noktada öğretmenlerin ve eğitimcilerinin kritik öneme sahip olduğu (Jackson & McNamara, 2013) olduğu gerçeğinden yola çıkarak, bu çalışma kapsamında ortaya çıkan tasarım ilkeleri ve bulgular değerlendirildiğinde, çalışmanın alan yazınla ve uygulama ihtiyaçlarıyla paralellik gösterdiği söylenebilir. Benzer şekilde oyunlarının sistematik tasarımını ve tasarım ilkelerini belirleme odaklı Chorianopoulos ve Giannakos (2014) çalışmasında da vurgulandığı gibi, matematik sınıflarında materyal olarak kullanılacak ürünlerin matematik öğretim ve öğrenci bilgileri odağında hazırlanarak öğrencilerle buluşturulması gereklidir. Ayrıca çalışma bulgularının, Öztöp'un (2022) oyunla matematik öğretimine yönelik öğrenci ve öğretmen eğitiminin önemine dikkat çeken çalışma sonuçları ile de uyumlu olduğu görülebilir. Bu çalışma Hartono ve diğerlerinin (2016) de belirttiği, oyununun geleneksel öğretim yöntemleri yerine daha alternatif ve yenilikçi bir öğretim sağlaması gerçeğini yeniden vurgulamaktadır. Öğrenci motivasyonu ve tutumları (Mavridis vd., 2017; Vandercruysse vd., 2016) ile matematiksel düşünme becerilerine (Plass vd., 2013) yönelik olumlu katkıları vurgulanan oyunun matematik eğitiminde kullanımına yönelik ihtiyaç ve önem durumu aşıkardır. Bu doğrultuda, matematik sınıflarına bu katkıyı taşıyabilmek adına hem matematik öğretim programına hem de matematik öğretmen yetiştirme programlarına oyunla matematik eğitimi tasarımı ve uygulama ilkelerinin çokça dahil edilmesi önerilmektedir. Yenilikçi uygulamalara sahip geleceğin sınıflarına liderlik edecek öğretmen adaylarının tasarım süreçlerine empatik deneyim yaşatarak dahil edilebilmelerinin olumlu katkılarına ortaya çıkaran bu çalışma ile, matematik öğretmenlerin sınıflardaki görevlerinden önce öğretmen adayı

süreçlerinde bu uygulamalarla karşılaştırılarak yetiştirilmesinin önemini ve gerekliliğini de vurgulamaktadır. Hem öğretmenlerin pedagojik alan bilgisine yönelik kazanımların elde edilebilmesine olanak sağlaması hem de yetiştirecekleri öğrencilere oyunla matematikle öğretiminin katkılarını taşıyabilmesi bakımından oyunun matematik eğitim programlarına aktif dahil edilmesi önerilmektedir. Oyun her çocuğun kullandığı evrensel bir dildir (Erkan vd., 2002; Muro & Kottman, 1995) gerçeğinden yola çıkılarak geliştirilen materyallere ilişkin elde edilen bu bulguların, çalışma amacı dışında kalan diğer okullardaki öğrencilere, öğretmen adaylarına ve öğretmenlere de örnek teşkil edeceği düşünülmektedir. Özellikle matematik eğitiminde oyun materyali tasarlamaya yönelik elde edilen tasarım ilkelerinin bu konuda yapılacak gelecek çalışmalara ışık tutacağı düşünülmektedir. Ayrıca öğrencilerin sınıf içi bilişsel, sosyal ve duygusal tüm ihtiyaçları gözlemlenerek elde edilen bu tasarım ilkeleri doğrultusunda hazırlanan oyun materyalleri ile, ileriki çalışmalarda öğrencilerin bilişsel, duygusal ve sosyal gelişimlerine yönelik katkıları incelenebilir. Ek olarak, elde edilen tasarım ilkeleri çerçevesinde farklı sınıf seviyeleri ya da belirlenen matematiksel kavramlara yönelik çalışmalar yapılabilir, tasarım ilkelerinin geçerliği ve oyun materyallerinin kullanılabilirliği, öğrencilerin matematik başarılarına, matematiğe yönelik tutum ya da öz yeterliliklerine etkisini inceleyen çalışmalar gerçekleştirilebilir.

#### **Yazar Katkı Oranı**

Yazarlar makaleye konu çalışmanın planlanması ve metnin hazırlanmasında eşit oranda katkı sağlamışlardır. Çalışmaya konu olan ders çalışması ikinci yazar tarafından yürütülmüştür. Yazarlar metnin son halini okumuş ve onaylamıştır.

#### **Etik Kurul Beyanı**

Bu çalışma Alanya Alaaddin Keykubat Üniversitesi Sosyal ve Beşeri Bilimler Alanı Bilimsel Araştırma ve Yayın Etiği Kurulunda (Protokol No. 2021/05) 13.07.2021 tarihli 06/10 toplantısında alınan onay kararı ile yürütülmüştür.

#### **Çatışma Beyanı**

Yazarlar çalışma kapsamında herhangi bir kurum veya kişi ile çıkar çatışması bulunmadığını beyan etmektedir.

#### **Kaynakça**

- Afari, E. (2012). Teaching mathematics in game learning environment. *International Review of Contemporary Learning Research* 1(1), 33-45.  
<https://doi.org/10.12785/IRCLR/010104>
- Aksoy, N. C. (2010). *Oyun destekli matematik öğretimin ilköğretim 6. sınıf öğrencilerin kesirler konusundaki başarı, başarı güdüsü, öz-yeterlik ve tutumlarının gelişimlerine etkisi*. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Aldemir Engin, R. (2023). Matematik Öğretmeni Adaylarının Dijital Oyun Tasarlama Deneyimleri, Görüş ve Değerlendirmeleri: Draw Your Game Örneği. *Ordu Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Bilimler Araştırmaları Dergisi*, 13(1), 89-114.  
<https://doi.org/10.48146/odusobiad.1103234>
- Almarashdi, H., Zaitoun, E., & Alarabi, K. (2023). Exploring Pre-service Mathematics Teachers' Perceptions of

Teaching using Educational Games. *2023 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, 131-135.

<https://doi.org/10.1109/MCNA59361.2023.10185872>

- Altunay, D. (2004). *Oyunla desteklenmiş matematik öğretiminin öğrenci erişimine ve kalıcılığa etkisi*. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.
- Arı, A., Eren, E., Çam, Ş.S., Akifova, G.G. & Tahirova, G.S. (2014). Ortaokul beşinci sınıf derslerine yönelik değerlendirme materyallerinin geliştirilmesi. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, 7(1), 179-203.
- Bannan-Ritland, B. (2003). The role of design in research: The integrative learning design framework, *Educational Researcher*, 32(1), 21-24.
- Botes, W. (2022). Pre-service teachers' experiences on the development of educational science board games. *European Journal of STEM Education*, 7(1), 2-17.  
<https://doi.org/10.20897/ejsteme/11784>
- Canbay, İ. (2012). *Matematikte eğitsel oyunların 7. sınıf öğrencilerinin öz-düzenleyici öğrenme stratejileri, motivasyonel inançları ve akademik başarılarına etkisinin incelenmesi*. Yayınlanmamış Doktora Tezi, Marmara Üniversitesi, İstanbul.
- Chorianopoulos, K., & Giannakos, M. (2014). Design Principles for Serious Video Games in Mathematics Education: From Theory to Practice. *International Journal of Serious Games*, 1(3), 51-59.  
<https://doi.org/10.17083/ijsg.v1i3.12>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Çakmak, M. (2000). İlköğretimde Matematik Öğretimi ve Aktif Öğrenme Teknikleri”, *Gazi Eğitim Fakültesi Dergisi*, 20(3), 119-131.
- Dinçer, Ç. (2008). Okul öncesi eğitimde matematik. *Uluslararası Çocuk, Aile ve Okul Bağlamında Okul Öncesi Eğitim Kongre Kitabı*, 55-60.
- Dondio, P., Gusev, V., & Rocha, M. (2023). Do games reduce maths anxiety? A meta-analysis. *Computers & Education*, 194, 104650.  
<https://doi.org/10.1016/j.compedu.2022.104650>
- Erkan, S., Tuğrul, B., Üstün, E., Akman, B., Şendoğdu, M., Kargı, E., Boz, M. ve Güler, T. (2002). Okulöncesi Öğretmenliği Öğrencilerine Ait Türkiye Profil Araştırması, *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 23, 108-116.
- Gee, J. P. (2003). What video games have to teach us about learning and literacy, *Computers in Entertainment*, 1(1), 20-20.
- Gredler, M. E. (2004). Games and simulations and their relationships to learning, *Handbook of Research on Educational Communications and Technology*, 2, 571-581.
- Hallgren, K. A. (2012). Computing inter-rater reliability for observational data: an overview and tutorial. *Tutorials in quantitative methods for psychology*, 8(1), 23.  
<https://www.doi.org/10.20982/tqmp.08.1.p023>
- Hartono, M., Candramata, M. A., Adhyatmoko, K. N., & Yulianto, B. (2016). Math Education Game for primary school. In *International Conference on Information Management and Technology (ICIMTech)* (pp. 93-96). IEEE.
- Holden, J. (2016). Mobile inquiry-as-play in mathematics teacher education. *on The Horizon*, 24, 71-81.

- <https://doi.org/10.1108/OTH-08-2015-0046>
- Jackson, G., & McNamara, D. (2013). Motivation and performance in a game-based intelligent tutoring system. *Journal of Educational Psychology, 105*, 1036-1049. <https://doi.org/10.1037/A0032580>
- Karadeniz, M. H. (2017). Geleneksel Çocuk Oyunlarının Matematiğe Uyarlanması ve Uygulanması Sürecindeki Kazanım ve Problemlere Genel Bir Bakış, *Kastamonu Education Journal, 25*(6), 2245-2262.
- Kelly, A. E. (2006). When is design research appropriate? In T. Plomp & N. Nieveen (Eds.), *An introduction to educational design research* (pp. 135-150). Enschede, Netherlands: Netherlands Institute for Curriculum Development.
- Kennedy-Clark, S. (2013). Research By Design: Design-Based Research and the Higher Degree Research Student, *Journal of Learning Design, 6*(2), 26-32.
- Köroğlu, H., & Yeşildere, S. (2002). İlköğretim II. kademedeki matematik konularının öğretiminde oyunlar ve senaryolar. *V. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi*, 16-18.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *biometrics, 159*-174.
- Mangır, M., Aktaş, Y. (1993). Çocuğun Gelişiminde Oyunun Önemi, *Yaşadıkça Eğitim Dergisi, 26* (16), 14-19.
- Masole, T. M. (2011). *Enhancing the quality of performance assessment in agriculture in Botswana schools*, Yayınlanmamış Doktora Tezi, University of Pretoria, Pretoria.
- Mavridis, A., Katmada, A., & Tsiatsos, T. (2017). Impact of online flexible games on students' attitude towards mathematics. *Educational Technology Research and Development, 65*, 1451-1470. <https://doi.org/10.1007/S11423-017-9522-5>
- McKenney, S., Nieveen, N., & Van den Akker, J. (2006). Design research from a curriculum perspective. *Educational design research, 67*-90.
- Meletiöu-Mavrotheris, M., & Prodromou, T. (2016). Pre-Service Teacher Training on Game-Enhanced Mathematics Teaching and Learning. *Technology, Knowledge and Learning, 21*, 379-399. <https://doi.org/10.1007/s10758-016-9275-y>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- Miller, C. T. (2008). *Games: purpose and potential in education*. New York: Springer Science & Business Media.
- Moursund, D. (2007). *Introduction to Using Games in Education: A Guide for Teachers and Parents*. Oregon: University of Oregon.
- Muro, J. J., Kottman, T. (1995). *Guidance and Counseling in the Elementary and Middle Schools: A Practical Approach*. Iowa: C. Brown Communication.
- Nieveen, N., & Folmer, E. (2013). Formative evaluation in educational design research. *Design Research, 153*(1), 152-169.
- Oblinger, D. (2006). *Simulations, games, and learning*. ELI White Paper.
- Öztop, F. (2022). İlkokul matematik öğretiminde dijital ve dijital olmayan oyun kullanımının etkililiđi: Bir meta-analiz çalışması. *International Primary Education Research Journal, 6*(1), 65-80. <https://www.doi.org/10.38089/iperj.2022.92>
- Pan, Y., Ke, F., & Xu, X. (2022). A systematic review of the role of learning games in fostering mathematics education in K-12 settings. *Educational Research Review, 36*, 100448. <https://doi.org/10.1016/j.edurev.2022.100448>
- Plass, J., O'Keefe, P., Homer, B., Case, J., Hayward, E., Stein, M., & Perlin, K. (2013). The impact of individual, competitive, and collaborative mathematics game play on learning, performance, and motivation. *Journal of Educational Psychology, 105*, 1050-1066. <https://doi.org/10.1037/A0032688>
- Plomp, T. (2013). Educational design research: An introduction. *Educational design research, 11*-50.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research*. Sage publications.
- Tarassenkova, N., Akulenko, I., Burda, M., Hnezdilova, K., & Zhydkov, O. (2020). Characteristics of Mathematics Teachers' Practices and Beliefs about Project-Based Learning and Teaching Mathematics in Ukraine. *Universal Journal of Educational Research, 8*(12A), 7631-7642. <https://doi.org/10.13189/ujer.2020.082549>
- Trna, J. (2014). IBSE and Gifted Students, *Science Education International, 25*(1), 19-28.
- Trna, J., Trnova, E. (2012). Inquiry-based Science Education Experiments. *Inquiry-based science education in Europe: Reflections from the Profiles Project*. Editörler: Bolte, J. Holbrook ve F. Rauch. Berlin, Germany: Freie Universität Berlin.
- Tuđrul, B. (2010). Oyun temelli öğrenme. *Okul Öncesinde Özel Öğretim Yöntemler*. Editör: Zembat, R. Ankara: Anı Yayıncılık.
- Tural, H. (2005). *İlköğretim matematik öğretiminde oyun ve etkinliklerle öğretimdeki erişimi ve tutuma etkisi*, Yayınlanmamış Doktora Tezi, Dissertation, Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.
- Uğurel, I., Moralı, S. (2008). Matematik ve oyun etkileşimi, *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, 28*(3), 75-98.
- Van den Akker, J., Branch, R., Gustafson, K., Nieveen, N., Plomp, T. (1999). *Design approaches and tools in education and training*. Dordrecht: Kluwer Academic Publishers.
- Van den Akker, J., Gravemeijer, K., McKenney, S., Nieveen, N. (2006). *Educational design research*. London: Routledge.
- Van de Walle, J. A., Bay-Williams, J. M. & Karp, K. S., (2022). *Elementary and middle school mathematics: Teaching Developmentally*. Pearson.
- Vandercruysse, S., Vrugte, J., Jong, T., Wouters, P., Oostendorp, H., Verschaffel, L., Moeyaert, M., & Elen, J. (2016). The effectiveness of a math game: The impact of integrating conceptual clarification as support. *Comput. Hum. Behav., 64*, 21-33. <https://doi.org/10.1016/j.chb.2016.06.004>.
- Yörükođlu, A. (1986). *Çocuk ruh sađlıđı*. Ankara: Türkiye İş Bankası Kültür Yayınları.



## Extended Summary

### Introduction

Throughout history, games have found a place in every phase of our lives with the existence of humanity (Miller, 2008; Tuğrul, 2010) and have been accepted not only as entertainment but also as a tool that helps learning (Yörükoğlu, 1986). Today, many educators accept that games are an important part of education (Moursund, 2006; Tural, 2005), and this perspective is presented through studies showing that students trying to learn by sitting still for a long time does not create an effective educational environment (Oblinger, 2006; Tural, 2005). Game-based learning, which is seen as educational tools that provide the opportunity to solve problems they may encounter in real life, can provide students with skills such as critical thinking and creative thinking, while also allowing students to manage their own learning processes. While the importance of providing children with learning opportunities by doing and experiencing is emphasized in the mathematics learning approaches (Van de Walle, et al., 2022). At this point, the role of the game in providing a permanent and effective learning environment that appeals to the senses is remarkable (Tural, 2005). As Tarasenkova et al. (2020) state, teachers' knowledge and awareness directly affect the quality of practices in classrooms. In this context, it is a great necessity to educate prospective teachers about teaching mathematics through games and to provide them with opportunities to experience this process. Previous research has shown that studies on computer games or physical games stand out, but the design of concrete game materials and the impact of this process on teacher candidates in the teacher training process have not been researched sufficiently. For these reasons, this study aims to design game materials to support mathematics teaching with games by prospective teachers and to evaluate the process.

### Method

During this study, a design-based research process was implemented in which prospective mathematics teachers could actively participate, as it is included in the main philosophy of game-based education. The participants of the study consist of 47 prospective mathematics teachers (34 girls, 13 boys) who took the elective course 'Teaching Mathematics through Games' in the curriculum of the middle school mathematics teaching program at a university. When the participant profiles are examined, it is seen that the mathematics teacher candidates participating in the study were between the ages of 19-21, who have been successful in all of the educational sciences basic courses and who have taken the Material Development course in Mathematics Education in previous semesters. In this context, it was seen that the participants in the study have basic theoretical and practical knowledge about designing teaching materials. The study process lasted 14 weeks in total, and during this process, all participants, together with the researchers, took an active role in the 'Teaching Mathematics with Games' elective course. In this course, the process of designing, developing, and implementing game materials for mathematics teaching were implemented.

### Results

During the preliminary preparation and prototype development processes of the study, developed based on a design-based research method, opportunities were provided

for teacher candidates to design game materials. In the implementation phase, prospective teachers were made to play the games they designed with middle school students and to evaluate the ethics and applicability of the games they designed through real environment experiences. During the phases of the study, observation notes covering the in-class studies and practices of the prospective teachers were taken and these observation notes were also presented to the prospective teachers as feedback.

In general, the preliminary phase was shaped by findings detailing how teacher candidates started game design, how they created their first drafts and scenarios, and what they learned in the process. In the prototype development and evaluation phase, the processes and opinions of the prospective teachers regarding the development processes of game prototypes, pilot applications, the feedback they received and how they made improvements in line with this feedback were examined. In the implementation phase, which was the last phase of the study, an examination was conducted including how the prospective teachers implemented their games in the real classroom environment, their opinions on student reactions, the feedback they received and the experiences they gained in this process.

It was observed that teacher candidates paid attention to the game materials throughout the entire process and tried to obtain the most usable and effective mathematical teaching tool by revising their materials according to some points they found valuable and important in terms of design, application and mathematical content. The features mentioned in this regard have attracted attention as one of the main categories of study findings regarding game design principles in mathematics education. Regarding game design, it has been observed that teacher candidates pay attention to the fact that the material of the game should be original, the instructions should be given clearly and consistently, the student-centered approach should be at the forefront in content and application design. In addition, the games should provide excitement by involving competition and be rich in aesthetic elements. It was noted that findings were obtained regarding the contributions of the design and implementation experiences, that is, the process that involves teacher candidates creating the game materials they prepared in the form of prototypes by experiencing them with other teacher candidate friends and middle school students in the classroom.

### Discussion

This study was carried out within the framework of the design-based research method. It aimed to design game materials to support mathematics teaching with games by prospective teachers and to evaluate the process. This process was designed in the form of prototypes, and constantly evaluated and improved. It can be improved with application opportunities, which allows the active participation of users and organizers, enabling the development of games as educational materials and design principles for them. In addition, the experiences of teacher candidates in this process made significant contributions to the professional development of them and the expansion of their pedagogical knowledge and skill repertoire.

### Author Contributions

All authors took an equal part in all processes of the article. The elective course focused on this article was lectured by the

second author. All authors have read and approved the final version of the study.

#### **Ethical Declaration**

The purposes and procedure of the current study were granted approval from the ethical committee of the Alanya Alaaddin Keykubat University. (Session Date: 13.07.2021 Session Number: 06/10).

#### **Conflict of Interest**

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

## Examining Pre-Service Teachers' Perspectives on Culturally Responsive Education Using Q Methodology\* Öğretmen Adaylarının Kültüre Duyarlı Eğitime İlişkin Görüşlerinin Q Metodoloji ile İncelenmesi

Mustafa Aydoğan<sup>1</sup>  Esra İzmir<sup>2</sup> 

<sup>1</sup> Ph.D., Zayed University, College of Interdisciplinary Studies, Abu Dhabi, United Arab Emirates

<sup>2</sup> Ph.D., Sinop Üniversitesi, Eğitim Fakültesi, Sinop, Türkiye

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#### \*Sorumlu Yazar

Esra İzmir

Sinop Üniversitesi, Eğitim  
Fakültesi, Osmaniye Mah.  
Üniversite Cad. No.52/A Merkez/  
Sinop

[ekaptan@sinop.edu.tr](mailto:ekaptan@sinop.edu.tr)

**Abstract:** With globalization and migration, there is a rapid increase in cultural diversity in schools. Therefore, pre-service teachers' awareness, knowledge, and skills about cultural responsiveness and how to reflect them in the classroom environment have become important issues. This study aimed to explore the impact of a culturally responsive education course on pre-service teachers' views on culturally responsive education through Q methodology. The data collection tool utilized in the study was the "Q Set Statements on Culturally Responsive Education" grouped by the researchers under the sub-themes of awareness, knowledge, skills, and pedagogy. Data from the study group consisting of 39 volunteer pre-service teachers who took the culturally responsive education course were obtained through the HtmlQ program. Using the quantitative data obtained from the factor analysis and the qualitative data obtained from the semi-structured interviews, it was revealed that the pre-service teachers had three different subjective views on the effects of the culturally responsive education they participated in (a) Knowledge-Based Development (b) Awareness-Based Development and (c) Pedagogical Skills-Based Development. The results of the study point to valuable recommendations for culturally responsive teacher educators, pre-service teachers, and the Turkish education system.

**Keywords:** Culturally responsive education, culturally responsive teacher, pre-service teachers, Q methodology

**Öz:** Küreselleşme ve göçlerle birlikte okullarda kültürel çeşitlilik hızlı bir artış içindedir. Bu sebeple, öğretmen adaylarının kültürel duyarlılık hakkında farkındalık, bilgi, beceri ve bunları sınıf ortamına nasıl yansıtacakları önemli konular haline gelmiştir. Bu çalışma, kültüre duyarlı eğitim dersinin öğretmen adaylarının kültüre duyarlı eğitime yönelik görüşlerine etkisini Q metodoloji ile keşfetmeyi amaçlamıştır. Araştırmanın çalışma grubunu kültüre duyarlı eğitim dersini alan 39 gönüllü öğretmen adayı oluşturmaktadır. Araştırmacılar tarafından farkındalık, bilgi, beceri ve pedagoji alt temalarında gruplandırılan "Kültüre Duyarlı Eğitime İlişkin Q Seti İfadeleri" veri toplama aracı olarak kullanılmıştır. Ulaşılan veriler HtmlQ programı aracılığıyla analiz edilmiştir. Faktör analizinden elde edilen sayısal veriler ve yarı yapılandırılmış görüşmelerden elde edilen nitel veriler kullanılarak, öğretmen adaylarının katıldıkları kültüre duyarlı eğitimin etkileri üzerine üç farklı öznel görüşe sahip oldukları ortaya çıkmıştır: (a) Bilgi Odaklı Gelişim (b) Farkındalık Odaklı Gelişim ve (c) Pedagojik Beceri Odaklı Gelişim. Çalışma sonuçları kültüre duyarlı öğretmen eğitimcileri, öğretmen adayları ve Türk eğitim sistemi için değerli önerilere işaret etmektedir.

**Anahtar Kelimeler:** Kültüre duyarlı eğitim, kültüre duyarlı öğretmen, öğretmen adayları, Q metodoloji

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### Introduction

As a natural consequence of migration and globalization, cultural diversity is rapidly increasing worldwide. In addition to the longstanding local cultural diversity it has nurtured for centuries, the Republic of Türkiye is experiencing a growing diversity due to recent mass immigration. Consequently, pre-service teachers commence their careers in classrooms where cultural diversity is on the rise (Brand & Glasson, 2004). Teachers frequently encounter the challenge of delivering a uniform education to all students, given curricula and education systems that often do not consider the historical experiences and cultural backgrounds of their students (Bhopal & Danaher, 2013; Sharma et al., 2023).

The presence of students with diverse cultural characteristics in schools with ever-increasing numbers underscores the significance of highlighting the training of culturally responsive teachers. Aligning teacher education with this evolving demographic landscape necessitates substantial and timely revisions in teacher education programs (Villegas & Lucas, 2002). The intricate environment in schools where various cultures intersect shows the importance of fostering

cultural sensitivity and empathy among teachers and students (Shapira & Dolev, 2023; Wood & Wilson, 1996).

While there are studies examining pre-service teachers' views on cultural responsiveness (e.g., Banks & Banks, 2010; Hinojosa-Pareja & López López, 2018; Spraldin, 2009; Subasi Singh & Akar, 2021), the current research was designed to bridge the gap in the existing literature, which lacks post-training assessments employing Q methodology. The present study is focused on the examination of pre-service teachers' perspectives after their engagement in a culturally responsive education course, an uncommon practice within the Turkish teacher education landscape. Accordingly, the main research question of the study is: What is the impact of a culturally responsive education course on pre-service teachers? The sub-problems of the study are as follows: What is the impact of the training on pre-service teachers' (a) knowledge, (b) skills, and (c) value-based development towards culturally responsive education? The significance of the study is grounded in its emphasis on the importance of the culturally responsive course in teacher education, while also measuring its efficacy.

\* A part of this study was presented at the "International Conference on Inclusive Education in Multicultural Classrooms" held at Izmir Katip Çelebi University on May 22-24, 2024.

## Cultural Responsiveness and Teacher Competencies

Cultural responsiveness can be defined as an individual's capacity to enhance their awareness and knowledge, both about themselves and others, and to apply these insights in social interactions. On a societal level, cultural responsiveness pertains to ensuring equitable and just access to resources and social life for the various cultural groups within a given society (Kotluk, 2018). In the realm of education, cultural responsiveness, often referred to as culturally responsive education or pedagogy, embodies culturally sensitive communication among school stakeholders, including teachers, students, administrators, and parents of diverse cultural backgrounds. This sensitivity is reflected in the teaching, learning, and assessment processes.

Culturally responsive education involves acknowledging students' diverse cultural knowledge, experiences, frames of reference, and performance styles to create a meaningful and effective learning environment (Gay, 2018). In this process, educators should not only integrate students' cultural values and experiences into their educational settings but also consider their cultural backgrounds and the cultural perspectives of other stakeholders, such as parents and school counselors (Rengi & Polat, 2014).

To nurture cultural sensitivity among educators, it is vital to encourage and enhance cultural diversity within schools. This is because the attitudes and behavior of teachers toward students from various backgrounds significantly influence the academic success of all (Banks, 1987; Johnson & Atwater, 2014). Hence, prospective teachers should undergo training that acknowledges these distinctions, creating an inclusive learning environment for students from diverse backgrounds (Pine & Hilliard, 1990). To design the content of this training, it is essential to begin by identifying the qualities that a culturally sensitive teacher should embody.

Irrespective of their backgrounds, individuals entering the teaching profession must be prepared to educate a student body characterized by diversity in terms of race, ethnicity, economic circumstances, and language (Villegas & Lucas, 2002). Beyond the expected professional competence, a culturally responsive teacher is required to possess a specific set of qualities that encompass social awareness, cultural sensitivity, student understanding, utilization of cultural learning resources, and the use of effective pedagogical approaches and methodologies (Villegas & Lucas, 2002).

Furthermore, a culturally responsive teacher should demonstrate an awareness of their biases and assumptions about cultural differences, possess knowledge about cultural diversity, including their own culture and their students' cultures, and have the requisite teaching skills to build upon this knowledge (Gorski, 2010; Rodriguez, 1983). A culturally responsive teacher's pedagogical approach should incorporate students' cultural background knowledge, experiences, and learning styles into the teaching and learning process. This entails creating a culturally inclusive classroom environment, employing diverse assessment methods to gauge student learning, and providing support to help students maintain their cultural identities (Siwatu, 2007).

Extensive research has delved into the measurement of cultural sensitivity among educational professionals. Siwatu's (2007) study illustrated that teacher candidates with a culturally responsive pedagogical understanding exhibited greater competence in forming positive relationships with their

students, fostering a sense of belonging, and effectively communicating with students learning a second language.

Given that the teaching profession is often dominated by individuals from the majority culture in many communities, there is a contention that such individuals may harbor ethnocentric views when interacting with minority students (Yuen & Grossman, 2009). Ethnocentric teachers tend to frame all relational dynamics within their cultural perspective, leading to challenges in integrating the cultural diversity that students bring into the classroom, and also hindering their comprehension of its impact on teaching and learning (Kağnıcı, 2020). As a result, such teachers may resist curriculum and program changes (Yuan, 2017), relying solely on their own ethnic and cultural values to evaluate teaching and learning, which obstructs the creation of an inclusive educational environment.

The importance of cultural responsibility in educational settings is widely recognized, as it provides various benefits and advantages. Hence, educational researchers have conducted studies to identify the factors influencing cultural responsibility and the direction of their effects. While some studies have found age and gender variables to be significantly related to cultural responsibility, others have demonstrated that these variables do not consistently and stably correlate with it (Aydin & Şahin, 2017; Yılmaz & Göçen, 2015). Conversely, the literature suggests that teacher candidates' cultural responsibility levels are positively impacted by the cultural diversity and population density of the region in which they reside. Additionally, research has shown that cultural responsibility, as well as the general undergraduate education received by teachers and guidance counselors (Pientrantoni & Glance, 2019; Yılmaz & Göçen, 2015), professional experience (Yıldırım, 2020), and minority status (Yeh & Arora, 2003), are factors that positively influence their cultural responsibility attitudes and skills.

## The Status of Culturally Responsive Teacher Education in Türkiye

The integration of cultural responsibility into teacher education has been a slow process due to factors such as a shortage of trained instructors, resistance, and political obstacles (Banks, 2004). To address this, teacher training programs offer elective courses on culturally sensitive education topics. For example, in Türkiye, the Inclusive Education course is offered as a General Culture Elective in the Social Studies Education Undergraduate Program, and the Occupational Knowledge course is provided as an Elective course in the Primary Education Undergraduate Program (Higher Education Council [HEC], 2018). However, the availability of Culturally Responsive Education courses depends on the presence of trained instructors. These courses aim to enhance teacher candidates' personal awareness and knowledge levels. While studies have shown that undergraduate and graduate courses on culturally responsive education help teacher candidates develop awareness and knowledge, their impact on skill and attitude acquisition is limited, as attitude and skill development require long-term and experiential studies (Kağnıcı, 2013).

In 2017, the Ministry of National Education (MoNE) in Türkiye updated the General Qualifications of the Teaching Profession list, outlining the competencies required for the teaching profession, which consists of three main areas and 65 indicators (MoNE, 2017). Kotluk and Kocakaya's (2018) study confirms that these indicators align with the cultural

responsiveness education approach. However, despite this alignment, culturally responsive education courses are not mandatory in teacher education programs as designated. Consequently, teachers are left to rely on their efforts and experiences to establish a culturally sensitive learning environment.

While the importance of preparing teacher candidates for diverse classroom environments is acknowledged, current research in this area remains insufficient, warranting further investigation (Russell & Russell, 2014; Trent et al., 2008). Therefore, research exploring the awareness, attitudes, and beliefs of teacher candidates regarding different cultures and their implementation in the educational environment would yield valuable insights in this field. To be effective in their profession, teacher candidates must possess meaningful personal and professional awareness of diverse cultures. It is well-established that teachers' beliefs toward different cultures influence their professional judgments and actions (Banks & Banks, 2010). Additionally, in societies where cultural values are prioritized, attending to teachers' perceptions, beliefs, and attitudes during their education process becomes a pivotal factor (Hinojosa-Pareja & López López, 2018). Hence, this study aims to investigate the effects of a 16-week culturally responsive education course on teacher candidates' views. By evaluating the quality of education provided and allowing teacher candidates to reflect on their personal views, this study contributes to the field of teacher education in a culturally diverse society.

**Method**

**Q Methodology**

In the current study, Q methodology was utilized to investigate how teacher candidates transformed their perceptions as a result of a culturally responsive education course. Q methodology has been widely adopted in social sciences (Aydogan et al., 2022; Watts & Stenner, 2023). In the current study, participants were asked to rank a set of prepared statements (Q set) based on their thoughts and opinions, using a scale that ranges from negative to positive. The Q scale (depicted in Figure 1) consists of three sections: the middle part for neutral or undecided statements, the left part for statements that oppose participants' views, and the right part for statements that align with their views.

Two traditional methods of applying Q arrays are the free method, where participants determine the number of expressions to be placed in each column, and the fixed method, where participants allocate a specific number of expressions to particular columns, as exemplified in this study (Watts &

Stenner, 2023). Employing the latter method, the participants in this study were instructed to arrange predetermined statements in the Q array and subsequently express their views regarding the expressions with the highest and lowest levels of agreement during semi-structured interviews. The study's objective is to unveil participants' subjective interpretations and internal references rather than the meanings and connections attributed by the researchers (McKeown & Thomas, 2013; Ramlo, 2021). Q methodology is a combination of qualitative opinions expressed by participants during the semi-structured interviews and serves as the main data collection method in this research.

**Training Provided to Participants**

In Türkiye, due to a shortage of faculty who can offer multicultural education at the higher education level and resource constraints, colleges of education seldom provide culturally responsive education courses (Akalin & Türküm, 2021; Kağnıcı, 2013). Therefore, this section of our study aims to offer an overview of the Culturally Responsive Education course, which served as the treatment for the study participants, providing a point of reference for educators and researchers planning to offer a similar course to teacher candidates.

This course, conducted within a college of education, aims to enhance participants' multicultural awareness, knowledge, and skills. As an overview provided in Table 1, the educational process is designed to assist teacher candidates in developing personal and professional awareness and perspectives regarding the sociological, historical, philosophical, and psychological impacts of their own religion, language, ethnic origin, age, ability status, sexual orientation, and socioeconomic status on society through self-reflection and practical application. During the first half of a 16-week semester, the course concentrated on defining, exploring the effects of, and recognizing obstacles and ethical considerations associated with multiculturalism. During this period, a combination of didactic and experiential learning methods was employed to underscore concepts such as cultural humility, social privilege, power dynamics in dominant and non-dominant groups, and micro-aggressions.

In the latter part of the course, various social identities that hold minority status in Turkish society were introduced. The syllabus initially presented some of these identities to the students (e.g., ethnic origin, sexual orientation), while others were incorporated into the course content through a series of class discussions (e.g., being an immigrant or a war victim).

Least Agree -4 (3 cards)	-3 (4 cards)	-2 (4 cards)	-1 (5 cards)	Neutral 0 (7 cards)	+1 (5 cards)	+2 (4 cards)	+3 (4 cards)	Most Agree +4 (3 cards)

**Figure 1.** Ranking and distribution grid for 39 Q-sorts



**Table 1.** Overview of the semester-long culturally responsive education training

Week	Weeks and Content Overview	Learning Activity	Objectives
1	Introductions, cultural competence, why is it necessary?	Introductions of class members with a cultural focus, ground rules, multicultural competencies group check	Understand multicultural and pluralistic trends, including characteristics and concerns between and within diverse groups nationally and internationally
2	What are the barriers? Cultural awareness, worldview.	Scenarios of barriers in school. Discussion and self-reflection of “why I may be nervous with a student of a different culture”	Promote cultural social justice, advocacy, and conflict resolution in school and society
3	Cultural humility, taking risks in multicultural communication	Example humility statements, discussions of ethnocentrism	Individual and group-level strategies for working with and advocating for diverse students
4	Privilege, Power, and Oppression in Education	Role-plays for privileged and oppressed communication	Eliminate biases, prejudices, and processes of intentional and unintentional oppression and discrimination
5	Cultural Identity and Intersectionality	Experiential activity with multiple identities through which students have privilege or lack of privilege	Implement multicultural/transcultural education awareness and knowledge of cultural identities
6	Microaggressions and Teachers, Communication, and Body Language	Role-plays, didactic learning, and class discussion	Examine bias and microaggressions in daily interactions
7	Trust, History, and Cross-Cultural Communication, Broaching Cultural Issues	Introduction of broaching continuum and broaching statements for different levels with role-plays	Demonstrate knowledge and skills in broaching cultural aspects with students and parents.
8	Ethical and Legal Responsibilities Related to Cultural Diversity	Didactic presentation and scenario-based discussions	Learn about ethical and legal considerations in cultural diversity
9	Social Class, Wealth, Socioeconomic Background		
10	Ability Status, Inclusion, Special Education	Student presentations of each identity’s history, current perspectives, and possible effects on the educational process in Türkiye. These presentations included a photo album of each identity, role-plays, and experiential in-class activities.	
11	Immigration, National Identity		
12	Gender, Sexual Orientation, LGBTQ+ Community		Demonstrate awareness, knowledge, and skills working with each of the introduced identity areas in contemporary Türkiye’s society.
13	Race, Ethnicity, and Education		
14	Elderly, Religion, and Spirituality		
15	International Aspects of Teacher Education		
16	So, what, now what, then what? Advocacy in Education and Society: A Life-long Goal		

The primary emphasis was on fostering knowledge, awareness, and skill development related to these identities. Course evaluation took place through a combination of assignments, cultural group presentations, and examinations. Participants were tasked with completing a self-cultural identity exploration assignment, designed to raise their awareness by encouraging them to delve into their cultural backgrounds. For this assignment, students were expected to concentrate on 4-5 identity components, such as ethnic origin, language, gender, age, spirituality (religion, denomination, atheism), sexual orientation, socioeconomic background, and ability status. Additionally, students worked in small groups to research one of the cultural groups in Türkiye that holds a minority status and created a photo album showcasing the cultural group they studied, departing from traditional presentation methods.

### Concourse Development and Q Statements (Q set)

The initial step of the Q methodology involves generating a set of statements, referred to as the discourse area or concourse, that are likely to emerge around a particular phenomenon (Brown et al., 2019). To create this discourse area, as outlined by Brown (1980), researchers can draw on various sources such as existing literature, personal experiences, and current-popular cultural materials. In this study, a comprehensive literature review was conducted on multiculturalism, cultural sensitivity, immigration, special education, and gender studies, resulting in the identification of 100 statements. Next, to ensure the representativeness of the concourse area, researchers should select a sample group that captures the breadth of discourse based on criteria such as the scope of the statements, their relevance to the study, and their comprehensibility (Watts & Stenner, 2023). Accordingly, the researchers in this study agreed on 39 statements that formed

the final Q set (see Table 3) with the sub-themes of Knowledge, Awareness, Skills, and Pedagogy.

### Participants (Q Set)

Q studies are typically conducted with small sample sizes due to the emphasis on individuals' subjective views and consensus of opinions (Watts & Stenner, 2023). Thus, selecting participants who possess diverse experiences, perspectives, and a strong interest in the research topic may yield varied and nuanced study findings (Karasu & Peker, 2019). To this end, the study's participant group included nine undergraduate students in their third and fourth years of teacher education. These individuals voluntarily joined the study after completing a multicultural education course, which originally consisted of 24 members. Of the participants, four identified as female and five as male. The participants reported their ages as ranging from 21 to 24, with an average of 22.5. Regarding minority group membership, three participants reported having a minority identity in contemporary Türkiye. Additionally, eight participants stated that they had not received any prior education in multicultural education beyond the course in which the study was conducted. Each participant was given a number based on their completion time (e.g., P1, P2, ...). These codes are then used for reference in the results section.

### Data Analysis

We employed HtmlQ, a Q study-specific tool that participants could access through a computer browser, for the data collection stage of the study (Banasick, 2019). HtmlQ provided an interface where participants could view all the Q items and place them on a Q grid based on their preferences, facilitating the collection of nuanced subjective viewpoints. Upon completion of the data collection, researchers analyzed the data through Ken-Q Analysis, a program designed for Q data analysis (Banasick, 2019). Q data analysis includes correlation and factor analysis stages.

### Findings

The Ken-Q program created a correlation table of all participant rankings and used it to group participants with similar views into factors. The analysis produced factor arrays, correlation values between factors, and unique and consensus statements among the factors (see Table 2 and Appendix 1). As shown in Table 2, between-factor correlations in the current study are considered low (e.g., 0,16) and moderate (e.g., 0,41). In Q, lower correlations between factors indicate fewer shared viewpoints between the two factors while higher correlations represent a higher degree of shared perspectives. The three factors of the current study have small to moderate shared perspectives. This is ideal for the current project as the research was designed to provide distinguished viewpoints on the effectiveness of the responsive education course. Finally, the factor narratives presented in the study were created by combining the factor analysis results with participant comments obtained through semi-structured interviews along with demographic information. This method is particularly suitable for Q studies prioritizing qualitative and subjective opinions (Brown, 1980; Karasu & Peker, 2019; Ramlo, 2021).

**Table 2.** Correlation among factors

	Factor 1	Factor 2	Factor 3
Factor 1	-	0,41	0,33
Factor 1	0,41	-	0,17
Factor 1	0,33	0,16	-

According to the results of the data analysis, three distinct perspectives were identified among the teacher candidates who completed the multicultural education course, namely (a) Knowledge-Oriented Development, (b) Awareness-Oriented Development, and (c) Pedagogical Skill-Oriented Development. The three-factor structure accounted for 53% of the total variance. Factor 1 included four participants and accounted for 25% of the variance. Factor 2 comprised three participants and explained 17% of the variance, while Factor 3 consisted of two participants and explained 17% of the variance. Further details of the factor loadings and ranking of the determining participants are presented in Table 3.

**Table 3.** Factor distributions and flagged Q rankings

Participants	Factor 1	Factor 2	Factor 3
P1	0,05	0,00	0,89X
P2	0,83X	-0,11	0,2
P3	0,82X	0,3	0,06
P4	0,12	0,76X	-0,21
P5	0,62X	0,24	0,42
P6	0,09	0,68X	0,3
P7	0,68X	0,45	0,06
P8	0,43	0,13	0,63X
P9	0,31	0,54X	0,39
Explained Variance (%)	25	17	17

### Factor 1: Knowledge-Based Development

Factor 1 participants emphasized their knowledge about cultural minorities in society and their advantages and disadvantages (18, +4; 20, +4). For example, participant P2 expressed this in their post-sort interview:

*"I am aware that there is a lot of discrimination in society, and that there are advantaged groups. For example, gender factors greatly affect our advantages."*

Participants in this factor also noted that their cultural sensitivity education (27, +3), along with personal experiences, made them more sensitive to cultural issues, enabling them to notice microaggressions experienced by minority groups at the societal level (22, +4). One participant who identified themselves as a member of a minority group in Türkiye expressed this issue:

*"Being a minority citizen can make me more sensitive to these types of issues, also based on my past experiences" (P7).*

Factor 1 representatives view the education they receive as a cause of an increase in their knowledge level, but also believe that acquiring more knowledge is necessary (7, +3). These themes were also frequently expressed in the interviews. For example, P5 stated:

*"I realized the importance of microaggressions in our lives, what it really means to be sensitive, that accepting the existence of certain groups is not the same as respecting them, and that more needs to be done."*

P2 added to this discussion, saying:

*"I definitely think that in order to establish the healthiest communication with my students, I need to be knowledgeable about their culture, and I have no problem with that."*

As a result of their increasing knowledge, advocacy for rights has become a part of their educational identity (37, +3). The ranking priorities of participants associated with this factor show that their cultural identities, in addition to their knowledge accumulation, are among the reasons for assuming

a role in advocating for rights. According to these participants, cultural values and issues that are important for students also become a priority for them (28, +3). Personal interests and the importance they give to their students play a key role here (39, +2). As expressed in semi-structured interviews, this importance can lead to their personal sensitivity and even cause them stress:

*"I know that some cultural issues are sensitive. I try to choose my words carefully in order not to be misunderstood or hurt anyone's feelings" (P3).*

However, their personal concerns do not prevent them from organizing educational environments at a professional level to support the sense of belonging of students who demonstrate cultural diversity (3, +2).

## **Factor 2: Awareness-Based Development**

Factor 2 is primarily associated with a developmental focus on increasing participants' awareness, resulting from their education. The high-scoring statements indicate that this heightened awareness is evident at two levels: firstly, increased sensitivity towards the cultural identities of others (27, +4), and secondly, personal change and awareness (21, +4). Participants in this factor attributed their increased awareness to a self-cultural identity discovery assignment within the course content. As one participant noted in the post-ranking interview:

*"It made me review my own culture, especially while writing the cultural resume, and thus my awareness increased" (P6).*

Furthermore, the participants in this factor maintain active engagement in learning about cultural issues (39, +3) and often address such issues beyond their professional identities (30, +1). They view this personalization of learning as crucial and aim to be exemplary individuals not only in their professional lives but also in their daily lives (P4).

The participants' heightened awareness at a personal level also positively impacts their professional practice. They feel competent in implementing their theoretical knowledge (16, +3), integrating different cultures into their course content (4, +2), and addressing cultural values in school-family cooperation relationships (6, +3). Additionally, they recognize the importance of shaping their teaching practices to suit the learning styles of students from diverse cultural backgrounds (1, +2).

Factor 2 participants share similarities with those in Factor 1 regarding the importance of cultural values in educational environments and organizing educational materials within the framework of students' cultural backgrounds. However, unlike other factors, they place significant importance on their reporting obligations on issues such as child abuse and child marriage (16, +3). As one participant emphasized:

*"I do not think it is appropriate for such a person to do our job either" (P9).*

Furthermore, these participants consider ethical and legal considerations in educational environments and believe that ignoring cultural values and judgments is not feasible (13, -4).

## **Factor 3: Pedagogical Skills-Based Development**

In contrast to Factors 1 and 2, participants in Factor 3 prioritize their cultural development as a means of enhancing their pedagogical skills. Their expressions reveal a strong emphasis on the interaction between their cultural backgrounds and educator identities (17, +4; 5, +3). They recognize the potential ethical conflicts that arise in this interaction and view these

conflicts as expected rather than indicative of indecision or incompetence. As one participant stated, "I have learned that even if there are such things (ethical responsibilities), I cannot ignore culture" (P1). At the end of their education, these participants hold the view that ethical decisions may sometimes conflict with cultural factors and should be questioned when necessary.

Factor 3 participants also exhibit a relativistic approach to ethical issues in their communication with students. They recognize the potential positive and negative effects that their cultural backgrounds may have on their communication with students and aim to effectively address these effects rather than ignoring them (36, -4). This skill-focused approach highlights their competence in this area and supports their belief that they should take the lead in addressing cultural issues in the classroom (25, +3).

Despite their strong focus on cultural issues in the classroom, Factor 3 participants appear distant from some social issues at the societal level (20, -3). However, their concern about implementing theoretical knowledge into practice and not overlooking cultural advantages in the school environment underlines their pedagogical and classroom-focused approach (35, +3). This is further supported by their respect for individual differences among students, as one participant noted,

*"I don't expect my student to bring up these (cultural) issues since I feel competent talking about them - of course, being careful" (P8).*

## **Consensus Among Factors**

The study identified three prominent cognitive styles, or "factors," among the participants who shared certain viewpoints. Generally, the participants prioritize collaborative projects between schools and families that address cultural differences, as evidenced by the positive scores in Factors 1, 2, and 3 (6, +1; +3; +3). Moreover, they recognize the daily challenges faced by students from diverse cultural backgrounds and exhibit competence in selecting topics that reflect these cultures pedagogically in the classroom, as indicated by positive scores in Factors 1, 2, and 3 (19, +1; +2; +2). Participants also unanimously reject statements that suggest they feel incompetent in matters related to language, religion, and race (38, -3; -4; -3), ignore cultural differences among students (13, -4; -4; -4), or base their communication with minority-culture students on feelings of pity or sadness (10, -4; -3; -2).

## **Discussion**

The current study focuses on eliciting the perspectives of teacher candidates regarding culturally responsive education. While there are prior studies that have examined teacher candidates' views on cultural responsiveness (Barry & Lechner, 1995; Garmon, 2005; Kayaalp, 2019; Öztürk & Ergül, 2023; Sarıgöz, 2023; Turner, 2007), the novelty of this study lies in its focus on investigating the effects of a culturally responsive course on teacher candidates' comprehension of culturally responsive education. Through the Q methodology research approach, data were collected and analyzed to reveal three distinct subjective viewpoints held by teacher candidates. These viewpoints, named per the Q methodology literature (Watts & Stenner, 2023), signify the dominant ideas and reflect the personal and professional views of teacher candidates on culturally responsive education, categorized as

(a) knowledge-oriented development, (b) awareness-oriented development, and (c) pedagogical skill-oriented development. The findings of this study demonstrate that the participants' knowledge of culturally responsive education increased as a result of the culturally responsive course. The study results indicate that participants' learning on topics such as minorities, social advantages and disadvantages, social privilege, microaggressions, and advocacy had a positive impact on their understanding of culturally responsive education. As it is known, pre-service teachers' knowledge about educational inequalities, racism, and equality traps affects how they perceive and react to class content, their teacher/student relationships, and the educational outcomes of disadvantaged students (Kayaalp, 2019). Prior literature suggests that teacher candidates often lack sufficient knowledge and awareness about different cultures and may hold negative views on certain cultural identities (Karaçam & Koca, 2012). The root cause of this deficit is attributed to the insufficient emphasis on multiculturalism in in-service training and teacher education programs (Polat & Kılıç, 2013). Thus, this study's finding supports the idea that the education provided in the culturally responsive course can help to prevent problems arising from a lack of knowledge about cultural differences among teacher candidates.

Another key finding is that cultural sensitivity education allows teacher candidates to become more aware of their cultural background and values, influencing their perspectives on culturally sensitive education and their interactions with students from diverse cultural backgrounds (Arslan & Kozikoğlu, 2017; Johnson, 2002). This awareness is crucial for enhancing their relationships with students and their professional roles during their education (Flynn, 2023). This study also underscores the importance of incorporating cultural sensitivity courses within education faculties. These courses provide teacher candidates with opportunities to explore, deconstruct, and reconstruct their beliefs and knowledge (Kyles & Olafson, 2008). The heightened personal awareness achieved by teacher candidates empowers them to confidently adopt a culturally responsive approach to school-family partnerships and create culturally sensitive educational environments.

Participants in the current study recognize the value of school-family partnerships in integrating cultural values into educational settings. Understanding families is a fundamental aspect of culturally sensitive education, helping students better appreciate their own cultures (Çoban et al., 2010; Warren, 2018). Therefore, the emphasis placed on the significance of families as integral components of students' cultures, by the participants is noteworthy.

Another significant finding from this study is that the teacher candidates did not view a division between pedagogical and skill sub-dimensions in teacher candidates' cultural sensitivity development (Polat & Kılıç, 2013). Instead, Factor 3 participants acknowledged that cultural responsiveness skills develop within their pedagogical frameworks. It underscores the connection between addressing cultural issues and pedagogical competence, evident as teacher candidates actively incorporate cultural considerations when interacting with students from diverse backgrounds in their classrooms. This development suggests that teacher candidates' cultural sensitivity and pedagogical competencies have improved (Feiman-Nemser, 2008).

In addition to the varied perspectives in the aforementioned developmental areas, participants achieved consensus on

specific aspects of culturally responsive education. Teacher candidates reported a heightened awareness of the challenges faced by minorities and a shift in their choice of topics that reflect cultural values in educational settings. While there is no existing data to directly explain this finding, Öztürk and Ergül (2023) demonstrated that as teachers spend more time in the profession, their biases towards students' cultural values significantly decrease. Similarly, Kozikoğlu and Tosun (2020) supported the notion that new teachers and those residing in the Eastern and Southeastern Anatolia regions have more positive attitudes toward pedagogy that is sensitive to cultural values. Consequently, teachers tend to become more cognizant of their biases toward students, particularly those from minority groups, as they draw from their personal life experiences. This awareness drives them to structure educational environments with strategies aimed at supporting and including these student groups (Polat & Kılıç, 2013).

### Limitations and Future Directions

This study aimed to investigate the post-training views of pre-service teachers on culturally responsive education and the impact of training on their knowledge, awareness, and pedagogical skills. The findings indicated that the training contributed positively to these aspects of pre-service teachers' professional development. In light of these findings, this section offers suggestions for teacher educators, pre-service teachers, and practicing teachers.

The literature reveals a lack of resources on cultural sensitivity in teacher education in Türkiye, indicating a need for academics to develop various training modules, such as courses on culturally responsive education, workshops, and panels. These training modules should address critical concepts such as cultural prejudice, social privilege, microaggressions, and cultural humility, emphasizing the promotion of cultural issues in light of scientific data rather than political discourses. To produce culturally responsive teachers, it is also essential to integrate culturally responsive perspectives into school experiences supporting pre-service teachers through the supervision process.

The insufficiency of teacher training programs in Türkiye for culturally responsive education, due to a shortage of academic staff and political reasons, has been highlighted in previous research (Akalm & Türküm, 2021; Aydoğan, 2022). Thus, lecturers in faculties of education must receive adequate training and support on culturally responsive teacher education, which can then be imparted to pre-service teachers. Increasing the number of courses on cultural sensitivity, diversifying topics, and providing opportunities to practice is also recommended. These courses should focus on critical issues related to cultural sensitivity, including:

- Pre-service teachers gain knowledge and awareness about cultural groups in society,
- Recognize their own culture and explore its potential impact on personal perceptions, attitudes, and behaviors,
- Critical thinking, seeing, and respecting different perspectives, recognizing, and empathizing with stereotypes and prejudices against different groups,
- As pre-service teachers, they should lead their students to reflect on their own culture,
- To be able to make the subject selections, teaching materials, methods and techniques, measurement and

evaluation sub-dimensions that make up the teaching processes culturally sensitive,

- Taking personal responsibility for culturally responsive problems and solutions in society.

This study investigates the impacts of culturally responsive education on pre-service teachers in Türkiye, but the results should be evaluated while considering some limitations. Firstly, the sample group of the study is composed of students from the education faculty of a mid-sized urban university, and therefore, the results should be generalized to other pre-service teachers with caution. Although Q method studies prefer rich content over a large sample size, the findings need to be confirmed by conducting a similar study with students from diverse regions and demographics across Türkiye. Furthermore, the first author of the study was also the course instructor, which may have caused some students to feel uncomfortable during the data collection process. While the study attempted to mitigate this limitation, it is still important to conduct similar research with different instructors and settings.

The Q method was utilized in this study to emphasize the subjective views of the participants. It is noteworthy that this approach is well-suited to address issues related to culturally responsive education and should be employed more frequently to highlight the subjectivity of such issues. By doing so, educators can gain a deeper understanding of students' unique perspectives and needs related to cultural diversity.

In light of these limitations and methodological considerations, the findings of this study have important implications for teacher educators, pre-service teachers, and practicing teachers. Providing culturally responsive education to pre-service teachers can improve their knowledge and awareness of cultural issues, enhance their pedagogical skills, and foster critical thinking and empathy towards different cultural groups. To achieve these outcomes, educators should integrate courses and training sessions on cultural sensitivity into teacher training programs and provide support for practicing teachers to develop their skills in this area. Finally, incorporating Q methodology into research on culturally responsive education can provide valuable insights into how different individuals perceive and respond to cultural diversity issues.

#### Author Contributions

All authors took an equal part in all processes of the article. All authors have read and approved the final version of the study.

#### Ethics Declaration

This study was conducted with the approval decision taken at the Ethics Committee for Human Research (Protocol No. 2022/163-189) of Sinop University, dated 19.10.2022.

#### Conflict of Interest

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

#### References

Akalın, M. B., & Türküm, A. S. (2021). Multicultural psychological counseling. *Anadolu University Journal of Education*, 5(1), 81-107. <https://doi.org/10.34056/aujef.850094>

- Arslan, M., & Kozikoğlu, İ. (2017). Teachers' attitudes toward multicultural education: Sample of Van. *Dicle University Journal of Ziya Gökalp Faculty of Education*, 31, 729-737.
- Aydın, B., & Şahin, M. (2017). Some variables predicting the cultural sensitivity in counselor candidates. *Dokuz Eylül University Journal of Buca Faculty of Education*, 43, 64-77.
- Aydoğan, M. (2022). A technique in multicultural school counseling: broaching cultural issues. *Ege Journal of Education*, 23(3), 370-383. <https://doi.org/10.12984/eggefd.1072354>
- Aydoğan, M., Middleton, T. J., & Britton, P. J. (2022). Barriers to broaching culture in counseling supervision: A Q methodology study. *Education and Science*, 47(212), 1-16. <https://doi.org/10.15390/EB.2022.11302>
- Banasick, S. (2019). Ken-Q analysis software (Version 1.0.6). Retrieved from <https://shawnbanasick.github.io/ken-q-analysis/>
- Banks, J. (1987). *Multiethnic education*. Allyn and Bacon.
- Banks, J. A. (2004). Multicultural education: Historical development, dimensions, and practice. In J. Banks & C. A. M. Banks (Eds.), *Handbook of research on multicultural education* (2nd ed., pp. 3-29). Jossey-Bass.
- Banks, J. A., & Banks, C. A. M. (Eds.). (2010). *Multicultural education: Issues and perspectives* (7th ed.). John Wiley.
- Barry, N. H., & Lechner, J. V. (1995). Preservice teachers' attitudes about and awareness of multicultural teaching and learning. *Teaching and Teacher Education*, 11(2), 149-161.
- Brand, B. R., & Glasson, G. E. (2004). Crossing cultural borders into science teaching: Early life experiences, racial and ethnic identities, and beliefs about diversity. *Journal of Research in Science Teaching*, 41(2), 119-141.
- Brown, S. R. (1980). *Political subjectivity: Applications of Q methodology in political science*. Yale University Press.
- Brown, S. R., Baltrinic, E., & Jencius, M. (2019). From concurrence to q sample to testing theory. *Operant Subjectivity*, 41, 1-17. <https://doi.org/10.15133/j.os.2019.002>
- Feiman-Nemser, S. (2008). Teacher learning: how do teachers learn to teach? In M. Cochran-Smith, S. Feiman-Nemser & D. J. McIntyre (Eds.), *Handbook of research on teacher education* (3rd ed., pp. 697-705). Routledge.
- Flynn, J. (2023). Pairing mindfulness and social justice: Taking a step on the path to change. *International Journal of Multicultural Education*, 25(2), 1-19. <https://doi.org/10.18251/ijme.v25i2.3597>
- Garmon, M. A. (2005). Six key factors for changing preservice teachers' attitudes/beliefs about diversity. *Educational Studies*, 38(3), 275-286.
- Gay, G. (1977). Curriculum for multicultural teacher education. In F. H. Klassen & D. M. Gollnick (Eds.), *Pluralism and the American teacher* (pp. 31-62). AACTE [Ethnic heritage center for teacher education].
- Gay, G. (2018). *Culturally responsive teaching: theory, research, and practice* (3rd ed.). Teachers College Press.
- Giambo, D., & Szecsi, T. (2007). Does diversity education make a difference in teacher education? *Practice and Theory in Systems of Education*, 2(3-4), 35-50.
- Gorski, P. C. (2010). The scholarship informing the practice: multicultural teacher education philosophy and practice in the US. *International Journal of Multicultural Education*, 12(2), 1-22.



- Johnson, L. (2002). "My eyes have been opened": White teachers and racial awareness. *Journal of Teacher Education*, 53(2), 153-168.
- Johnson, N., & Atwater, M. (2014). The impact of beliefs and actions on the infusion of culturally relevant pedagogy in science teacher education. In M. M. Atwater, M. Russell & M. B. Butler (Eds.) *Multicultural Science Education: Preparing teachers for equity and social justice* (pp. 81-102). Springer Netherlands.
- Kağnıcı, D. Y. (2013). Accommodating multicultural counseling training in the guidance and counseling undergraduate programs. *Turkish Psychological Counseling and Guidance Journal*, 5(40), 222-231.
- Kağnıcı, D. Y. (2019). *Culture and psychological counseling*. Pegem Akademi.
- Karaçam, M. Ş., & Koca, C. (2012). Preservice physical education teachers' awareness of multiculturalism. *Hacettepe Journal of Sport Sciences*, 23(3), 89-103.
- Kayaalp, D. (2019). Towards culturally responsive education: A qualitative approach. *European Journal of Education*, 2(2), 77-85. <https://doi.org/10.26417/ejed-2019.v2i2-65>
- Kotluk, N. (2018). *Examining teachers' views and self-efficacy perceptions about culturally relevant/responsive education*. Doctorate Dissertation, Van Yüzüncü Yıl University.
- McCallister, G., & Irvine, J. J. (2002). The role of empathy in teaching culturally diverse students: a qualitative study of teachers' beliefs. *Journal of Teacher Education*, 53(5), 433-443.
- McKeown, B., & Thomas, D. (2013). *Q methodology*. Sage.
- O'Byrne, W. I., & Smith, S. A. (2015). Multicultural education and multiliteracies: Exploration and exposure of literacy practices with preservice teachers. *Reading & Writing Quarterly*, 31(2), 168-184. <https://doi.org/10.1080/10573569.2014.968695>
- Öztürk, D., & Ergül, S. (2023). Investigation of social studies teachers' attitudes towards democracy and multicultural education. *International Journal of Turkish Educational Studies*, 11(20), 86-125. <https://doi.org/10.46778/goputeb.1205263>
- Pine, G., & Hilliard, A. (1990). Rx for racism: Imperatives for America's schools. *The Phi Delta Kappan*, 71(8), 593-600.
- Polat, İ., & Kılıç, E. (2013). Multicultural education in Türkiye and teachers' competencies in multicultural education. *YYU Journal of Education Faculty*, 10(1), 352-372.
- Ramlo, S. (2021). Q methodology as mixed analysis. In A. J. Onwuegbuzie & R. Burke Johnson (Eds.) *The Routledge reviewer's guide to mixed methods analysis* (pp. 199-208). Routledge.
- Ramlo, S. (2021). The coronavirus and higher education: Faculty viewpoints about universities moving online during a worldwide pandemic. *Innovative High Education*, 46, 241-259. <https://doi.org/10.1007/s10755-020-09532-8>
- Rengi, Ö., & Polat, S. (2014). Primary teachers' perception of cultural diversity and intercultural sensitivity. *Journal of World of Turks*, 6(3), 135-156.
- Rodriguez, F. (1983). *Mainstreaming a multicultural concept into teacher education: Guidelines for teacher trainers*. R&E Publishers.
- Russell, M., & Russell A. J. (2014). Preservice science teachers and cultural diversity awareness. *Electronic Journal of Science Education*, 18(3), 1-20.
- Sarıdaş, G., & Nayir, F. (2021). Ranking judgments of teacher characteristics sensitive to cultural values scaling. *Pamukkale University Faculty of Education Journal*, 53, 355-377. <https://doi.org/10.9779/paufed.827009>
- Sarıgoz, O. (2023). Opinions on culturally responsive education. *The Journal of International Educational Sciences*, 8(29), 19-30.
- Shapira, N., & Dolev, N. (2023). Fostering teachers' empathy and inclusion in Israeli society. *International Journal of Multicultural Education*, 25(2), 20-44. <https://doi.org/10.18251/ijme.v25i2.3581>
- Sharma, G., Bosch, C., & Obelleiro, G. (2023). Exploring pedagogical practices to cultivate wisdom, courage, and compassion as key tenets of global citizenship: A qualitative study. *International Journal of Multicultural Education*, 25(2), 45-65. <https://doi.org/10.18251/ijme.v25i2.3403>
- Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and teacher education*, 23(7), 1086-1101. <https://doi.org/10.1016/j.tate.2006.07.011>
- Spradlin, L. (2009). Preservice teachers' perceived and measured knowledge of diversity. *The International Journal of Diversity in Organizations, Communities and Nations*, 9(5), 147-158.
- Stephenson, W. (1978). Concourse theory of communication. *Communication*, 3(1), 21-40.
- Subasi Singh, S. & Akar, H. (2021) Culturally responsive teaching: beliefs of pre-service teachers in the Viennese context, *Intercultural Education*, 32(1), 46-61. <https://doi.org/10.1080/14675986.2020.1844533>
- Trent, S., Kea, C., & Oh, K. (2008). Preparing preservice educators for cultural diversity: How far have we come? *Exceptional Children*, 74(3), 328-350. <https://doi.org/10.1177/001440290807400304>
- Turner, J. D. (2007). Beyond cultural awareness: prospective teachers' visions of culturally responsive literacy teaching. *Action in Teacher Education*, 29(3), 12-24.
- Villegas, A. M., & Lucas, T. (2002). Preparing culturally responsive teachers: Rethinking the curriculum. *Journal of Teacher Education*, 53(1), 20-32. <https://doi.org/10.1177/0022487102053001003>
- Walker-Dalhouse, D. & Dalhouse, A. D. (2006). Investigating white preservice teachers' beliefs about teaching in culturally diverse classrooms. *The Negro Educational Review*, 57(1-2), 69-84.
- Warren, C. A. (2018). Empathy, teacher dispositions, and preparation for culturally responsive pedagogy. *Journal of Teacher Education*, 69(2), 169-183. <https://doi.org/10.1177/0022487117712487>
- Watts, S., & Stenner, P. (2023). *Doing Q methodology: Theory, method and interpretation*. (Mustafa Kemal Yöntem and Mustafa Aydoğan, trans.). Pegem Akademi.
- White-Davis, T., Stein, E., & Karasz, A. (2016). The elephant in the room: Dialogues about race within cross-cultural supervisory relationships. *International Journal of Psychiatry in Medicine*, 4(51), 347-356.
- Wood, J. A., & Wilson, B. (1996). Teacher inservice training for cultural sensitivity. *NASSP Bulletin*, 80(582), 113-114. <https://doi.org/10.1177/019263659608058216>
- Yılmaz, F., & Göçen, S. (2013). Investigation of the prospective primary teachers' intercultural sensitivity

- levels in terms of certain variables. *Adiyaman University Journal of Social Sciences*, 15, 373-392. <https://doi.org/10.14520/adyusbd.649>
- Yuan, H. (2017). Developing culturally responsive teachers: current issues and a proposal for change in teacher education programs. *World Journal of Education*, 7(5), 66-78. <https://doi.org/10.5430/wje.v7n5p66>
- Yuen, C. Y., & Grossman, D. L. (2009). The intercultural sensitivity of student teachers in three cities. *Compare*, 39(3), 349-365.



**Appendix 1: 39-Item Q Sample and Factor Arrays**

## 39-Item Q Sample and Factor Arrays

#	Statement	F 1	F 2	F 3
1	I know that different cultures have different learning styles	-2	0	3
2	I can use different teaching methods and techniques according to the needs of the students	1	-1	1
3	I can make arrangements in my class so that students from different cultures can feel like they belong	1	0	-2
4	I can choose topics that reflect different cultures	1	0	2
5	It is the responsibility of a good teacher to respond to the pedagogical needs of students from different cultures	0	3	0
6	I can collaborate with students, school administration, families, and the community while considering different cultures	0	2	1
7	I can learn about cultures to better understand my students.	4	0	0
8	I am aware of my pedagogical responsibilities in classes with students from different cultures.	0	1	-1
9	Educators play an important role in helping students from different cultures adopt the prevalent culture at school and behave accordingly	-3	0	1
10	I feel close to the students from different cultures because I feel sad	-4	-3	-1
11	I choose topics based on the prevalent culture	-3	-1	0
12	Cultural differences do not affect my professional identity	-2	-3	4
13	I can ignore the cultural differences of my students	-4	-3	-4
14	I am knowledgeable about the different cultural groups in Türkiye.	1	1	4
15	I know that cultural diversity encompasses not only certain groups but also broader ones.	0	0	3
16	I am aware of my reporting obligations (abuse, child marriage, etc.).	2	0	4
17	I know that my ethical responsibilities influence my understanding of cultural differences	-1	4	-1
18	I am more knowledgeable about specific issues that some cultural groups face.	4	-2	0
19	I understand the daily life challenges of students from different cultures.	2	1	2
20	I am aware that certain cultural groups have advantages over others in society.	3	2	-1
21	I am aware of my own cultural biases	0	-2	2
22	I am aware that micro-aggressions, even well-intentioned ones, are harmful.	4	3	-2
23	I choose my words carefully when talking about cultural issues.	3	2	0
24	I feel more comfortable discussing certain cultural issues.	-1	3	1
25	I am aware that my own culture can have positive or negative effects on my students.	-1	-1	-2
26	I can communicate better with my students on topics that I am personally comfortable with.	-2	-1	0
27	My personal life experiences make me more sensitive to cultural issues.	3	4	3
28	If culture is important to my students, it is important to me as well.	2	-4	-1
29	My approach to education develops independently of my cultural background.	-4	-4	-4
30	I discuss cultural issues in my personal life.	0	3	1
31	I feel competent in discussing some sensitive cultural issues.	-1	2	-3
32	I feel that I am more empathetic when discussing cultural issues.	1	1	-3
33	I feel competent in applying theoretical knowledge.	-2	-1	3
34	I feel brave to discuss cultural issues openly	0	4	-3
35	My teaching style changes according to my student's culture.	-3	-2	-2
36	I wait for my students to bring up cultural topics first.	-1	-4	-3
37	Advocacy is an important part of my profession.	3	-2	0
38	I feel inadequate discussing topics such as religion, language, race, etc.	-3	-3	-4
39	I have a personal curiosity about cultural issues.	2	1	2

## An In-Depth Examination of Writing Assessment Literacy Among University Preparatory Students in Turkish Higher Education

### Türk Yükseköğretiminde Üniversite Hazırlık Öğrencilerinin Yazma Değerlendirme Okuryazarlığının Derinlemesine İncelenmesi

Doğukan Hazar Özçubuk<sup>1</sup>  Ali Merç<sup>2</sup> 

<sup>1</sup> Lecturer, Anadolu University, School of Foreign Languages, Eskişehir, Türkiye

<sup>2</sup> Prof. Dr., Anadolu University, Faculty of Education, Eskişehir, Türkiye

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##### \*Sorumlu Yazar

Doğukan Hazar Özçubuk

Anadolu University, School of Foreign Languages, Yunus Emre Campus – Eskişehir, Türkiye.

[dhozubuk@anadolu.edu.tr](mailto:dhozubuk@anadolu.edu.tr)

**Abstract:** As a nascent research domain, there is a scarcity of research studies that examine the levels of assessment literacy, perceptions, beliefs, and practices among students concerning their Student Writing Assessment Literacy (SWAL). To address this research gap, the present study adopts a mixed-methods design, incorporating the Scale of SWAL (Xu et al., 2023) alongside semi-structured interviews. 134 students answered the scale, while an additional twelve students volunteered to participate in the interviews. Student responses from the scale were subjected to analysis through descriptive statistics, revealing a notable correlation between students' comprehension of assessment objectives and the manifestation of positive attitudes towards learning. Nevertheless, a misalignment was noticed between their theoretical understanding and beliefs and their pragmatic implementation regarding written assignments. Interview data underwent analysis through thematic analysis, elucidating four main themes: (1) feedback valuation, (2) scoring criteria awareness, (3) feedback delivery preferences, and (4) alternative assessment avoidance. Implications emphasise the importance of involving students in the assessment process and advocate for teacher training initiatives to enhance SWAL. Future research could broaden their scope to reach diverse academic levels and integrate grades as a variable. Overall, the present study provides valuable insights into SWAL, shedding light on assessment practices at the tertiary level.

**Keywords:** Assessment knowledge, assessment literacy, student writing assessment literacy, writing assessment, writing assessment literacy

**Öz:** Yeni gelişmekte olan bir araştırma alanı olarak, öğrencilerin Öğrenci Yazma Değerlendirme Okuryazarlığı (SWAL) ile ilgili dil değerlendirme okuryazarlık düzeylerini, algılarını, inançlarını ve uygulamalarını inceleyen araştırma sayısı oldukça azdır. Bu araştırma boşluğunu gidermek için, bu çalışma, yarı yapılandırılmış görüşmelerin yanı sıra SWAL Ölçeğini (Xu vd., 2023) içeren karma bir yöntem tasarımı benimsemiştir. 134 üniversite hazırlık sınıfı öğrencisi ölçeği yanıtlarken, on iki öğrenci de görüşmelere katılmak için gönüllü olmuştur. Öğrencilerin ölçekten aldıkları yanıtlar tanımlayıcı istatistikler aracılığıyla analize tabi tutulmuş ve öğrencilerin değerlendirme hedeflerini anlamaları ile öğrenmeye yönelik olumlu tutum sergilemeleri arasında kayda değer bir korelasyon olduğu ortaya çıkmıştır. Bununla birlikte, öğrencilerin teorik anlayışları ve inançları ile yazılı ödevlere ilişkin pragmatik uygulamaları arasında bir uyumsuzluk olduğu fark edilmiştir. Yarı-yapılandırılmış görüşme verileri tematik analiz yoluyla analiz edilmiş ve dört ana tema ortaya çıkmıştır: (1) geribildirim değerlemesi, (2) puanlama kriterleri farkındalığı, (3) geribildirim verme tercihleri ve (4) alternatif değerlendirmeden kaçınma. Bulgular, öğrencileri değerlendirme sürecine dahil etmenin önemini vurgulamakta ve SWAL'ı geliştirmek için öğretmen eğitimi girişimlerini savunmaktadır. Gelecekteki araştırmalar, farklı akademik seviyelere ulaşmak ve notları bir değişken olarak entegre etmek için kapsamalarını genişletebilir. Genel olarak, mevcut çalışma SWAL konusunda değerli bilgiler sunmakta ve yükseköğretim düzeyindeki değerlendirme uygulamalarına ışık tutmaktadır.

**Anahtar Kelimeler:** Değerlendirme bilgisi, değerlendirme okuryazarlığı, öğrenci yazma değerlendirme okuryazarlığı, yazma değerlendirmesi, yazma değerlendirme okuryazarlığı

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## Introduction

Assessment literacy (AL), referring to the capacity of individuals involved in education to identify and effectively use assessment instruments for educational and evaluative purposes (Taylor, 2009) has garnered substantial research attention in the early twenty-first century. This heightened attention towards AL can be attributed to its significant potential impact on the dynamics of instruction and learning within the educational setting. For this reason, AL imposes a consequential responsibility on stakeholders, necessitating that each party involved possess a comprehensive understanding of the fundamental concepts and principles governing assessment (Jeong, 2013; Popham, 2009). Language assessment literacy (LAL), encompassing competencies in designing, executing, and assessing evaluation instruments, pertains to the compendium of expertise, proficiencies, and methodologies linked to in-class assessment within the cadre of educators,

alluding to enhancing teaching and learning (Davies, 2008; Inbar-Lourie, 2008; Stiggins, 1991; Taylor, 2013). In recent years, while LAL has drawn noteworthy global attention (Lam, 2019; Ölmezer-Öztürk & Aydın, 2018; Tian et al., 2021), there remain numerous uncharted areas warranting further investigation. To date, most research on LAL has centred on educators, whereas investigations concentrating on students as the focal point are notably scarce and sporadic.

In response to the current research gap concerning student assessment literacy (SAL), and to enhance our understanding of writing assessment knowledge, the present study endeavours to examine student writing assessment literacy (SWAL) of a group of English preparatory school students at a state university in Turkey. Employing a mixed-methods approach, this study seeks to explore students' foundational knowledge regarding SWAL, along with their perspectives

and opinions regarding writing assessment within the context of their educational experiences.

### Literature Review

A noteworthy body of research has delved into LAL domain, exploring conceptual frameworks, stakeholders' perceptions, beliefs, practices, and their LAL levels in previous studies (e.g., Fulcher, 2012; Scarino, 2013; Vogt & Tsağari, 2014). To illustrate, investigating the evolution of assessment methodologies in three stakeholder groups (professional language testers, EFL teachers, and graduate students in language studies programmes), Yan and Fan (2020) conducted one-on-one semi-structured interviews with twenty participants. The findings revealed that the cultivation of LAL is primarily contingent on the contextual nuances and experiential facets. Additionally, it was discerned that teachers and students engaged in language testing studies exhibited a greater familiarity with LAL terminologies and a heightened capacity for self-assessment of their LAL profiles.

Conversely, to address the existing research gap concerning teacher candidates in Japan, Roslan et al. (2022) executed a mixed-methods investigation involving fifty-six participants. Their findings revealed a notable deficiency in language testing and assessment (LTA) knowledge among teacher candidates, irrespective of their levels of teaching experience. The study findings additionally signified that the participants underwent neither pre-service nor in-service training, implying that their acquisition of knowledge in LTA occurs experientially within their professional milieu, facilitated by mentorship or collaborative interactions with peers in educational institutions.

Thanks to previous studies, persuasive evidence has emerged, underscoring the influence of assessment on students' learning objectives and academic achievements (e.g., Davari Torshizi & Bahraman, 2019; Denton & McIlroy, 2017). However, there are limited number of research studies in which student assessment literacy (SAL) has been explicitly used (Hannigan et al., 2022). In this respect, a study conducted by Smith et al. (2013) stands out as one of the highly acclaimed contributions to SAL, which outlined the concept within a tri-dimensional framework. According to this conceptualization, students need to (1) understand the purpose of assessment and how it connects with their learning trajectory, (2) be aware of the processes of assessment and how they might affect students' capacity to complete the assessment, and (3) be able to judge their own responses to assessment tasks so that they can identify what is good about their work and what still needs to be improved. Building on this conceptualization, other research studies (e.g., Baird et al., 2017; Chan & Luo, 2021; Chen et al., 2023) have attempted to broaden our understanding of SAL and how it can contribute to the success of the learners (Stiggins, 2008).

Empirical research on students' LAL is notably lacking; however, previous research has suggested that LAL contributes significantly to improving student performance and achievement (Aitken, 2011). Namely, focusing on the students' perceptions of different assessment types, Pereira et al. (2016) aimed to depict the distinctions between Portuguese and Swedish students. The study findings revealed that despite similar perceptions of assessment, students' assessment experiences varied owing to disparities in the educational systems in both countries. Furthermore, Lodge (2008) asserted that students possess the capacity to assess their own learning through various criteria and strategies and that they can establish connections between their current learning

experiences and future practices. Additionally, other studies have pointed to the significance of teachers in encouraging their students to take ownership of their academic studies and to facilitate their mutual progression toward pedagogical objectives through self- and peer assessment (William, 2018). Overall, LAL hinges upon students engaging in active collaboration with educators to augment their ability for self-assessment (Charteris & Thomas, 2017). It is, therefore, vital for students to assume an active role and shoulder their own responsibilities within the assessment process (Alonzo, 2016).

More specifically, written assessment has entered the studies because of scholarly endeavours and calls in recent year to incorporate other skills in the language learning process in connection to SAL. More importantly, the act of writing is assumed to have a significant role in fostering the cultivation of problem-solving and critical thinking competencies, which are indispensable for students' pedagogical growth (White, 2009). Moreover, to engage in effective writing assessment methodologies, both teachers and students must possess a proficient understanding of LAL (Lee, 2017). The body of writing assessment literacy (WAL) research emphasises teachers, with fewer studies centred on students. For instance, Hirvela and Belcher (2007) discussed the importance of instructing teachers both during pre- and in-service and what kind of programmes can be implemented for this purpose. Similarly, Weigle (2007) proposed that writing instructors should receive comprehensive training to develop, implement, assess, and effectively convey the results of trustworthy and valid classroom assessment. Building on this proposal, Crusan (2010) asserted that second language (L2) writing teachers should possess the capacity to create writing prompts and recognise the salience of assessment criteria, as well as use the results from writing assessment to enhance teaching and learning. Likewise, Crusan et al. (2016) reported that 63% of the participant teachers learnt about writing assessment either in general or in a course; nevertheless, they still reported concerns about their assessment skills in writing. In contrast, Mellati and Khademi (2018) found out that educators with high LAL levels wielded a substantial influence on the writing proficiency of their students.

In recent years, there has been a transition in the emphasis on WAL, accompanied by a noticeable increase in research studies (e.g., Rezai et al., 2021), advocating for increased explorations into students' WAL levels, beliefs, and perceptions. For example, Colby-Kelly & Turner (2007) suggested that more emphasis should be placed on self- and peer assessment, and that teachers should implement formative assessment strategies in their curriculum. Moreover, Su (2014) proposed that a person-based approach, emphasising student self-guidance, holds significant implications for higher education institutions striving to enhance student achievement. Similarly, to learn more about learners' comprehension and perspectives on assessment, Butler et al. (2021) executed a sequence of semi-structured interviews with upper primary school students. Results indicated that, notwithstanding the absence of specific training in LTA, the participants demonstrated profound knowledge and familiarity with English-language assessments. The results emphasise that involving students in assessment discussions serves as a channel to enhance their self-reflective abilities about learning objectives, improving their understanding of assessment purposes and skills as a result. Further, Xu et al. (2023), who worked with university students to design and validate the Scale of SWAL, asserted that SWAL encompasses broader



considerations related to the evaluation of writing performance, both within and beyond the classroom context, which includes activities, such as self-assessment and receiving feedback from teachers and peers. The study also addressed various strategies employed in the written assignment, including scoring rubrics, technological tools, and personal expertise for managing diverse writing assessment tasks, supporting the previous research studies in SWAL (Crusan et al., 2016; Chan & Luo, 2021; Smith et al., 2013).

Hence, this brief literature review accentuates one salient point concerning WAL. There are few empirical studies which investigated the subject among students, and more research is warranted as the implementation of effective writing assessment methodologies is paramount for the development of SWAL. Additionally, as per the researcher's awareness, there is a dearth of empirical research with students as the central participants in the existing literature. Because of this "research-practice gap" (Crusan, 2022, p. 431), and as a response to the call for further research to enhance and rejuvenate discussions in LTA (Inbar-Lourie, 2013), the current study adopted a mixed-methods approach with Scale of SWAL (Xu et al., 2023) and semi-structured interviews. Overall, this study is informed by two research questions:

1. What are the levels of student writing assessment literacy (SWAL) among university preparatory school students concerning their proficiency in knowledge, belief, behaviour, and critique?
2. What are the perspectives and opinions of university preparatory school students towards writing assessment, and how do these opinions impact their motivation, engagement, and learning in their written assignments?

## Methodology

### Research Context

In Turkey, schools of foreign languages deliver intensive language instruction within preparatory programmes, which students must successfully complete before moving onto their departments. At the school in which the study was conducted, there are five language levels: A+ (upper-intermediate), A (intermediate), B (pre-intermediate), C (elementary), and D (beginner). Regardless of their levels, students participate in both classroom-based and extracurricular activities, in addition to completing graded assignments designed to improve their language proficiency. Notably, teachers routinely administer writing tasks both within and outside the classroom, at the end of which they provide detailed feedback, including error codes, to aid students' writing skills. Furthermore, the writing component contributes to twenty percent of the exam during the term and holds the same weight for the end-of-year examination. Consequently, it can be asserted that the acquisition of writing skills is critical for these students. Recognising the paramount significance of writing as a productive skill, this educational context was deliberately chosen due to its pivotal focus on writing instruction and assessment.

### Participants

For the study, 134 students (56 male and 78 female) aged from 17 to 24 ( $M=19.12$ ) studying at the preparatory programme of a state university in Turkey participated in the study. Table 1 presents information about the participants.

**Table 1:** Information on scale participants

Demographic Information	Category	Frequency	Percentage
Gender	Male	56	41.8%
	Female	78	58.2%
Age group	17-19	92	68.7%
	20-24	42	31.3%
Department	Communication Sciences	53	39.6%
	Economics and Administrative Sciences	46	34.3%
	Education	16	11.9%
	Humanities	11	8.2%
	Others	8	6.0%
	Level	A+	27
Level	A	20	14.9%
	B	26	19.4%
	C	33	24.6%
	D	28	20.9%
Year of study	First year	126	94.0%
	Second year	8	6.0%

As Table 1 shows, students studying at different departments participated in the study, Communication Sciences and Economics being the highest contributors ( $n=53$ ,  $n=46$  respectively), making 73.9% of the total participants. As for the proficiency level of the students, lower-level students contributed more to the study. It is also interesting to note that 94.0% of the participants were in their first year of the prep school.

For the semi-structured interviews, convenience sampling was employed due to the availability and accessibility of the participants within the contextual framework of the study (Dörnyei, 2007), and purposive sampling approach was also employed (Bernard, 2002). Table 2 presents information about the interview participants.

**Table 2:** Information on interview participants

Interviewee	Gender	Age	Department	Level	Year	Writing course
S1	F	18	Education	A+	1	No
S2	M	18	Education	A+	1	No
S3	F	17	Economics	A+	1	Yes
S4	F	18	Communication	A+	1	Yes
S5	F	19	Education	A+	1	Yes
S6	F	18	Humanities	A+	1	Yes
S7	F	18	Humanities	A	1	Yes
S8	M	18	Economics	B	1	No
S9	M	18	Economics	B	1	Yes
S10	F	18	Communication	B	1	Yes
S11	M	18	Economics	C	1	Yes
S12	F	18	Other (Graphic Arts)	D	1	No

As Table 2 shows, the highest number of interview participants came from A+, the highest level (upper-

intermediate) at the school. There were four male and eight female students, coming from all departments which represented the sample from the questionnaires. Although all the interview participants' year-of-study at the prep school was their first year, only four of the participants have taken a course on writing before.

**Instruments**

In this study, the Scale of SWAL (Xu et al., 2023) was employed with certain adaptations. First, the scale was translated into Turkish to ensure accessibility for all participants. The scale was translated into Turkish by a native speaker, and then translated back into English by another native speaker. Second, to align with the characteristics of the study population and the research objectives, a series of adjustments were introduced. For instance, several examples and explanations were added in between parentheses to make the items clearer to students from all levels in terms of writing assessment at the school. As a result, certain items have been redefined and adjusted to better accommodate the specific practices within the university context. Finally, two experts were consulted who offered feedback to enhance the clarity and comprehensibility of the scale.

The first part of the scale involved questions related to participants' demographic characteristics, such as gender, age, department, proficiency level, and year of study at the school. The second part of the scale included twenty-four questions related to SWAL in four dimensions: knowledge (six items), belief (six items), behaviour (six items), and critique (six items). Each item in the scale were written in Likert-scale, '1' denoting "strongly disagree" to '5' signifying "strongly agree" (See Appendix A for the scale).

**Data Collection**

The participants for the scale were selected with the convenience sampling due to their accessibility and availability (Mackey & Gass, 2022). Students from each proficiency level have been selected so that the sample could represent the characteristics of the population. It took fifteen minutes to complete the questionnaire.

Second, a supplementary data collection tool was incorporated into the research design to improve the reliability and the internal validity of the study (Creswell & Creswell, 2018). After the scale completion, a subset of students was extended invitations to participate in semi-structured interviews, with participation being entirely voluntary. The interviews included questions about SWAL, the significance attributed to writing assessment, their beliefs and perspectives regarding writing tasks and assessments, receiving feedback, and their involvement in alternative assessment methods. Each semi-structured interview lasted between fifteen to twenty minutes, and all the interviews were conducted in Turkish, the interviewees' native language.

The study employed a mixed-methods approach to expound upon, enrich, and illustrate the outcomes derived from the quantitative results by complementing them with the outcomes gathered from the qualitative analysis, thereby augmenting the overall significance of the study (Greene, 2007).

**Data Analysis**

Data from the scale, which asked students about their knowledge, beliefs, behaviours, and critique about their SWAL, were analysed using descriptive statistics (i.e.,

frequency, percentage, means, and standard deviations). All analyses were conducted using SPSS version 26.

For the qualitative data analysis, semi-structured interviews were audio-recorded and transcribed verbatim. As the interviews were conducted in Turkish, all the transcriptions were translated into English for the data analysis. Thematic data analysis was chosen to analyse the data qualitatively because it presents a more approachable method of analysis (Braun & Clarke, 2006). It also presents a pragmatic and readily approachable method for conducting research, in cases where the alternative approaches may be obscure, intricate, or challenging (Braun & Clarke, 2012).

For the analysis of the data, the researcher systematically analysed the recurring patterns in the dataset. After a process of coding, categorising, and interpreting the information, the main themes of the study emerged within the dataset. First, the transcripts were broken into excerpts and grouped into codes (open coding). Later, these codes were put into categories (axial coding). Finally, these categories comprised the main themes of the study (Corbin & Strauss, 1990). Finally, decisive step was taken to ensure that themes reflected dependability and that the data analysis is trustworthy and credible (Nowell et al., 2017). For this purpose, a fellow researcher was asked to review the codes and themes to achieve consensus on the themes of the research.

**Results**

**Results from the Scale**

For the quantitative analysis, scale results are analysed using descriptive statistics. Cronbach's alpha coefficient was calculated as .887, a commendable value, particularly considering the acknowledged standard of acceptability being above .60 (Dörnyei & Dewaele, 2022). Table 3 presents the results from the scale.

**Table 3:** Descriptive statistics (frequency, means, and standard deviation) of the scale

Item	1 <sup>a</sup>	2	3	4	5	M	SD
SWALQ1	1	9	24	65	35	3.93	.881
SWALQ2	-	1	8	77	48	4.28	.608
SWALQ3	1	11	21	58	43	3.98	.938
SWALQ4	2	10	22	58	41	3.95	.952
SWALQ5	3	7	38	55	31	3.78	.939
SWALQ6	-	3	20	56	55	4.22	.779
SWALQ7	3	4	9	47	71	4.34	.901
SWALQ8	1	1	4	51	77	4.51	.669
SWALQ9	1	2	16	43	72	4.37	.809
SWALQ10	2	12	32	40	48	3.90	1.042
SWALQ11	-	1	10	49	74	4.46	.668
SWALQ12	2	4	19	51	58	4.19	.894
SWALQ13	10	28	40	48	8	3.12	1.048
SWALQ14	17	36	22	33	26	3.11	1.341
SWALQ15	-	13	20	65	36	3.93	.897
SWALQ16	2	2	20	77	33	4.02	.770
SWALQ17	1	8	33	56	36	3.88	.902
SWALQ18	1	2	23	62	46	4.12	.795
SWALQ19	4	12	28	59	31	3.75	1.007
SWALQ20	2	7	19	68	38	3.99	.880
SWALQ21	1	3	12	65	53	4.24	.768
SWALQ22	9	17	34	45	29	3.51	1.162
SWALQ23	3	22	20	50	39	3.75	1.115
SWALQ24	4	6	25	53	46	3.98	.992

<sup>a</sup> 1 = strongly disagree, 5 = strongly agree, M = means, SD = standard deviation

The first dimension of the scale was related to comprehending the objectives of assessment, potential adverse repercussions associated with writing assessment, and diverse methodologies employed in evaluating writing proficiency (Xu et al., 2023). In this dimension, the highest mean score came from the second item in the scale ( $M=4.28$ ;  $SD=.608$ ), closely followed by the sixth item ( $M=4.22$ ;  $SD=.779$ ). While participants demonstrated an inclination for elevated knowledge, their responses to the fifth item on the scale indicated a deficiency in their capacity to apply this knowledge in assessing their written tasks ( $M=3.78$ ;  $SD=.939$ ).

The second dimension of the scale is associated with the function of writing in fostering the development of writing proficiency, the influence of writing assessment on emotional responses, and the inclination to participate in writing assessment activities (Xu et al., 2023). Mean scores of the items in this dimension suggest that the participants are familiar with the functions of written assessment and that they are positively affected by the written activities. For instance, more than 95% of the participants responded that engaging with teacher corrective feedback is important to improve writing proficiency ( $M=4.51$ ;  $SD=.669$ ). Similarly, more than 91% think that writing assessment help them see their strengths and weaknesses in their written assessments ( $M=4.46$ ;  $SD=.668$ ). Although the participants indicated positive approaches towards writing assessment, they also responded that such an attitude does not encourage them to write more ( $M=3.90$ ;  $SD=1.042$ ).

The third dimension of the scale is related to the application of strategies for varied writing assessment tasks, deliberate reflection on the writing assessment process, and the discernment and utilization of assessment outcomes to enhance subsequent advancements in writing proficiency (Xu et al., 2023). In the scale, high mean scores of the participants in the 'belief' dimension are not reflected in the 'behaviour' dimension. For instance, less than 30% of the participants responded that they do not use the scoring criteria to assess their written work ( $M=3.12$ ,  $SD=1.048$ ). Similarly, the participants also responded that they do not use computer technology to assess their written work. Despite not actively engaging, participants expressed a commitment to enhancing their writing proficiency through reflective consideration of their assessment ( $M=4.12$ ,  $SD=.795$ ).

The fourth and final dimension of the scale encompasses six items concerning the critical analysis of writing assessment outcomes, including the evaluation of feedback, and actively participating in dialogues with peers or instructors to enhance the writing assessment process (Xu et al., 2023). For item 21, more than 80% of the participants affirmed their sense of responsibility towards their teachers to improve their written assessment. However, this is not reflected in their answers regarding communicating with their peers or teachers in items 23 and 24 respectively ( $M=3.75$ ;  $SD=1.007$ ,  $M=3.98$ ;  $SD=.992$ ). The results from the critique dimension were the lowest from all four dimensions, and the mean scores of the items showed the highest fluctuation regarding standard deviation.

### Results from the Semi-Structured Interviews

The data gathered from the semi-structured interviews were first analysed to be familiar with the dataset. Later, the researcher closely looked at the patterns that kept coming up in the dataset. After defining the recurrent keywords and phrases in the dataset, the broader categories were formed.

Finally, after classifying, categorising, and analysing the data, the categories were transformed into the main themes of the study. The following section presents the themes in detail.

#### Feedback valuation: prioritising feedback over grades

The predominant theme which consistently arose during the semi-structured interviews revolved around receiving corrective feedback on their written assignments (i.e., tasks and exams). When queried regarding the significance of feedback, students underscored the importance of receiving corrective and constructive feedback from their instructors upon the completion of a written assignment, asserting that it holds greater importance than merely receiving passing grades. When asked to express the relative importance, S3 articulated her perspective this way: "The feedback I receive is much more important for me because I don't make the same mistake again once I have been taught. That is why it is very important for me." Therefore, it can be suggested that the provision of corrective feedback to students on their written assessments may engender a positive washback effect on their overall learning objectives.

Similarly, S1 also thinks that the feedback she receives at the end of her written tasks is helpful for her future studies and motivates her to be more conscious about her writing progress. In the interview she said, "when I write again, I pay attention to my mistakes according to the feedback I received before." In this sense, the feedback S1 receives is valuable for her as it motivates her, highlights her strengths and areas of improvement, and guides her towards improvement because "the feedback I receive during the tasks is very useful. It shows me what I can and cannot do."

Furthermore, other students also recognised the significance of receiving feedback on their written assignments. Upon seeking clarification regarding their perspective on the benefits of feedback, S11 stated that "it is very important to see the mistakes I made and get feedback," while S12 said that "I want to see my mistakes, I want to know where I went wrong." In a comparable context, with a heightened emphasis on emotional aspects, S5 conveyed an eager anticipation for feedback on her written assignment, expressing curiosity about the evaluation of her paper. Likewise, S1 stated that she experiences negative feelings if she makes mistakes in her written tasks. She said, "there are mistakes that I did not notice when I was writing at the time, but I realised later. I say that I will pay more attention to my mistakes next time. Sometimes, I also get angry with myself for making mistakes, but it can happen." In this context, these findings align closely with Fulcher's (2010) proposition that "washback remains a significant and emotionally charged subject," (p. 278) a sentiment applicable not only to educators but also resonant among students.

Conversely, while other students articulated the perceived value of corrective feedback on their written assignments, their principal emphasis rested on receiving passing grades for their written assignments. To elaborate, S10 stated her preference for the grades. She stated that the first thing she does when she receives her written assessment paper is to look at the grade: "Unfortunately, I look at the grades first. Then I look at the feedback, but not in detail. I mostly look at my grade." Pointing to the distinction between a written task (formative assessment) and writing question in the exam (summative assessment), S7 stated that "in tasks, feedback is more important. I look at the feedback I receive there. But in the exam, I directly look at the grade first. It is necessary to get

good grades to pass.” While the student demonstrates heightened concern regarding the requisite grade for successful preparatory school completion, she concurrently exhibits commendable awareness of the imperative associated with both summative and formative assessment. It is, therefore, noteworthy that she stands alone among her peers in acknowledging the broader significance of summative assessment in a general context.

### **Scoring Criteria Awareness: Perspectives on the Descriptors**

The second focal area in a sizeable portion of the semi-structured interviews revolved around students’ awareness of the scoring criteria used for the evaluation of their written compositions. To explain briefly, at the school in which the study was conducted, the scoring criteria consist of four descriptors (i.e., content, organisation, grammatical competence, and lexical competence). At the beginning of the academic term, students are provided with detailed information regarding the components of the scoring criteria. Subsequently, the results of their task assignments and examinations are disclosed, placing emphasis on the four components delineated within the scoring criteria.

Following this brief explanation, it is important to note that inquiries regarding students’ familiarity with the scoring criteria yielded diverse responses from each student in the interviews. For example, S2 vocalised a lack of awareness regarding the criteria. When prompted further, he emphasised that he was not interested in finding out how his written work would be assessed. However, after a brief overview of the four components of the scoring criteria, the student proposed that the coherence of ideas (i.e., organisation) and the production of grammatical accurate sentences (i.e., grammatical competence) hold greater significance in his written assignments.

In a similar vein, S5 stated her lack of knowledge regarding the scoring criteria. She said “I looked at the criteria, but I don’t remember much. It doesn’t matter.” Upon articulating her perspective on the scoring criteria, she elucidated an inclination for two of the components, asserting that the substance of her written works (i.e., content) and the range and variety of the vocabulary employed (i.e., lexical competence) hold paramount significance in her written assessments. Similarly, S6 also exhibited a lack of awareness regarding the scoring criteria applied to evaluate her written assignment. Nevertheless, after a brief explanation, she conveyed a viewpoint underscoring the significance of content in her written tasks, noting, “it is important that the content is rich.”

Strikingly, S9 emerged as one of the students who offered extensive insights into the scoring criteria. Upon inquiry into his awareness of the criteria, he articulated detailed ideas and perspectives, suggesting that his knowledge may have been cultivated through instruction on the use of the rubric from one of his classroom teachers. When asked about the component he sees most crucial, he expressed, “all of them seem to be very important in themselves, but I think it can be organisation. Vocabulary may also be important. Content depends on the person, but I still think all of them are important.” Likewise, S7 also outlined her perspectives into the scoring criteria, saying that “content is more important because organisation is easy when you know what to write about. Also, I don’t make grammar mistakes, so the rest is easy. I think content is much more important.” Furthermore, S3 also thought that content is more important than the other components. When asked about

her awareness of the scoring criteria, she stated, “they are all important, but I think the content should be perfect. If there is no content, grammar doesn’t matter anyway. The rest disappears.” It is, therefore, important to note that students from different proficiency levels show distinct levels of awareness concerning the scoring criteria. Also, they reported deeming different components of the scoring criteria as important for themselves.

### **Feedback Delivery Preferences: Verbal Communication for Increased Effectiveness**

Another prevalent theme that surfaced during the interviews is associated with the students’ preferences for receiving corrective feedback on their written works. All students in the interviews expressed a preference for receiving feedback through both oral and written channels. Consistent with the thematic focus of the study, it is unsurprising to observe that students exhibit a strong preference for receiving feedback through more efficacious means.

All students were vocal about the effectiveness of verbal feedback. For instance, S8 advocated that receiving feedback is related to learning the language; therefore, he stated, “my teacher calls me with my paper, and shows me my mistakes one by one. He shows what I got right and wrong. Then he gives a detailed explanation. It is much more useful for me this way.” In preferring verbal feedback, S6 supported this notion by stating that “I want to have verbal feedback because, for example, when the teacher writes something on my paper, I may not even understand it. That’s why I think it is more useful to be able to receive verbal feedback.” She also emphasised her desire to improve her language proficiency effectively through her preparatory school education, suggesting that feedback she does not fully comprehend may impede this objective.

On a more emotional side, S12 expressed her wish to receive clearer feedback on her written assignment because she thought that it would make her feel better about her skills. She said, “sometimes when I write very long paragraphs, I want verbal feedback because then I may not be able to understand the written feedback. So, I would be much happier if I got verbal feedback.” Supporting this perspective, S3 also thought that receiving verbal feedback is more effective than receiving only written feedback because she said, “verbal feedback is much better because when I ask the teacher something, she follows it up and gives me examples and so on. That’s why it is much better for me to be able to hear it than simply writing it on my paper.” In the end, she also stated that her teacher devotes a full lesson hour to providing feedback to each student in the class, which is consistent with the report of S10, who stated that “we could even set aside a class time for this and show us our mistakes in that class time.” She expressed that, in such an instance, she could benefit from receiving verbal feedback, seeing it a more effective means of feedback for her.

However, the other students also favoured receiving only written feedback if they received everything in detail in written form. For instance, S9 said, “I can understand what my teacher wants me to see in the notes on the paper, that’s enough for me. Some people prefer both written and verbal, but I think it might be difficult, so written feedback is enough for me.” On this note, S5 also conveyed a preference for exclusively written feedback, provided that her teacher includes comprehensive comments directly on her paper. She voiced a preference for discovering and understanding her errors

through written feedback, indicating a greater affinity for this mode than verbal communication. Moreover, S11 shared an experience in which his teacher shared his written paper along with a voice recording which included his feedback. As a result, it can be inferred that the students collectively exhibit a substantial comprehension of their preferences regarding the reception of corrective feedback on their written assessments.

### **Alternative Assessment Avoidance: Limited Engagement in Self- and Peer Assessment**

The ultimate and most striking theme that surfaced during the interviews was the notable absence of engagement among students in either self- or peer assessment concerning written assessment. When asked about if they were engaged in practices associated with alternative assessment, all the students in the study demonstrated a lack of awareness of such practices. For instance, following a brief exploration of awareness regarding scoring criteria, students were subsequently queried about their engagement in grading their written papers. It is noteworthy that certain students refrained from drafting additional and extracurricular written tasks independently. Among those who dedicated time to create written tasks for feedback, there was an absence of self-assessment. Instead, their reported practice centred around the processes of editing and proofreading their work prior to submission to their teachers.

When asked about her involvement in alternative assessment, S4 associated self- and peer assessment with editing her written work, and said, “we did an activity in the class, I showed my activity to my pair, and she showed her paper to me.” When prompted further, S4 said that her involvement primarily extended to looking for grammatical aspects within her peer’s paper. Similarly, S9 stated that he does not show his written work to any of his classmates, expressing a reluctance to engage in the review of their papers because he “might miss it because [he doesn’t] know.” Furthermore, indicating a potential sense of inadequacy in grading others’ papers, S12 remarked, “I will write, but grading...it is my teacher’s job,” alluding to a perceived low level of assessment literacy.

On a distinct note, S7 conveyed that she and her classmates actively participate in the review of each other’s written works. However, their primary aim is to provide constructive feedback to one another for mutual improvement. She said, “my friends and I look at what we write, but we do not grade what we write. At this stage, feedback is more effective than grades.” Similarly, S8 engaged in a similar activity through an in-class activity. However, he reported not grading each other’s papers. In this sense, he said, “I made a few trials, but not to evaluate the paper. Grades are not important for me. I showed my paper to get opinions, to get feedback, and to write better.” While these two students point to the attributes of alternative assessment, their comments imply a lack of instruction on the efficacy of self- and peer assessment methodologies.

### **Discussion, Conclusion, and Suggestions**

While the scale results yielded meaningful insights into students’ SWAL, it is crucial to consider each dimension in the scale individually, as they each highlight distinct features that require attention. It can be argued that students indicated a low level of written assessment knowledge, indicated by their responses in the first dimension. They reported being familiar with the purposes of written assessment, but when it comes to

the specifics, such as the scoring criteria, their responses indicated a lack of knowledge, indicating a lack of ability to use what they know at the end of a written assessment. This result can be related to the fact that they are not instructed on the written assessment and the scoring criteria at the beginning of their prep school education. It is, therefore, crucial to inform students of the steps included in the evaluation of their written tasks. As Watanabe (2011) suggested, knowledge about language assessment can help students learn the language more efficiently, which is evidenced by the student responses in the scale.

Mean scores of the items in the second dimension were also low. The responses revealed that engaging in the activities that occur at the end of the written assessment, such as writing more ungraded compositions, are not held highly by the students. This might suggest that students might see extracurricular activities and formative assessment as extra and tedious. However, it is noteworthy to note that students are advised to actively endeavour to use each assessment to enhance their understanding for subsequent improvement (Stiggins, 2007). Because of student responses in the third dimension, there may be a misalignment between students’ beliefs and their actions. Six items in this dimension allowed us to see that students are not acting on their beliefs, as the mean scores from this dimension yielded the lowest in the scale. Further, it is important to instruct students in the processes included in written assessment and guide them to engage in more effective written performance. However, it can be conjectured that students’ beliefs and thoughts may not manifest in their actions, as suggested by the answers in the study. It is also important to acknowledge that previous studies have suggested that even meticulously crafted feedback on an assignment may carry limited significance for students unless students engage in written assessment (O’Donovan et al., 2004).

The final dimension also revealed significant insights into students’ lack of awareness and capability in terms of alternative assessment methods. The reason behind this incompetence in terms of self- and peer assessment could be because these two alternative methods are not included in the school programme and its curriculum. Also, it should be carried in mind that teachers were not a variable in the study, and it cannot be known for certain if teachers had the knowledge to instruct their students in terms of alternative assessment. As a result, given the pivotal role that self- and peer assessment play in the context of formative assessment, it is unexpected to observe their limited and ineffective implementation. Similarly, previous studies also showed that use of self- and peer assessment is less prevalent (e.g., Pereira et al., 2017).

In addressing RQ1, the quantitative data analysis revealed affirmative outcomes concerning students’ perspective on their written assessments, as evident in the responses within the ‘belief’ dimension. Likewise, while the responses within the ‘knowledge’ dimension indicated a heightened degree of proficiency in assessment literacy, student responses in the latter part of the scale revealed a stark contrast, wherein student responses underscored a misalignment between their professed beliefs and the practical application of these beliefs. Consequently, it can be suggested that there exists a correlation between their perspectives on assessment and their approaches to learning (Struyven et al., 2005). Also, it can be proposed that when responding to the questions in the behaviour and the critique dimensions, participants appeared



not to translate their knowledge and beliefs into actions regarding written assessment. This also suggests a potential misalignment between their cognitive understanding and practical application in the context of assessing written work.

In terms of the first theme of the study, participants have been found to prioritise impactful corrective feedback over mere attainment of passing grades. This underscores the pivotal role of Assessment for Learning (AfL) can play, serving as a valuable tool for teachers to enhance student success in their writing assessment (DeLuca & Klinger, 2010). As a result, it is imperative to adeptly convey this perspective to the students, the most pivotal stakeholder group in education, ensuring that they do not perceive formative assessment as superfluous or nonessential work (Yorke, 2003). It is, therefore, essential to bear in mind that the primary objective of integrating formative assessment into students' educational experiences is to facilitate the cultivation of a disposition towards lifelong learning, guided by the language teachers (Homayounzadeh & Razmjoo, 2021). It can also be argued that the reason students do not regard receiving passing grades as important could be related to the fact that the curriculum at the target school gives careful attention to formative assessment, with written tasks accounting for nearly half of the second part of the overall grades.

Second, the responses provided by the students regarding their awareness and comprehension of the scoring criteria used for the evaluation and assessment of their written tasks present a narrative distinct from what is proposed in the existing literature. To elucidate, it is recommended that students assume a leading role in their own learning, undertaking responsibilities as deemed necessary (Hawe & Dixon, 2014) because students should possess a clear understanding of the direction of their academic development (Hattie & Timperley, 2007). It is also suggested in the literature that teachers might still be regarded as the sole owners of knowledge within a classroom setting, but relying solely on teachers as the primary source of instruction and feedback might no longer be adequate or appropriate, as this poses the risk of fostering dependence on others for information about individual progress and academic achievement (Sadler, 2010). However, in the current case, teachers are supposed to inform students about the use of scoring criteria as indicated by the curriculum of the prep school programme. Whether the instructors inform the students about the scoring criteria at the beginning of the term is open to interpretation, and the lack of knowledge on students' behalf might be related to teachers' low level of LAL.

A noteworthy subject that surfaced in students' feedback preferences is related to the use of error codes in the feedback provided on written assessments. During the interviews, most students conveyed instances where their teacher employed error codes, while others recounted experiences wherein their teachers meticulously explained their mistakes and areas necessitating improvement in more detail. It is important to note that it falls on the teachers' shoulders to guide students towards the use of error codes before they give corrective feedback on their students' written assignments. In the literature, critiques of assessment design highlight the excessive emphasis on content and task orientation, also casting students in a more passive role as mere recipients of feedback information (Carless, 2011; Tai et al., 2018). As a result, it can be posited that preference for verbal over written feedback may be attributed to factors beyond their assessment literacy capabilities. Overall, it can be suggested that the

reason students are favouring detailed verbal feedback might be related to the possibility that they are not equipped with the necessary tools to decode error codes and put them into use to strengthen their written skills, which might indicate low SWAL levels.

Finally, students should be able to be their own assessors and play a more active role in the assessment process, especially in alternative assessment. It is proven that when incorporated within the instructional framework, formative assessment can play a particularly significant role in facilitating student-centred teaching by providing instructors insights into students' acquired knowledge or skills and into areas that require further attention (Shepard, 2000).

Overall, as a response to RQ2, the qualitative findings corroborated the findings gathered from the quantitative analysis, emphasising the consolidation of the mismatch between students' stated beliefs and presumed knowledge and their general assessment practices. A particularly noteworthy discovery from the qualitative analysis was the absence of alternative assessment practices, a phenomenon that resonates with the existing literature. Previous research studies into the alternative assessment also highlight that students are not engaged in self- and peer assessment (e.g., Pereira et al., 2017). Moreover, there are other research studies which aimed to increase the assessment literacy levels of students using self- and peer assessment (e.g., Chen et al., 2023). The research by Francis (2008) revealed a mismatch between students' self-assessment and the grading criteria. Similarly, self-regulated learning also adds to the performance of students because it is evidenced that self-regulated learning, as part of self-assessment, can increase the assessment literacy levels of students (Panadero et al., 2016). In conclusion, the challenges identified in students' engagement with self- and peer assessment highlight the need for effective strategies to increase their assessment literacy levels. As evidenced by the emergent themes in this study, ongoing efforts, such as those centred on fostering self-regulated learning, offer promising avenues to elevate students' successes in writing assessment literacy.

### **Implications, Limitations, and Future Directions**

It is important to acknowledge that "students who have well-developed assessment capabilities" (Absolum et al., 2009, p. 5) have more at their disposal to be successful learners. The results of the study indicated that students who are aware of what is being asked of them have more positive attitudes and perceptions towards writing assessment. Previous research in the field have also shown comparable results (O'Donovan et al., 2001; O'Donovan et al., 2008). Consequently, social learning mechanisms, including peer review and the incorporation of pedagogical training for students, aim to enhance their familiarity with assessment procedures.

That is why students should be included in the assessment process (Deeley & Bovill, 2017) and must be active participants in their own learning (Rust et al., 2003). To achieve this, instruction on assessment can be implemented in their undergraduate courses (Volante & Fazio, 2007).

Second, it is important to remember that teachers will still play a prominent role in improving their students SWAL because they are responsible for implementing effective approaches to provide assessment information, guiding students in achieving their educational objectives. As a result, it can be argued that it is also important to foster LAL levels of teachers if we want a successful teacher-student

collaboration. It is crucial to acknowledge that the process of learning emerges through dynamic interactions between educators and learners (Gipps, 1999), necessitating teachers to stimulate learning, provide feedback, and involve students actively in the assessment process (Ataie-Tabar et al., 2019). It is evident from the study findings that teachers are responsible for guiding students towards test awareness as seen in the case of error codes, which can be improved through improvements in teaching education programmes (Lee & Mao, 2024). For this purpose, workshops, training sessions, undergraduate lessons, and even graduate lessons that focus on LAL could be developed in the future for pre-service teachers. This also calls for teachers to be actively engaged in not only teaching and assessing writing but also giving efficient and useful feedback, which asks teachers to be equipped with feedback literacy (Yu & Lee, 2024). It must also be acknowledged that previous studies have evidenced that literacy levels of the writing instructors have an important effect on students' writing abilities (e.g., Mellati & Khademi, 2018).

On the other side, the exclusive focus on preparatory programme students during their initial years at the university might limit the generalisability of the findings to a broader student population. Expanding the scope of future research into various academic levels and institutions would provide a more comprehensive understanding of SWAL across varied contexts. Additionally, different institution with unique assessment practices, scoring criteria, or even teaching methodologies can play a significant role on students' assessments. Moreover, the semi-structured interviews, while providing valuable insights, may be limited by the small sample size of participants ( $n=12$ ). Thematic analysis enhanced the elucidation and exemplification of the scale-derived data. However, future research studies can expand the participant pool to acquire a more extensive of the qualitative data. Incorporating a larger and more diverse participant cohort can enrich the depth and breadth of insights, which can enrich the robustness and generalisability of research findings. In addition, the current study refrained from considering students' writing grades, thus rendering it intricate to establish more conclusive correlation between students' written assessment grades and their attitudes, beliefs, and perspectives on the assessment process. To address this limitation, future studies may integrate written grades as a variable and adopt a triangulation approach, using diverse data collection tools as well, such as in-class observation and reflective journals. Therefore, it is advisable to conduct research within the context of written assignments (Brown et al., 2016; Flores et al., 2019; Peterson et al., 2015) as this approach plays a pivotal role in augmenting students' awareness of the assessment process. Delving into the dynamics involved in the evaluation of written assignments, future studies can gather valuable insights into students' comprehension, engagement, and perceptions of assessment, fostering a more comprehensive understanding of their writing assessment literacy.

#### Author Contributions

All authors equally took part in all processes of the article. All authors had read and approved the final version of the work.

#### Ethics Declaration

This study was carried out with the approval decision at the Social Sciences and Humanities Scientific Research and

Publication Ethics Committee of Anadolu University (Protocol No: 624060) at the meeting dated 31.10.2023.

#### Conflict of Interest

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

#### References

- Absolum, M., Flockton, L., Hattie, J., Hipkins, R., & Reid, I. (2009). Directions for assessment in New Zealand: Developing students' assessment capabilities. *Unpublished paper prepared for the Ministry of Education*.
- Aitken, N. (2011). Student Voice in Fair Assessment Practice. In *Leading Student Assessment* (pp. 175-200). Springer. [https://doi.org/10.1007/978-94-007-1727-5\\_9](https://doi.org/10.1007/978-94-007-1727-5_9)
- Alonzo, D. (2016). Development and Application of a Teacher Assessment for Learning (AfL) Literacy Tool. *unsworks.unsw.edu.au*. <https://doi.org/10.26190/unsworks/18809>
- Ataie-Tabar, M., Zareian, G., Amirian, S. M. R., & Adel, S. M. R. (2019). A Study of Socio-Cultural Conception of Writing Assessment Literacy: Iranian EFL Teachers' and Students' Perspectives. *English Teaching & Learning*, 43(4), 389-409. <https://doi.org/10.1007/s42321-019-00035-0>
- Baird, J.-A., Andrich, D., Hopfenbeck, T. N., & Stobart, G. (2017). Assessment and learning: fields apart? *Assessment in Education: Principles, Policy & Practice*, 24(3), 317-350. <https://doi.org/10.1080/0969594x.2017.1319337>
- Bernard, H. R. (2018). *Research methods in anthropology: qualitative and quantitative approaches* (Sixth edition. ed.). Rowman & Littlefield.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57-71). American Psychological Association. <https://doi.org/10.1037/13620-004>
- Brown, G. T. L., & Wang, Z. (2016). Understanding Chinese university student conceptions of assessment: cultural similarities and jurisdictional differences between Hong Kong and China. *Social Psychology of Education*, 19(1), 151-173. <https://doi.org/10.1007/s11218-015-9322-x>
- Butler, Y. G., Peng, X., & Lee, J. (2021). Young learners' voices: Towards a learner-centered approach to understanding language assessment literacy. *Language Testing*, 38(3), 429-455. <https://doi.org/10.1177/0265532221992274>
- Carless, D., Salter, D., Yang, M., & Lam, J. (2010). Developing sustainable feedback practices. *Studies in Higher Education*, 36(4), 395-407. <https://doi.org/10.1080/03075071003642449>
- Chan, C. K. Y., & Luo, J. (2021). A four-dimensional conceptual framework for student assessment literacy in holistic competency development. *Assessment & Evaluation in Higher Education*, 46(3), 451-466. <https://doi.org/10.1080/02602938.2020.1777388>
- Chen, G., Wang, X., & Wang, L. (2023). Developing assessment literacy among trainee translators: scaffolding

- self and peer assessment as an intervention. *Assessment & Evaluation in Higher Education*, 48(6), 888-902. <https://doi.org/10.1080/02602938.2022.2142515>
- Charteris, J., & Thomas, E. (2016). Uncovering 'unwelcome truths' through student voice: teacher inquiry into agency and student assessment literacy. *Teaching Education*, 28(2), 162-177. <https://doi.org/10.1080/10476210.2016.1229291>
- Colby-Kelly, C., & Turner, C. E. (2007). AFL Research in the L2 Classroom and Evidence of Usefulness: Taking Formative Assessment to the Next Level. *The Canadian Modern Language Review*, 64(1), 9-37. <https://doi.org/10.3138/cmlr.64.1.009>
- Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3-21. <https://doi.org/10.1007/bf00988593>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (Fifth edition. ed.). SAGE.
- Crusan, D. (2010). *Assessment in the second language writing classroom*. University of Michigan Press.
- Crusan, D., Plakans, L., & Gebril, A. (2016). Writing assessment literacy: Surveying second language teachers' knowledge, beliefs, and practices. *Assessing Writing*, 28, 43-56. <https://doi.org/10.1016/j.asw.2016.03.001>
- Crusan, D. (2022). Writing Assessment Literacy. In *Research Questions in Language Education and Applied Linguistics* (pp. 431-435). [https://doi.org/10.1007/978-3-030-79143-8\\_77](https://doi.org/10.1007/978-3-030-79143-8_77)
- Davari Torshizi, M., & Bahraman, M. (2019). I explain, therefore I learn: Improving students' assessment literacy and deep learning by teaching. *Studies in Educational Evaluation*, 61, 66-73. <https://doi.org/10.1016/j.stueduc.2019.03.002>
- Davies, A. (2008). Textbook trends in teaching language testing. *Language Testing*, 25(3), 327-347. <https://doi.org/10.1177/0265532208090156>
- Deeley, S. J., & Bovill, C. (2017). Staff student partnership in assessment: enhancing assessment literacy through democratic practices. *Assessment & Evaluation in Higher Education*, 42(3), 463-477. <https://doi.org/10.1080/02602938.2015.1126551>
- DeLuca, C., & Klinger, D. A. (2010). Assessment literacy development: identifying gaps in teacher candidates' learning. *Assessment in Education: Principles, Policy & Practice*, 17(4), 419-438. <https://doi.org/10.1080/0969594x.2010.516643>
- Denton, P., & McIlroy, D. (2017). Response of students to statement bank feedback: the impact of assessment literacy on performances in summative tasks. *Assessment & Evaluation in Higher Education*, 43(2), 197-206. <https://doi.org/10.1080/02602938.2017.1324017>
- Dörnyei, Z. (2007). *Research methods in applied linguistics*. Oxford University Press.
- Dörnyei, Z., & Dewaele, J.-M. (2022). *Questionnaires in Second Language Research*. Routledge.
- Flores, M. A., Brown, G., Pereira, D., Coutinho, C., Santos, P., & Pinheiro, C. (2019). Portuguese university students' conceptions of assessment: taking responsibility for achievement. *Higher Education*, 79(3), 377-394. <https://doi.org/10.1007/s10734-019-00415-2>
- Francis, R. A. (2008). An investigation into the receptivity of undergraduate students to assessment empowerment. *Assessment & Evaluation in Higher Education*, 33(5), 547-557. <https://doi.org/10.1080/02602930701698991>
- Fulcher, G. (2010). *Practical language testing*. London: Hodder Education.
- Fulcher, G. (2012). Assessment Literacy for the Language Classroom. *Language Assessment Quarterly*, 9(2), 113-132. <https://doi.org/10.1080/15434303.2011.642041>
- Gipps, C. (1999). Socio-Cultural Aspects of Assessment. *Review of Research in Education*, 24. <https://doi.org/10.2307/1167274>
- Greene, J. C. (2007). *Mixed methods in social inquiry*. San Francisco, CA: Jossey-Bass.
- Hannigan, C., Alonzo, D., & Oo, C. Z. (2022). Student assessment literacy: indicators and domains from the literature. *Assessment in Education: Principles, Policy & Practice*, 29(4), 482-504. <https://doi.org/10.1080/0969594x.2022.2121911>
- Hattie, J., & Timperley, H. (2016). The Power of Feedback. *Review of Educational Research*, 77(1), 81-112. <https://doi.org/10.3102/003465430298487>
- Hawe, E. M., & Dixon, H. R. (2014). Building students' evaluative and productive expertise in the writing classroom. *Assessing Writing*, 19, 66-79. <https://doi.org/10.1016/j.asw.2013.11.004>
- Hirvela, A., & Belcher, D. (2007). Writing scholars as teacher educators: Exploring writing teacher education. *Journal of Second Language Writing*, 16(3), 125-128. <https://doi.org/10.1016/j.jslw.2007.08.001>
- Homayounzadeh, Z., & Razmjoo, S. A. (2021). Examining Assessment Literacy in Practice in an Iranian Context: Does it Differ for Instructors and Learners? *Teaching English as a Second Language Quarterly (Formerly Journal of Teaching Language Skills)*, 40(2), 1-45.
- Inbar-Lourie, O. (2008). Constructing a language assessment knowledge base: A focus on language assessment courses. *Language Testing*, 25(3), 385-402. <https://doi.org/10.1177/0265532208090158>
- Inbar-Lourie, O. (2013). Guest Editorial to the special issue on language assessment literacy. *Language Testing*, 30(3), 301-307. <https://doi.org/10.1177/0265532213480126>
- Jeong, H. (2013). Defining assessment literacy: Is it different for language testers and non-language testers? *Language Testing*, 30(3), 345-362. <https://doi.org/10.1177/0265532213480334>
- Lam, R. (2019). Teacher assessment literacy: Surveying knowledge, conceptions, and practices of classroom-based writing assessment in Hong Kong. *System*, 81, 78-89. <https://doi.org/10.1016/j.system.2019.01.006>
- Lee, I. (2017). *Classroom Writing Assessment and Feedback in L2 School Contexts*. Springer. <https://doi.org/10.1007/978-981-10-3924-9>
- Lee, I., & Mao, Z. (2024). Writing teacher feedback literacy: Surveying second language teachers' knowledge, values, and abilities. *Journal of Second Language Writing*, 63. <https://doi.org/10.1016/j.jslw.2024.101094>
- Yu, S., & Lee, I. (2024). Writing assessment and feedback literacy: Where do we stand and where can we go? *Assessing Writing*, 60. <https://doi.org/10.1016/j.asw.2024.100829>
- Lodge, C. (2008). Engaging student voice to improve pedagogy and learning: An exploration of examples of innovative pedagogical approaches for school improvement. *International Journal of Pedagogies and Learning*, 4(5), 4-19. <https://doi.org/10.5172/ijpl.4.5.4>



- Mackey, A., & Gass, S. M. (2022). *Second language research: methodology and design* (2<sup>nd</sup> ed.). Routledge.
- Mellati, M., & Khademi, M. (2018). Exploring Teachers' Assessment Literacy: Impact on Learners' Writing Achievements and Implications for Teacher Development. *Australian Journal of Teacher Education*, 43(6), 1-18. <https://doi.org/10.14221/ajte.2018v43n6.1>
- O'Donovan, B., Price, M., & Rust, C. (2001). The Student Experience of Criterion-Referenced Assessment (Through the Introduction of a Common Criteria Assessment Grid). *Innovations in Education and Teaching International*, 38(1), 74-85. <https://doi.org/10.1080/147032901300002873>
- O'Donovan, B., Price, M., & Rust, C. (2004). Know what I mean? Enhancing student understanding of assessment standards and criteria. *Teaching in Higher Education*, 9(3), 325-335. <https://doi.org/10.1080/1356251042000216642>
- O'Donovan, B., Price, M., & Rust, C. (2008). Developing student understanding of assessment standards: a nested hierarchy of approaches. *Teaching in Higher Education*, 13(2), 205-217. <https://doi.org/10.1080/13562510801923344>
- Ölmezer-Öztürk, E., & Aydin, B. (2018). Toward measuring language teachers' assessment knowledge: development and validation of Language Assessment Knowledge Scale (LAKS). *Language Testing in Asia*, 8(1). <https://doi.org/10.1186/s40468-018-0075-2>
- Panadero, E., Jonsson, A., & Strijbos, J.-W. (2016). Scaffolding Self-Regulated Learning Through Self-Assessment and Peer Assessment: Guidelines for Classroom Implementation. In C. Wyatt-Smith (Ed.), *Assessment for Learning: Meeting the Challenge of Implementation* (pp. 311-326). [https://doi.org/10.1007/978-3-319-39211-0\\_18](https://doi.org/10.1007/978-3-319-39211-0_18)
- Pereira, D., Niklasson, L., & Flores, M. A. (2016). Students' perceptions of assessment: a comparative analysis between Portugal and Sweden. *Higher Education*, 73(1), 153-173. <https://doi.org/10.1007/s10734-016-0005-0>
- Peterson, E. R., Brown, G. T. L., & Jun, M. C. (2015). Achievement emotions in higher education: A diary study exploring emotions across an assessment event. *Contemporary Educational Psychology*, 42, 82-96. <https://doi.org/10.1016/j.cedpsych.2015.05.002>
- Popham, W. J. (2009). Assessment Literacy for Teachers: Faddish or Fundamental? *Theory Into Practice*, 48(1), 4-11. <https://doi.org/10.1080/00405840802577536>
- Rezai, A., Alibakhshi, G., Farokhipour, S., & Miri, M. (2021). A phenomenographic study on language assessment literacy: hearing from Iranian university teachers. *Language Testing in Asia*, 11(1). <https://doi.org/10.1186/s40468-021-00142-5>
- Roslan, R., Nishio, Y., & Jawawi, R. (2022). Analysing English language teacher candidates' assessment literacy: A case of Bruneian and Japanese universities. *System*, 111. <https://doi.org/10.1016/j.system.2022.102934>
- Rust, C., Price, M., & O'Donovan, B. (2003). Improving Students' Learning by Developing their Understanding of Assessment Criteria and Processes. *Assessment & Evaluation in Higher Education*, 28(2), 147-164. <https://doi.org/10.1080/02602930301671>
- Sadler, D. R. (2010). Beyond feedback: developing student capability in complex appraisal. *Assessment & Evaluation in Higher Education*, 35(5), 535-550. <https://doi.org/10.1080/02602930903541015>
- Scarino, A. (2013). Language assessment literacy as self-awareness: Understanding the role of interpretation in assessment and in teacher learning. *Language Testing*, 30(3), 309-327. <https://doi.org/10.1177/0265532213480128>
- Shepard, L. A. (2000). The role of assessment in a learning culture. *Teaching and Learning*, 229-253.
- Smith, C. D., Worsfold, K., Davies, L., Fisher, R., & McPhail, R. (2013). Assessment literacy and student learning: the case for explicitly developing students' assessment literacy. *Assessment & Evaluation in Higher Education*, 38(1), 44-60. <https://doi.org/10.1080/02602938.2011.598636>
- Stiggins, R. J. (1991). Assessment literacy. *Phi Delta Kappan*, 72(7), 534-539.
- Stiggins, R. J. (2007). Assessment through the student's eyes. *Educational Leadership*, 64(8), 22-26.
- Stiggins, R. J. (2008). *Student-involved assessment FOR learning* (5th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
- Struyven, K., Dochy, F., & Janssens, S. (2005). Students' perceptions about evaluation and assessment in higher education: a review. *Assessment & Evaluation in Higher Education*, 30(4), 325-341. <https://doi.org/10.1080/02602930500099102>
- Su, Y. (2014). Self-directed, genuine graduate attributes: the person-based approach. *Higher Education Research & Development*, 33(6), 1208-1220. <https://doi.org/10.1080/07294360.2014.911255>
- Tai, J., Ajjawi, R., Boud, D., Dawson, P., & Panadero, E. (2017). Developing evaluative judgement: enabling students to make decisions about the quality of work. *Higher Education*, 76(3), 467-481. <https://doi.org/10.1007/s10734-017-0220-3>
- Taylor, L. (2009). Developing Assessment Literacy. *Annual Review of Applied Linguistics*, 29, 21-36. <https://doi.org/10.1017/s0267190509090035>
- Taylor, L. (2013). Communicating the theory, practice, and principles of language testing to test stakeholders: Some reflections. *Language Testing*, 30(3), 403-412. <https://doi.org/10.1177/0265532213480338>
- Tian, W., Louw, S., & Khan, M. K. (2021). Covid-19 as a critical incident: Reflection on language assessment literacy and the need for radical changes. *System*, 103. <https://doi.org/10.1016/j.system.2021.102682>
- Vogt, K., & Tsagari, D. (2014). Assessment Literacy of Foreign Language Teachers: Findings of a European Study. *Language Assessment Quarterly*, 11(4), 374-402. <https://doi.org/10.1080/15434303.2014.960046>
- Volante, L., & Fazio, X. (2007). Exploring Teacher Candidates' Assessment Literacy: Implications for Teacher Education Reform and Professional Development [Abstract]. *Canadian Journal of Education / Revue canadienne de l'éducation*, 30(3). <https://doi.org/10.2307/20466661>
- Watanabe, Y. (2011). Teaching a course in assessment literacy to test takers: Its rationale, procedure, content, and effectiveness. *Cambridge Research Notes*, 46(Nov. 2011), 29-34.
- Weigle, S. C. (2007). Teaching writing teachers about assessment. *Journal of Second Language Writing*, 16(3), 194-209. <https://doi.org/10.1016/j.jslw.2007.07.004>

- White, E. (2009). Are you assessment literate? Some fundamental questions regarding effective classroom-based assessment. *OnCUE Journal*, 3(1), 3-25.
- Wiliam, D. (2018). *Embedded formative assessment*. Second edition. In Solution Tree Press.
- Xu, J., Zheng, Y., & Braund, H. (2023). Voices from L2 learners across different languages: Development and validation of a student writing assessment literacy scale. *Journal of Second Language Writing*, 60. <https://doi.org/10.1016/j.jslw.2023.100993>
- Yan, X., & Fan, J. (2020). “Am I qualified to be a language tester?”: Understanding the development of language assessment literacy across three stakeholder groups. *Language Testing*, 38(2), 219-246. <https://doi.org/10.1177/0265532220929924>
- Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and enhancement of pedagogic practice, *Higher Education*, 45, 477–501.



## Appendix

## Scale of Student Writing Assessment Literacy

## DEMOGRAFİK BİLGİLER

1. Cinsiyetiniz:  
 Kadın  Erkek  Diğer/Söylemek istemiyorum
2. Yaşınız:  
 17-18  19-20  21-22  23+
3. Bölümünüz:
4. Hazırlıktaki dil seviyeniz:  
 D  C  B  A  A+
5. Hazırlıkta kaç dönemdir eğitim görüyorsunuz?  
 1  2  3  4

## Öğrenci Yazma Değerlendirmesi Okuryazarlık Ölçeği

Ölçekte, yazma becerilerinize ve yazma ödevlerine yönelik sorular bulunmaktadır. Sorulara aşağıdakilere göre puan verilmesi gerekmektedir. Sorular, tutumlarınızı ve görüşlerinizi almak üzere hazırlanmıştır. Her ifade için doğru veya yanlış cevap yoktur, bu nedenle lütfen cevaplarınızı dürüstçe veriniz.

## 1- Hiç katılmıyorum

## 2- Katılmıyorum

## 3- Ne katılıyorum ne katılmıyorum

## 4- Katılıyorum



## 5- Kesinlikle katılıyorum

		Hiç katılmıyorum (1)	Katılmıyorum (2)	Ne katılıyorum ne katılmıyorum (3)	Katılıyorum (4)	Kesinlikle katılıyorum (5)
<b>BİLGİ</b>						
1	Yazma dersinin değerlendirme ve not verme yöntemlerini anlarım (yazma ödevleri, ara sınav).					
2	Yazma derslerinde verilen ödevlerin amaçlarını bilirim (yeterlik, başarı, teşhis).					
3	Yazılı çalışmalarımın hangi kritere göre değerlendirileceğini ve notlandırılacağını biliyorum.					
4	Yazma becerisi yeterliğinin farklı yaklaşımlarla ve yöntemlerle değerlendirilebileceğini anlıyorum (farklı kriterler, okullar, şartlar vb.).					
5	Yazma ödevlerimi nasıl değerlendireceğimi ve notlandıracağımı biliyorum.					
6	Yazma ödevlerimin (ödevler ve ara sınav) değerlendirilmesinin ve notlandırılmasının neden olabileceği yan etkileri bilirim (ödevlerde yüksek alıp ara sınava çok çalışmamak vb.).					
<b>İNANIS</b>						
7	Yazma ödevlerimin değerlendirilmesi ve notlandırılması, bana yazma becerimi geliştirmek için yazılı düzeltici dönüt sağlar.					
8	Yazma becerilerimi geliştirmek için öğretmenlerin verdiği yazılı düzeltici dönütleri dikkate almak önemlidir.					
9	Öğretmenim, yazılı ödevimi değerlendirdiğinde ve notlandığında mutlu olurum.					
10	Yazma ödevlerimin değerlendirilmesi ve notlandırılması, beni yazmaya daha fazla teşvik eder.					
11	Yazma ödevlerimin değerlendirilmesi ve notlandırılması, benim yazma becerilerindeki güçlü ve zayıf yönlerimi ortaya koyar.					
12	Yazma becerilerinin değerlendirilmesi ve notlandırılması, beni yazma dersinin hedefine ulaştırır (örn; paragraf yazma, essay yazma).					

		Hiç katılmıyorum (1)	Katılmıyorum (2)	Ne katılıyorum ne katılmıyorum (3)	Katılıyorum (4)	Kesinlikle katılıyorum (5)
<b>DAVRANIŞ</b>						
13	Kendi yazılı çalışmalarımı değerlendirmek için değerlendirme kriteri kullanırım.					
14	Yazılı ödevlerimi değerlendirmek ve notlandırmak için bilgisayar teknolojisini kullanırım (Grammarly, OpenAI vb.)					
15	Yazma becerilerinde ne kadar iyi olduğumu anlamak için yazma ödevlerimi incelerim.					
16	Eksiklerimi belirlemek ve dili öğrenmem için neyi bilmem gerektiğini anlamak için yazma ödevlerimi incelerim.					
17	Öğretmenimin verdiği yazılı düzeltici dönütleri etkin bir şekilde kullanırım.					
18	Öğretmenimin verdiği notlar ve dönütler doğrultusunda yazma becerimi geliştirmek için çaba harcarım.					
<b>ELEŞTİRİ</b>						
19	Sınıf içi yazma ödevlerinin verimliliğini eleştirel bir şekilde sorgularım.					
20	Öğretmenimin verdiği yazılı düzeltici dönütleri incelerim ve kullanıp kullanmayacağıma karar veririm.					
21	Yazma ödevlerimin değerlendirilmesi ve notlandırılması ile ilgili öğretmenlerimle iletişim kurma sorumluluğumun olduğunun farkındayım.					
22	Hangi dönüt şeklinin bana daha uygun olduğunu öğretmenimle konuşurum (örneğin, sözlü veya yazılı).					
23	Yazma becerilerimi ve notlarımı nasıl geliştirebileceğim ile ilgili arkadaşlarımla iletişim kurarım.					
24	Yazma becerilerimi ve notlarımı nasıl geliştirebileceğim ile ilgili öğretmenlerimle iletişim kurarım.					

## Analyse the Views of The Master's Degree Students at the Mathematics Teaching Department on the Use of Qualitative Research Methods

### İlköğretim Matematik Öğretmenliği Yüksek Lisans Öğrencilerinin Nitel Araştırma Yöntemlerinin Kullanımına Yönelik Görüşlerinin İncelenmesi

Gözdegül Arık Karamık<sup>1</sup>  Gamze Bağ<sup>2</sup> 

<sup>1</sup> Asst. Prof. Dr. Akdeniz University, Faculty of Education, Antalya, Türkiye

<sup>2</sup> Expert., Akdeniz University, Faculty of Education, Antalya, Türkiye

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##### \*Sorumlu Yazar

Gözdegül Arık Karamık

Akdeniz Üniversitesi Eğitim  
Fakültesi A blok No:363

[gkaramik@akdeniz.edu.tr](mailto:gkaramik@akdeniz.edu.tr)

**Abstract:** Master's degree study is a career step at which individuals make efforts to specialize in a field and which allows them to make self-development. The biggest component that is important for a search and increases its scientific quality is the method used. The aim of this study is to examine the views of mathematics teaching master's degree students on the use of qualitative research methods. The current study employs the design of a case study, which has a qualitative research design. The study group was composed of 12 master's degree students of education at mathematics teaching department who were writing their theses at a university in the Mediterranean region of Turkey. The research data were collected through personal interview forms and focal group interview forms. The data were subjected to content analysis and descriptive analysis. The current study concludes that the articles and theses written in the qualitative study method are more difficult than the ones written in the quantitative study method, but that master's degree students think they can cope with the work due to their personal competence. Another finding obtained was that participants tended to fill the gaps in the conceptual framework of other studies, to use the existing framework, and they had personal competence.

**Keywords:** Higher education, qualitative research, teaching mathematics, master's degree student

**Öz:** Lisansüstü eğitim, bireylerin bir alanda uzmanlaşmak için çaba sarf ettikleri ve kendilerini geliştirmelerine olanak sağlayan bir kariyer basamağıdır. Bir araştırma için önemli olan ve bilimsel niteliğini artıran en büyük bileşen ise kullanılan yöntemlerdir. Bu çalışmanın amacı, matematik öğretmenliği yüksek lisans öğrencilerinin nitel araştırma yöntemlerinin kullanımına ilişkin görüşlerini incelemektir. Bu çalışmada nitel araştırma desenlerinden durum çalışması deseni kullanılmıştır. Çalışma grubunu, Türkiye'nin Akdeniz bölgesindeki bir üniversitede tezlerini yazmakta olan 12 ilköğretim matematik öğretmenliği yüksek lisans öğrencisi oluşturmaktadır. Araştırma verileri kişisel görüşme formları ve odak grup görüşme formları aracılığıyla toplanmıştır. Veriler içerik analizi ve betimsel analize tabi tutulmuştur. Bu çalışma, nitel çalışma yöntemiyle yazılan makale ve tezlerin nicel çalışma yöntemiyle yazılanlara göre daha zor olduğu, ancak lisansüstü öğrencilerin kişisel yeterlilikleri nedeniyle işin üstesinden gelebileceklerini düşündükleri sonucuna varmıştır. Burada elde edilen bir diğer bulgu ise katılımcılar kavramsal çerçevedeki boşlukları doldurma eğilimindedir.

**Anahtar Kelimeler:** Yükseköğrenim, nitel araştırma, matematik öğrenimi, yükseköğrenim öğrencisi

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## Introduction

Master's degree study is a career step at which individuals make efforts to specialise in a field and which allows them to make self-development. The board of higher education [YÖK, 1981] defines it in Law 2547 as education and instruction based on undergraduate education and as higher education, which aims to exhibit the results of research. There are various factors which enable individuals to make self-development in this process. One of them is to pursue the relevant publications in the country and abroad. What is expected of individuals in pursuing the relevant literature is to have comprehensible knowledge of the area and to make scientific publications so as to fill the gap or the deficiency that they notice in the area and thus to write a thesis.

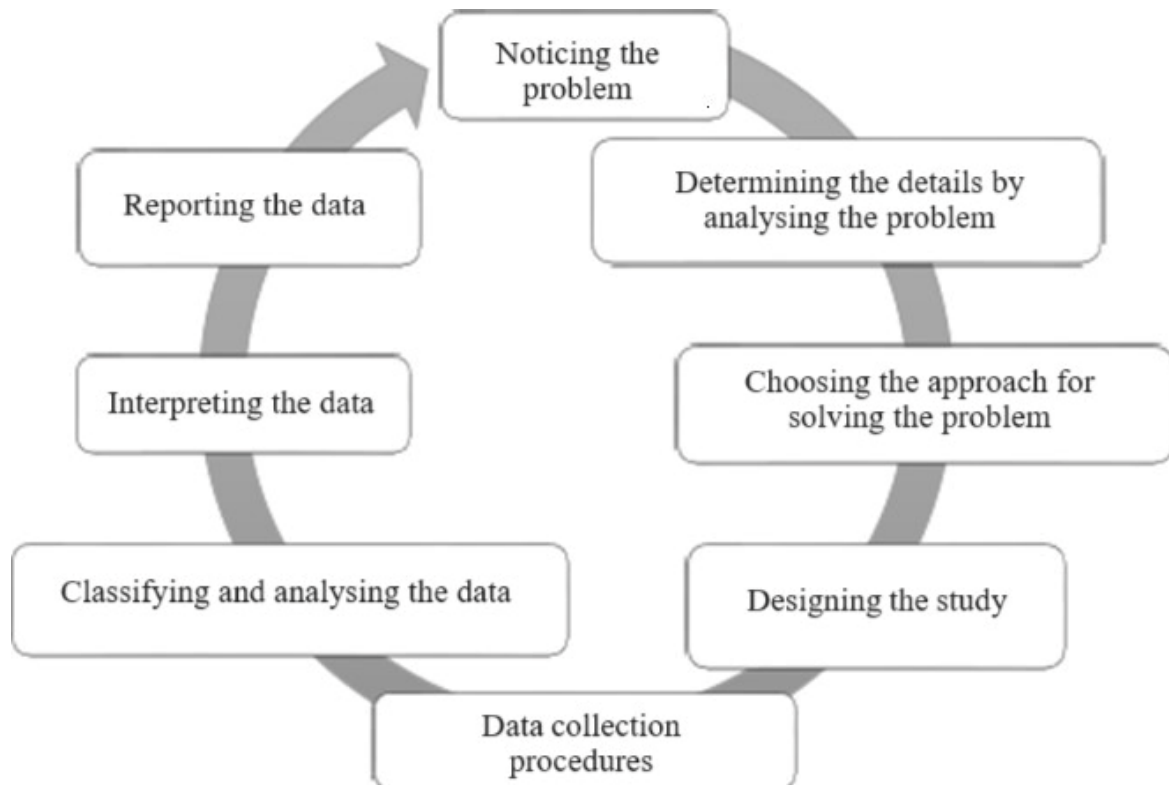
What makes a study scientific is the method used (Erkuş, 2009). 228 theses, 57 of which were doctoral dissertations and 171 of which were master's theses, were produced in Türkiye in the period between 2003 and 2022 (Board of Higher Education Centre of Theses). A close look at them made it clear that they were produced by using various methods. Erkuş (2009) contends that the findings obtained in a study will not express anything, even if it has an innovative research problem, unless the method used is strong enough.

The methods used in studies performed in education can be said to be quantitative, qualitative, and mixed. They are based

on different paradigms, and each method has properties specific to itself. Researchers (Cresswell & Poth, 2016; Hatch, 2002; LeCompte & Schensul, 1999; Marshall & Rossman, 2010). Cresswell (2016) lists the properties as obtaining the data in the natural environment of a study, confidence in researchers, using multiple methods, complex reasoning, participant subjectivity, context-participant relations, changeability of the pre-determined design, reflective and interpretative nature, and being holistic and complicated.

The broadest definition of qualitative study on the basis of the above-mentioned properties was offered by Denzin & Lincoln (2018) as researchers' effort to make sense of and to interpret the things in their natural environment in terms of meanings humans attach to events.

Qualitative studies contain certain stages despite the fact that they are claimed to be "flexible" (Cresswell, 2016). These stages are shown in Figure 1. Beside Figure 1, Yıldırım and Şimşek (2016) also stress that the processes move in cycles. The movement in cycles is associated with the flexibility of such studies, and it differs according to the interaction between the research problem and the stages and according to the situations encountered in the process. The cycle is also related to the reliability, persuasiveness, and validity of the study. As evident from Figure 1, there is a cyclical process, and each stage is associated with the other.



**Figure 1.** The stages of qualitative studies (Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative*. Prentice Hall Upper Saddle River, NJ.)

According to Figure 1, the stages of the process include noticing the problem, analyzing it, choosing the approach for a solution, designing, collecting the data, classifying, analyzing, interpreting, and reporting the data.

In addition to that, Patton (2002) also emphasises that there are no formulas for performing qualitative studies in an accurate and appropriate way and draws attention to the fact that there is not one test for ensuring that a study is reliable and valid.

It is pointed out in the literature that the errors have increased in studies in parallel to the increase in the number of qualitative studies (Yıldırım & Şimşek, 2016) and that the master's degree theses prepared in science education in qualitative research methods have lacks in terms of methods (Gürdal et al., 2010). Since there are studies on science education, but no studies on mathematics education in the same department (Department of Mathematics and Science Education), the study was conducted with master's degree students in mathematics education. In addition, it is thought that the study will contribute to the literature by determining the thoughts of the students who conduct qualitative studies in the field of mathematics education and comparing them with those of other disciplines.

Thus, the current study aims to analyse the views of the master's degree students at the mathematics teaching department on using qualitative research methods. Accordingly, the research problems formulated are as follows:

1. What are the views held by mathematics teaching department master's degree students in relation to determining the research problem in qualitative studies?
2. What are the views held by mathematics teaching

department master's degree students in relation to forming the conceptual framework in qualitative studies?

3. What are the views held by mathematics teaching department master's degree students in relation to determining the design in qualitative studies?
4. What are the views held by mathematics teaching department master's degree students in relation to reporting the data of qualitative studies?

## Method

### The Research Design

The current study employs a case study approach - one of the qualitative research designs. It uses a single-case holistic design so as to analyse cases such as an individual, an institution, or a school in detail (Güler et al., 2015). The case here was described as taking the qualitative research methods course in mathematics teaching during master's degree education and being at the stage of writing thesis.

### Participants

The participants were chosen through criterion sampling, and the criterion set for the study was the same as the case in the study. The two criteria for the selection of the participants were determined as having taken the qualitative research methods course and having conducted a qualitative study. The study group was composed of 12 master's degree students of education mathematics teaching who were writing their thesis in a university in the Mediterranean region of Türkiye. The participants- whose demographic properties are shown in Table 1- were coded as T1, T2... T12.

**Table 1.** Demographic features of the participants

Participants	Gender	Place of work	The stage of Education	Whether or not they have taken the course	Whether or not they have conducted a qualitative study	Whether or not their qualitative study has been published
T1	K	MoNE	Thesis writing	✓	✓	
T2	K	MoNE	Thesis writing	✓	✓	✓
T3	K	Unemployed	Taking courses	✓	✓	
T4	K	A private institution	Thesis writing	✓	✓	
T5	K	MoNE	Thesis writing	✓	✓	
T6	K	MoNE	Thesis writing	✓	✓	
T7	K	A private institution	Thesis writing	✓	✓	✓
T8	E	MoNE	Taking courses	✓	✓	
T9	E	A private institution	Thesis writing	✓	✓	
T10	E	Unemployed	Thesis writing	✓	✓	✓
T11	E	MoNE	Taking courses	✓	✓	
T12	E	MoNE	Thesis writing	✓	✓	

MoNE: Ministry of National Education

According to Table 1, the participants consisted of seven female and five male students, and four of the female students and three of the male students worked as mathematics teachers in the middle schools of MoNE. They mostly said that they were at the stage of thesis writing in master's degree education, that they had taken a course in qualitative research during the master's degree education, that they had conducted a qualitative study and that three of the qualitative studies had been published.

### Data Collection Tools and Processes

The research data were collected through personal interview forms (PIF) and focal group interview forms (FGIF). Four semi-structured questions prepared by the researchers were sent to four mathematics educators and two experts in methodology for the validity test of the PIF. The experts stated that one of the questions was not adequate and an addition should be made, and thus, the question was arranged in the light of expert opinion. The remaining three questions, on the other hand, were found appropriate, and the rate of agreement between the experts was calculated at 92% by calculating the mean for agreement scores. The final version of the open-ended questions is as follows:

1. What kind of approach do you follow when determining the research problem and the design of your qualitative studies? Why? Explain.
2. What kind of approach do you follow in creating the conceptual framework of your qualitative studies? Why? Explain.
3. How do you go about reporting the qualitative studies you have conducted? Why? Explain.

The FGIF, however, contained six open-ended questions. Expert opinion was consulted synchronically with PIF for the validity test of FGIF. Two questions were added to the existing six questions in accordance with expert opinion. The rate of agreement between the experts was found to be 88%. The PIF was used in individual interviews with the participants. The participants were asked to answer each question and the interviews lasted approximately 65-80 minutes. After analyzing the participants' answers, focal group interviews

were held with six master's degree students who had diverse opinions. The FGIF was used in the focal group interviews. FGIF questions included probing questions aimed at "elaborating what the participants meant" in their answers to the individual interviews.

Eternal experts (two mathematics educators and an expert of methodology) were summoned to the focal group interviews, and thus it was assumed that they would contribute to the research process and to the post-research process objectively and with no prejudice as observers. The researchers took part in the study as participant observers in order to understand the answers given by the participants in the individual focus group interviews in depth.

### Data Analysis

The data were subjected to content analysis and descriptive analysis. Similar concepts and themes (Yıldırım & Şimşek, 2016) were put together in content analysis. The stages of qualitative research, which were determined by researchers beforehand, were considered themes, and coding was done accordingly for content analysis. The statements made by the participants in relation to the research problem were directly quoted through descriptive analysis.

The interviews with the participants were transcribed, and the themes and codes were distinguished in accordance with the purpose of the study through content analysis by using the transcriptions by the researchers and by the experts independently of each other. The themes were configured based on the stages of the qualitative research process, and the sub-themes were configured according to the participants' responses to the PIF and FGIF.

The researchers and the three experts who analysed the codes and themes discussed the consistency between the codes and themes and thus reached agreement. The similarity which Miles and Huberman (1994) call internal consistency and which they conceptualise as interrater agreement is calculated by using the  $\Delta = C \div (C + \partial) \times 100$  formula, in which  $\Delta$  is reliability coefficient,  $C$  is the number of topics or terms in which agreement is reached and  $\partial$ : the number of topics or terms in which there is no agreement. Agreement between the 5 coders



was found to be 89% according to the coding check, which yielded internal consistency. The final shape was given to the codes and themes following the necessary regulations.

The participants were frequently made to confirm their statements during the focal group interviews so as to increase persuasiveness due to the fact that researchers' perspectives had impacts on the persuasiveness of qualitative studies, and therefore one way of securing persuasiveness was to choose and use objective methods (Baltacı, 2017). Besides, the participants' statements were also cited directly in the findings section; and the transferability of the study was increased in this way.

**Findings**

**Determining The Research Problem in Qualitative Studies**

The views of the master's degree students in the mathematics teaching department on determining the research problem in qualitative studies are shown in Table 2.

According to Table 2, participants' thoughts on determining the research problem were divided into such themes as the problems noticed, the problems encountered in practice, the problems reached through a literature review, determining the sub-problems, and personal competence. All the participants said that they set out from the fact that there were problems stemming from the system in teaching mathematics and that it

was influential in determining the subject of study. Thus, T2 said,

*"First, I worked in a private school, and then I began to work in a state school; but there is a system which makes things difficult both in private schools and in state schools. For example, whenever I want to hand out tests to students, the school manager says the printer is out of order. But I notice that it works. We ask families for help in favor of their children, but they keep away. I mean, there is a system which hinders the things you want to do. And I want to be a part of the solution to the system. I do not know how much space it holds or how much I can do, but I believe that I can do something."*

Personal competence involves positive and negative competence. While participants' curiosity, competence in the method they use, and their belief that they can be a part of the solution are positive competence and the idea that they cannot conduct long-term studies is negative competence. Such competence is thought to be influential in master's degree students' determination of problems. T4, for instance, stated their competence with the following statement:

*"I took a lot of courses in creative drama during my undergraduate education, and I liked them very much. I made self-development in this respect, and I taught courses. I felt that I would be successful if I used drama as a method. So, I wanted to use drama in my study. So, what I would study and how I would study it became apparent."*

**Table 2.** Mathematics teaching department master degree students' views on determining the research problem in qualitative studies

Themes	Sub-themes	f
The problems noticed	The availability of problems encountered by teachers in the immediate surrounding in teaching mathematics	10
	The availability of problems about the system encountered by individuals in the immediate surrounding	4
	Family members who encountered problems in teaching mathematics	5
The problems encountered in practice	The availability of problems encountered in teaching practice	11
	Having problems in teaching private mathematics courses	8
	Having problems in the classroom while teaching mathematics	10
	Having problems stemming from the system while teaching mathematics	12
The problems reached through past experiences	Having problems in teaching mathematics while they were students	7
	Noticing that mathematics teachers have problems while they are students	4
The problems reached through literature review	Thinking that the topic was not studied because the subject was not encountered in literature review	6
	Studies available in international literature but not available in national literature	3
Determining the sub-problems	Thinking that problems are encountered in distinguishing between sub-problems and research questions	9
	Noticing that the problem was not divided into sub-problems	5
	Thinking that different measurement instruments should be used for sub-problems	5
Personal competence	Failure to conduct long-term studies	4
	Having too much curiosity	10
	Belief that they can be a part of the solution	9
	Having competence in the method to be used in a study.	3

**Table 3.** Mathematics teaching department master's degree students' views on forming the conceptual framework

Themes	Sub-themes	f
Making use of the previous studies	Forming by using the recommendations made in the studies analysed	8
	Forming by using the conclusion and discussion sections of the studies analysed	4
	Forming by predicting the theories in a different way.	2
Spotting the gaps in other studies	Methodological gaps in other studies	7
	Application gaps in other studies	8
Using a certain framework (distinguishing categories and themes)	Using the existing framework	8
	Availability of the phenomena which are thought to be completed in the process	2
Personal competence	Being dependent on the ability to understand foreign literature	2
	Ability to read a great number of studies depending on the daily work routine	4

In addition to that, the participants also stated that the problems they encountered in schools of practice teaching where they had practice teaching during their undergraduate education were influential in determining the problem in their qualitative study. Thus, a participant, T3 said,

*"There was a student in the classroom who I will never forget. He could not learn the multiplication table despite being a 7<sup>th</sup> grader. The teacher asked me to care for him. It was evident that he had learning difficulties in mathematics although, there was no diagnosis. I prepared lots of activities for him and we worked together. I said to myself, 'why they cannot learn? There should be a way.' I wondered and then I came across the concept of dyscalculia and I wondered what it was."*

Apart from that, participant T9 stated:

*"Students were always late for classes. The teacher was not angry with them, and others' attention was distracted. I talked to the teacher. He/she said that he/she had 40-years of experience and that he did not want to argue with others. I felt sorry for children, and I thought about what I could do for them. Perhaps it caused me to find the causes of their distracted attention. But I studied a more specific subject later."*

Another remarkable situation was that the experiences of participants' family members were influential in determining the problems in the studies. A participant, T3, described it as the following:

*"My brother was in middle school, but he always came home saying that mathematics was difficult. I asked him what was difficult about mathematics, and I recommended helping him, but he never accepted my offer so that his failure would not be known. Everything continued in the same way for a few months. I said I had not understood mathematics at his age and suggested studying together. I realised that he had not understood the topics for three months. He did not know anything about positive or negative numbers. He had not done any homework. He would take an important exam the following year without any knowledge. I thought mathematics might be difficult for students. I was good at math, and why were those who failed math were bad at it."*

### Forming The Conceptual Framework in Qualitative Studies

Table 3 shows the participants' views on forming the conceptual framework in qualitative studies.

The participants thought that the conceptual framework in qualitative studies was formed by making use of the previous

studies, by spotting the gaps in other studies, by using a certain framework, and through personal competence.

They said in the theme of making use of the previous studies that the conceptual framework was formed with the help of recommendations made in the studies they had read, by using the conclusion and discussion sections of the studies and through different predictions of the theories. T7, for instance, said,

*"The lecturer told us to make a summary of the studies we read in a Word document by giving the necessary information about them when I started my master's degree education. I later noticed that each study I read led me to read another study. I think now that the conceptual framework I formed was formed on the basis of such work."*

Additionally, the participants thought that spotting the methodological and practical gaps in other studies, using the existing framework, determining the phenomena that could be completed in the process and personal competence were also influential in forming the conceptual framework. Thus, T7 said,

*"There was a framework which belonged to Ball in teaching mathematics, and I wanted to analyse mathematics teachers according to this framework, which was widely accepted."*

### Determining The Research Design in Qualitative Studies

Table 4 shows the participants' views on determining the research design in qualitative studies.

As it is clear from Table 4, the views are divided into such themes as choosing a design, determining the sample suitable to the design and the problem, developing and using data collection tools, deciding on data collection methods, analysing the data, and personal competence. In the theme of choosing a design, 11 participants stated that it was comforting for them to know that the design could change due to the fact that qualitative studies were flexible. T5, for instance, said,

*"I was indecisive about doing the study qualitatively. In fact, I am more inclined toward quantitative studies. But it was good for me to know in the qualitative studies course that such studies were flexible. A qualitative study was something that I did not know about- like a sea that I did not know. But I was to dive into it and reach the coast. I wouldn't be drowned in that sea. Choosing a design is important. I should determine it according to the problem. I continued with the first design that I had determined. But the idea of flexibility is good!"*

**Table 4.** Mathematics teaching department master’s degree students’ views on determining the research design in qualitative studies

Themes	Sub-themes	f
Choosing a design	That the choice of a design can change in the process because qualitative study is flexible	11
	That the choice of a design is restricted in teaching mathematics	6
	That building a theory is a difficult process	4
	That the designs used in teaching mathematics are fixed	7
Determining the sample according to the design and the problem	That the sample size is not clear in the literature	10
	That the participants are not eager	11
	That the participant cannot profit from the process	3
	That receiving the ethical permissions to reach the sample group takes a long time	8
Developing data collection tools suitable for the design and to the problem and using them	That the number of experts to consult in developing the data collection tools is small	10
	That feedback for expert opinion is given in a long time	5
	Failure to distinguish between the necessary data due to the abundance of data collection tools	9
	Considering the data collection tools deficient and re-developing them	4
Deciding on data collection methods according to the design and the problem	Failure to use the data collection tools (interviews, observations, etc.) functionally while collecting the data	4
	Failure to collect data from older people while using the data collection tools in individual interviews	2
	That the recording process is difficult in data collection	9
Analysing the data according to the design and the problem	Having difficulty in deciding what data to include and what data to exclude in data analysis	11
	Limiting the types of analysis to two	8
	That coding takes too much time	4
	Considering experts’ demands for coding as negative	5
Personal competence	Considering the responses adequate in interviews and not insisting on more	3
	Being able to get responses without leading	7
	Failure to devote more time	2

Another sub-theme with high frequency stated by the students in the theme of determining the sample according to the design was that the participants were not eager. Another point stated was the fact that the sample size was not clear in the literature. Thus, the participant coded as T7 made the statement:

*“According to some resources we had read in the qualitative studies course, six to eight people were necessary for action research. I noticed while starting the study and while talking to my colleagues that I would need at least 10 participants if I formed the sample according to year of experience and gender. The number is not stated in some resources. I started with 10 participants and have two of them left in week two. I thought eight people would not be adequate, and I lengthened the process. Two more people came to the point of leaving. I am also a teacher, but I found it difficult to decide on the number.”*

In the theme of developing data collection tools according to the design and the problem and using them, the participants pointed to the small number of experts to consult in developing and using the data collection tools and their failure in distinguishing between the necessary data due to the abundance of data collection tools. Besides, they also said that feedback for expert opinion was given in a long time and that they tried to develop data collection tools again because they found them deficient. In this respect, T8 said,

*“I need to look at agreement between experts. Two experts sent the results, but the third one answered my e-mail two*

*months later. It was strange to me that it took such a long time.”*

On the other hand, T1 said,  
*“I had interviews, made observations, and held focal group observations, but I had difficulty in using the data I had collected with these tools. I could notice the need for checking which data would be useful to me only after transcription. It is necessary to keep away from the study for a while after transcription. The advisor told me that I should put the data aside for a while so I could look at them from a different perspective. And I did so. I understood that I could not see some of the things while I was working.”*

The participants mentioned the difficulty of recording the data in the theme of deciding data collection methods according to the design and the problem. They said that such problems were not encountered too often when the participants were teachers and family members. T2, for instance, made the statement:

*“I needed to record a modeling activity in the classroom with the video camera. The questions would be shaped later, accordingly. Although I had permission for video recording and the participant was informed of it, they did not permit the video recording. I had to take lots of photos in order not to miss any points.”*

Most of the participants mentioned difficulty in deciding what data to include and what data to exclude in data analysis, with the theme of analysing the data according to the design and the problem. Other views stated in the theme were about

limiting the types of analysis to two, about coding, which took too much time, and about considering experts' demands for coding as negative. To exemplify, T2 stated the opinion:

*"I worked with six prospective teachers, but I felt as if I was listening to the same things from four people. It seemed like four was enough. I thought about whether or not to include the data in analysis, but then I did. Then I coded according to the unit of analysis. The third person would need to listen to thousands of minutes of recording. It was very difficult for me to find an expert who would help me in coding."*

The master's degree students said that they did not insist on more detail and considered the answers adequate in the interviews on the theme of personal competence. In addition to that, they also stated that they could receive answers without leading and that they had problems with data analysis due to a failure to devote more time. T8, for example, made the following statement in this respect:

*"The teacher I interviewed was older than me. The answers I received were not more than a few sentences despite all my effort. So, I considered the answers adequate. But the answers were not useful for me."*

Another participant, T7, said,

*"The lecturer asked us to hold interviews while doing our assignment in the qualitative studies course. I interviewed my students. Then, I noticed while listening to the voice recordings that I had led them by saying 'Do you?' 'Is that right?' 'Do you mean...?' but I did not do it in my thesis. I did not lead the participants. I only asked them to clarify what they said. It was a great success for me."*

### Reporting The Data in Qualitative Studies

The views stated by the master's degree students are shown in Table 5.

Accordingly, the students' views on reporting were divided into such themes as reporting the problem, reporting the method, reporting the conclusion and discussion, reporting the recommendations, and the physical properties of reporting. The problem and the introduction sections were considered together because of the availability of joint studies. The participants

thought in the theme that the purpose was confused with the problem and with the significance, that describing the problem was difficult while performing a qualitative study about teaching mathematics, and that limitations were not mentioned. For example, T8 stated their view as:

*"We include it in theses, but I haven't seen it in articles. I hesitated whether to include it or not in my study. To what extent should the limitations be described? I believe that everything is already clear. But I sometimes think about what to write if I need to write."*

T10, on the other hand, said,

*"I think that the purpose is confused with the significance. In my opinion, limitations are determined by the significance of the study, but we do not mention them. The extent of limitation confused me."*

### Conclusion and Discussion

The current study concludes that the articles and theses written in the qualitative study method are more difficult than the ones written in the quantitative study method, but that master's degree students think they can cope with the work due to their personal competence. The study analysed master's degree students' perceptions of methodology used in qualitative studies (Saban, 2007) and concluded that the students were eager to perform such studies, that they perceived qualitative studies as humanistic and sincere, that they had self-confidence to perform such studies, that the method was appropriate for subjects of research, and that those studies gave the opportunity to do deeper research. Therefore, the conclusions reached were in parallel to the ones reached in this current study. The distinction between the two was that the mathematics department master's degree students had the opportunity to experience doing qualitative studies in the current study. And the fact that graduate students are able to structure interviews in a qualitative study depending on their personal competencies can be explained by the fact that qualitative research is sensitive to the natural environment and that the researchers personally interview and interact with the participants they meticulously select (Seggie & Bayyurt, 2017).

**Table 5.** Mathematics teaching department master's degree students' views on reporting the qualitative research data

Themes	Sub-themes	f
Reporting the problem (Introduction)	Confusing the purpose with the problem	4
	Confusing the purpose with the significance	5
	Difficulty in describing the problem of teaching mathematics while performing a qualitative study	6
	Not writing down the limitations in a qualitative study	2
Reporting the method	Describing the participants' demographic features which are not used in the study	3
	Describing the participants and the atmosphere in articles (due to the number of pages)	5
	Thinking that it is the same as other studies	3
Reporting the findings	Indecisiveness about which statements made by participants are to be included	8
	Failure to state the pattern available in the qualitative study	9
	Considering the findings as if they were statements listed one after another	7
	Not describing the findings independently of comments	3
Reporting the conclusion and discussion	Associating the results with disciplines other than mathematics teaching	4
	Not believing in supporting the results with other studies	6
Reporting the recommendations	Including general recommendations for teaching mathematics	11
	Recommendations are independent of results	8
The formal properties of reporting	Reducing the number of pages	11
	Problems stemming from the fact that each journal has a different format	5

Another finding obtained here was that the participants configured their problems according to different types of problems. Thus, the participants who had taken a course in qualitative studies and who contributed to qualitative studies set out from the problems available in their environment while determining the problems, and the problems were the problems their friends had encountered, and the problems related to the system. In addition to that, the participants' desire to fill the gap in the literature, their curiosity and their belief and self-confidence in performing such studies were also influential in determining the research problem. The main reason why graduate students have difficulty in expressing the problem statement in a qualitative study can be explained by the fact that qualitative research has a theoretical structure (Cresswell, 2018) embedded in interpretive frameworks (Yıldırım & Şimşek, 2016), as well as post-positivist and interpretivist understandings (Yıldırım & Şimşek, 2016).

This was a finding similar to the ones obtained in studies on formulating the research problem (Büyüköztürk et al., Ekiz, 2009; Neuman, 2006; Punch, 2013; Usta, 2012) which also aimed to fill in the gaps in the literature. The point where this study differs from others is its argument that detecting the problems on the basis of experience and observations was influential in determining the problem in qualitative studies.

It was also found here that; the participants could not distinguish between research sub-problems and research questions, they could not divide the problems into sub-problems, they confused the problem with the purpose, and they had problems in using different measurements. (Horzum et al. (2016) showed that those students confused the research problem with the purpose of the study, a finding similar to the one obtained in the current study.

Another finding obtained here was related to forming the conceptual framework, and accordingly, the participants tended to fill the gaps in the conceptual framework of other studies, and to use the existing framework, and they had personal competence. Additionally, students' lack of proficiency in using a foreign language, reading skills, and conducting their studies during their daily work also caused them problems in forming the conceptual framework. The relevant literature contains various concepts, associations between concepts, and data (Miles & Huberman, 2002) and it is in fact a construct built by researchers (Çepni, 2021). And they could be said to be indicators of forming a conceptual framework for the participants.

It was found that the participants noticed that the research design could change in the process due to the flexibility of qualitative studies but that the research design of studies in teaching mathematics was limited and fixed. The finding was in parallel to the ones which emphasised the flexibility of qualitative studies (Ergutay, 2019; Karataş, 2015). No studies that indicated the qualitative studies had limited and fixed designs were found. The current study also found that the participants had difficulty in determining the sample and that there was no clear information on the sample size in relevant literature. Another finding was that there were only a small number of experts to consult in developing data collection tools according to the problem and the design, and that expert opinion was obtained over a long period of the time. It was also found in this study that the participants could not use the time functionally after interviews and observations, that they had difficulty in recording the studies, that it was tiring to create codes while analysing the data, and that the types of analysis were limited to two. It also became apparent that some of the

participants could not go beyond the responses they had gotten in interviews and that they were concerned about the usefulness of the data they collected because they did not insist on getting more detailed answers. A study (Ergutay, 2019) was found to be parallel to this study in that it included personal subjectivity and competence in the process and that it interacted and communicated directly with the social reality it analysed.

The participants stated their thoughts on reporting the qualitative study in terms of reporting the problem, reporting the findings, reporting the conclusion and discussion, and reporting the recommendations in terms of the formal properties of reporting. Another finding obtained in the study was that the participants collected data while reporting the findings, that they were indecisive about what data to include, that they considered findings as a list of statements written one after another, and that they thought independently of comments while reporting the findings. It was also found that the recommendations were limited to general recommendations about teaching mathematics, that the recommendations were independent of results, and that the participants had difficulty in reducing the number of pages. The participants also stated that they had problems due to the different formats that journals used and that they needed rearrange their study accordingly.

Within the scope of this study, the views of mathematics teacher education graduate students on the use of qualitative research methods were determined. These opinions include the difficulties and conveniences experienced in this discipline, and it is recommended that the opinions of the participants who have a master's degree in different disciplines should also be taken. It is also recommended that these views should be a road map and that studies should be carried out to structure the parts that emerge as problems with an action plan.

#### **Author Contributions**

All authors were equally involved in all processes of the manuscript. All authors have read and approved the final version of the manuscript.

#### **Ethics Declaration**

This study was conducted with the approval decision taken at the 2022/19 meeting of Akdeniz University Human Research Ethics Committee in Social Sciences (Protocol No. 2022/392) dated November 7, 2022.

#### **Conflict of Interest**

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

#### **References**

- Baltacı, A. (2020). Araştırmaların raporlaştırılması: Bir tez veya bilimsel makale nasıl yazılır? [The reporting of researches: How to write a thesis or a scientific article?]. *The Journal of Social Sciences Institute of Mersin University*. 3(2), 6-39.
- Büyüköztürk, Ş., Kılıç Çakmak E., Akgün Ö.A., Karadeniz, Ş., & Demirel F. (2017). *Bilimsel araştırma yöntemleri* (18.bs). [Scientific research methods (18<sup>th</sup> ed.)]. Pegem Academy Publishing.
- Çepni, S. (2021). Proje, tez ve araştırma makalelerinin kavramsal ve kuramsal çerçevesi nasıl yapılandırılmalı? [How to structure the conceptual and theoretical framework of projects, thesis and research articles?].



- Journal of Science Mathematics Entrepreneurship and Technology Education*. 4(3), 203-216.
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (Vol. 7). Prentice Hall Upper Saddle River, NJ.
- Creswell, J. W. (2016). *30 essential skills for the qualitative researcher*. Thousand Oaks, CA: SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Denzin, N. K., & Lincoln, Y. S. (2018). *The Sage handbook of qualitative research* (5th ed.). Sage publications
- Ekiz, D. (2009). *Bilimsel araştırma yöntemleri* [Scientific research methods]. Anı Publishing.
- Erkuş, A. (2009). *Davranış bilimleri için bilimsel araştırma süreci* (2. bs) [Scientific research process for behavioral sciences (2th ed.)]. Seçkin Publishing.
- Ertugay, F. (2019). Sosyal bilimlerde nitel araştırma/esnek desen araştırması: Alana ilişkin zorluklar, sorunlar ve imkânlar [Qualitative research / Flexible design research in social sciences: Field challenges, problems and opportunities]. *Nitel Sosyal Bilimler*, 1(1), 48-69.
- Güler, A., Halıcıoğlu, M. B., & Taşgın, A. (2015). Sosyal bilimlerde nitel araştırma: teorik çerçeve-pratik öneriler-7 farklı nitel araştırma yaklaşımı-kalite ve etik hususlar. [Qualitative research in social sciences: theoretical framework-practical recommendations-7 different qualitative research approaches-quality and ethical considerations]. Seçkin Publishing.
- Gürdal, A., Bakıoğlu, A., & Öztuna, A. (2010). Fen bilgisi eğitimi lisansüstü tezlerinin incelenmesi [Analysis of science education graduate theses]. *Buca Faculty of Education Journal*, 17, 53-59.  
<https://dergipark.org.tr/en/pub/deubefd/issue/25433/268392>
- Hatch, J. A. (2002). *Doing qualitative research in education settings*. Suny Press.
- Horzum, T., Şahin, F., Gök, E., Yurttaş Kumlu G., Şahin, D., Yanış, H., Tüzün, Ü., & Hacıoğlu, Y. (2016). Sosyal bilimler alanlarında hazırlanan tezler için raporlaştırma önerileri: Bir tez nasıl yazılmalıdır? [Reporting proposals for writing thesis in the social sciences: how to write a thesis?]. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 36(3), 489-521.  
<https://dergipark.org.tr/en/pub/gefad/issue/29794/320358>
- Huberman, M., & Miles, M. B. (2002). *The qualitative researcher's companion*. Sage Publishing.
- Karataş, Z. (2015). Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in social sciences]. *Journal of Spiritually Based Social Work Research*, 1(1), 62-80.
- LeCompte, M. D., & Schensul, J. J. (1999). *Designing and conducting ethnographic research* (Vol. 1). Rowman Altamira.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage publications.
- Neuman, L. W. (2006). *Social research methods, quantitative and qualitative approaches*. Pearson Education. USA.
- Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative social work*, 1(3), 261-283.  
<https://doi.org/10.1177/1473325002001003636>.
- Punch, K. F. (2013). *Introduction to social research: Quantitative and qualitative approaches*. Sage Publication.
- Saban, A. (2007). Lisansüstü öğrencilerin nitel araştırma metodolojisine ilişkin algıları [Graduate students' perceptions of qualitative research methodology]. *The Journal of Selcuk University Social Sciences Institute* 17, 469 - 485.  
<https://dergipark.org.tr/en/pub/susbed/issue/61793/924207>
- The Council of Higher Education [CHE, (1981)]. Higher Education Law No. 2547.  
<https://www.yok.gov.tr/kurumsal/mevzuat>
- Yıldırım, A. & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri* (10.bs). [Qualitative research methods in social sciences]. Seçkin Publishing.

## Okuma Çemberi Yönteminin İlkokul 4. Sınıf Öğrencilerinin Okuma Motivasyonlarına Etkisi The Effect of the Literature Circle Method on the Reading Motivation of Primary School 4th Grade Students

Abdurrahman Baki Topçam<sup>1</sup>  Fatih Çetin Çetinkaya<sup>2</sup> 

<sup>1</sup> Sınıf Öğretmeni, Bilim İlkokulu, Şanlıurfa, Türkiye

<sup>2</sup> Prof. Dr., Düzce Üniversitesi, Eğitim Fakültesi, Düzce, Türkiye

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#### \*Sorumlu Yazar

Abdurrahman Baki Topçam

[bakitopcam96@gmail.com](mailto:bakitopcam96@gmail.com)

**Öz:** Bu çalışmada okuma çemberinin ilkökul dördüncü sınıf öğrencilerinin okuma motivasyonlarına olan etkisi ele alınmıştır. Mevcut çalışmada nitel araştırma desenlerinden eylem araştırması kullanılmıştır. Araştırma, 2019-2020 eğitim öğretim yılında Şanlıurfa ilindeki Eyyübiye ilçesinin bir devlet ilkokulunda gerçekleştirilmiştir. Araştırmanın çalışma grubunu dördüncü sınıfa devam eden 5 öğrenci oluşturmaktadır. Araştırma süreci toplamda 12 haftada tamamlanırken bu süre zarfında öğrencilerle 6 okuma çemberi oturumu yapılmıştır. Okuma çemberi oturumlarının tamamı video kaydına alınmıştır. Ayrıca okuma çemberi oturumlarında araştırmacı tarafından çeşitli gözlem notları da tutulmuştur. Araştırmanın nicel verileri Okuma Motivasyonu Ölçeği'nden, nitel verileri yarı yapılandırılmış görüşmelerden, video kayıtlarından ve araştırmacının gözlem notlarından oluşturulmuştur. Araştırma kapsamında yapılan yarı yapılandırılmış görüşmelerden elde edilen verilerin çözümlenmesi ve sunulmasında betimsel analiz yönteminden faydalanılmıştır. Nicel veri elde etmek amacıyla kullanılan Okuma Motivasyonu Ölçeği'ne verilen cevaplar, Wilcoxon İşaretili Sıralar Testi aracılığıyla analiz edilerek anlamlılık değeri  $p .043 < .05$  olarak bulunmuştur. Araştırmacı notları ve okuma çemberi oturumlarının video kayıtlarına bakıldığında ise yöntemin, katılımcıların okuma motivasyonlarına olumlu etkileri olduğu tespit edilmiştir. Hem görüşme formuna hem de araştırmacı gözlem notlarına bakıldığında katılımcıların rolleri içselleştirdiği ve kendileri ile okudukları kitaplar arasında bir bağ kurmaya başladıkları görülebilir. Ayrıca katılımcılar, yöntemini oldukça işlevsel, eğlenceli ve faydalı bulduklarını ve bu sayede okumaya olan ilgilerinin arttığını da dile getirmişlerdir.

**Anahtar Kelimeler:** Okuma, okuma çemberi, okuma motivasyonu, eylem araştırması

**Abstract:** In this study, the effect of the reading circle method on the reading motivation of primary school fourth grade students was discussed. Action research, one of the qualitative research designs, was used in the current study. The study was conducted in a public primary school in Eyyübiye district of Şanlıurfa province in the 2019-2020 academic year. The study group of the research consists of five students attending the fourth grade. While the research process was completed in 12 weeks in total, six reading circle sessions were held with the students during this period. All the reading circle sessions were video recorded. In addition, various observation notes were kept by the researcher during the reading circle sessions. The quantitative data of the study consisted of the Reading Motivation Scale and the qualitative data consisted of semi-structured interviews, video recordings and the researcher's observation notes. Descriptive analysis method was used to analyse and present the data obtained from semi-structured interviews conducted within the scope of the research. The answers given to the Reading Motivation Scale, were analysed through Wilcoxon Signed Rank Test and the significance value was found as  $p .043 < .05$ . When the researcher's notes and the video recordings of the reading circle sessions are analysed, it is noticeable that the method had positive effects on the participants' reading motivation. Looking at both the interview form and the researcher's observation notes, it can be seen that the participants internalized the roles and started to establish a connection between themselves and the books they read. In addition, the participants also stated that they found the method very functional, fun and useful and that it increased their interest in reading.

**Keywords:** Reading, reading circle, reading motivation, action research

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### Giriş

Okuma eyleminin başarılı bir şekilde gerçekleştiğini söyleyebilmek için gerekli olan ön şartlardan biri bireyin okuduğunu anlamasıdır (Çetinkaya vd., 2016; Çiftçi ve Temizyürek, 2008; Yıldız ve Akyol, 2011). Okuduğunu anlama, okunacak metindeki bilgileri zihinsel süreçlerden geçirecek içerisindeki anlamları açığa çıkarma işidir. Okuduğunu anlamayı geliştirebilmek için bu süreçlerin incelenmesi önem arz etmektedir (Kenyon et al., 2018). Söz konusu zihinsel süreçler içerisindeki önemli değişkenlerden biri de okuma motivasyonudur.

Okuma motivasyonu, bireylerin okumaya yönelik tutumları ve hedefleri doğrultusunda meydana gelen okuma dürtüsüdür (Conradi et al., 2014). Okuma motivasyonu, okuryazarlık becerilerinin merkezinde yer alan, okuma ve okuduğunu anlama becerisinin gelişiminde önemli bir yer

tutan ve öğrencilere okuma alışkanlığı kazandırmaya yardım eden bir yapıdır (Akyol, 2005; Baker & Wigfield, 1999; Boulhrir, 2017; Logan et al., 2011; Marinak & Gambrell, 2016; Parault & Williams, 2010).

Okuma motivasyonu, birçok faktörden ve boyuttan oluşmasının yanı sıra, kendi içerisinde içsel dışsal okuma motivasyonu olarak iki grupta incelenebilir. İçsel okuma motivasyonu, öğrencilerin ilgi duydukları ve zevk aldıkları konularla ilgili okuma etkinliklerine katılmaları olarak tanımlanabilir (Park, 2011; Ryan & Deci, 2000). İçsel okuma motivasyonu yüksek olan bireylerin, metinleri daha iyi özümstedikleri (Schiefele et al., 2012), okuma eylemine daha çok vakit ayırdıkları (Becker et al., 2010), üst düzey soru sorma becerilerinin gelişmiş olduğu (Hayenga, 2009) ve metinlerin ana fikrini bulmada sorun yaşamadıkları (Grolnick & Ryan, 1987) bilinmektedir.

Dışsal okuma motivasyonu, öğrencilerin bir dış uyaran tarafından harekete geçirilmesidir. Bu dış uyaran, ödül, ceza, akademik doyum veya beğenilme isteği gibi çeşitli etkenlerden meydana gelebilir. Bu motivasyonda bireyler, sürece değil, süreç sonunda alacakları ödül ve cezaya odaklanırlar (Gagné & Deci, 2005; Moran et al., 2012). Öğrencilerin dışsal okuma motivasyonlarının gelişmesi olumsuz bir durum değildir. Çünkü gerçekleştirilen araştırmalar, dışsal okuma motivasyonunun, öğrencilerin okuma miktarıyla, okuduğunu anlama becerileriyle ve okuma performanslarıyla pozitif yönde ilişkili olduğunu göstermektedir (Becker et al., 2010; Chiu et al., 2015; Dhanapala, 2006; Froiland & Oros, 2014).

Araştırmacılar, okuma motivasyonunun geliştirilmesi için kullanılabilir yöntemlerde olması gereken bazı özellikleri ortaya koymuşlardır. Bunlardan Slavin et al., (2008) akran iş birliğine, Ivey (2014) sosyal etkileşime, Guthrie et al., (2007) metni deneyimlemeye, Protacio (2012) süreç odaklı olmasına, Miller (2015) tartışma ortamına, Marinak ve Gambrell (2016) okuma materyalini seçme özgürlüğüne ve Boulhrir (2017) metin için kullanılabilir materyallere vurgu yapmıştır. Bütün bu özellikler içerisinde barındıran ve Rutherford et al., (2009), Miller (2015) ve Brown (2002) tarafından okuma motivasyonlarını arttırmada çok etkili olacağı kabul edilen profesyonel yöntem, okuma çemberidir.

Okuma çemberi ülkemizde son dönemlerde kullanılagelen ve çeşitli araştırmalara konu olan bir yöntemdir. Okuma çemberi, belirli bir sayıda katılımcının aynı metni okuduktan sonra bir araya gelerek tartıştığı, metin üzerine incelemeler yaptığı dinamik bir süreç veya görev odaklı bir yöntem olarak tanımlanabilir (Daniels, 1994; Daniels, 2002; Ketch, 2005; Maraccini, 2011; Youngblood, 2014). Okuma çemberinde her katılımcının üstlendiği, 4 ana ve 7 yan rol olmak üzere toplamda 11 adet rol vardır. Her katılımcı her bir kitap için farklı bir rol üstlenir ve kitabı bu rollere göre okuyarak, diğer arkadaşlarıyla tartışır.

Okuma çemberi yönteminin, eleştirel okumayı geliştirme, dinleme ve üst düzey düşünme becerisi kazandırma, sosyal etkileşim kurma, metindeki derin anlamlara ulaşma, sorumluluk duygusu geliştirme, farklı düşüncelere saygı duyma, tahmin etme, metni çözümleme yeni bakış açıları kazandırma, tartışmalarda aktif rol alma ve akran iş birliğine imkân tanıma gibi akademik yaşama sağladığı pek çok faydası vardır (Almasi, 1995; Alverman & Young, 1996; Batchelor, 2012; Elhess & Egbert, 2015; Hsu, 2004; Kilbane & Milman, 2010; Kraiter, 2017; Lloyd, 2004; Medine, 2013; Moeller & Moeller, 2007; Miller et al., 2007; Pambianchi, 2017; Skeen, 2014; Whittingham, 2014).

Cho ve Krashen (2001), Tekşan (2019), Pitton (2005), Veto (2006) ve Shannon (1995), öğrencilerin okuyacakları kitapları kendilerinin seçmesine izin veren yöntemlerin, okuma motivasyonunu arttırabileceğini ve bu sayede okuma eylemine olan bağlılığın yaşam boyu devam edebileceğini ifade etmiştir. Okuma çemberi yönteminde, bireylerin kendi istediği kitabı seçip okuması ve tartışmaları bu kitap üzerinden gerçekleştirmesi desteklenmektedir (Burkett, 2013; Clarke & Holwadel, 2007; Daniels, 1994; Pearson, 2010).

Hem ulusal hem de uluslararası literatür incelendiğinde, okuma çemberi yöntemine (Aytan, 2018; Avcı vd., 2010; Daniels, 2002; Doğan vd., 2018; Çermik vd., 2019; Çetinkaya ve Topçam, 2019; Long & Gove, 2003; Pei, 2018; Sarı vd., 2017; Su, 2009; Waugh & Bowering, 2005) ve okuma ile okuduğunu anlama becerilerinin okuma motivasyonu ile ilişkilerine (Becker & McElvany, 2010; Biancarosa & Snow,

2004; Guthrie & Wigfeld, 2000; Parault & Williams, 2010; Logan et al., 2011; Wang & Guthrie, 2004; Wigfield, 1997; Wigfield et al., 2016) dair pek çok araştırmaya rastlamak mümkündür. Ancak bu araştırmalar içerisinde okuma çemberinin dezavantajlı gruplar üzerindeki etkisine odaklanan bir çalışmaya rastlanılmamıştır. Mevcut araştırma, okuma çemberinin düşük sosyo-ekonomik düzeydeki dezavantajlı öğrencilerle çalışılması bakımından literatürdeki diğer çalışmalardan ayrılmakta ve bu alanda literatüre katkı sunmaktadır.

Çocuklar, yaş, ekonomik durum, cinsiyet vb. değişkenlere bağlı olmak koşuluyla dezavantajlı gruplar içerisinde sayılmaktadır (Disadvantage Groups, 2018). Çalışmadaki katılımcılar da düşük sosyo-ekonomik düzeydeki bir bölgede yaşadıklarından ve bu bölgedeki bir ilkökula devam ettiklerinden dolayı bu gruba dahil olmaktadır. Bu gruplar kendi eğitim sorunlarını çözemedikleri için, avantajlı gruplara nazaran, öğretmenlere ve eğitim hizmetlerine daha fazla ihtiyaç duymaktadırlar (Çağlayan, 2021).

Uluslararası Öğrenci Değerlendirme Programı (PISA) sonuçları ve yaklaşık elli yıldır yapılan araştırmalar, öğrencilerin sosyoekonomik altyapıları ve akademik başarıları arasında yüksek düzeyde bir ilişkinin bulunduğunu ifade etmektedir (Aytaş ve Kardeş, 2014). Bunun yanı sıra dezavantajlı grupların da zengin bir eğitim-öğretim sürecine dahil oldukları takdirde akademik olarak gelişebileceği bilinmektedir (Fındık, 2012). Geleneksel yöntemlere kıyasla, okuma çemberi yönteminin, öğretmenlerin bu gruplarla çalışırken kullanılabilecekleri daha etkili bir yöntem olduğu düşünülmüştür. Bu yüzden okuma çemberi gibi üst düzey okuma ve okuduğunu anlama becerilerine hitâp eden bir yöntem seçilmiş ve bu bölgedeki etkililiği araştırılmıştır.

Mevcut araştırmada okuma çemberi yönteminin okuma motivasyonu üzerinde etkili olması durumunda, öğretmenlerin düşük sosyo-ekonomik düzey bölgesinde öğrenim gören pek çok öğrencinin okuma motivasyonlarını geliştirebilmek ve bu sayede okuma becerileri ile okuduklarını anlamalarını güçlendirebilmek için okuma çemberi yöntemini sınıflarında kullanılabilecekleri ifade edilecektir. Araştırmada okuma çemberi yönteminin ilkökul 4. sınıf öğrencilerinin okuma motivasyonlarına olan etkisi incelenmiştir.

Araştırma kapsamında aşağıdaki iki sorunun cevabı aranmaya çalışılmıştır:

- 1) Okuma çemberi yönteminin ilkökul 4. sınıf öğrencilerinin okuma motivasyonlarına etkisi nedir?
- 2) İlkokul 4. sınıf öğrencilerinin okuma çemberi yöntemine ilişkin görüşleri nasıldır?

## Yöntem

Bu bölümde araştırmanın modeline, çalışma grubuna, veri toplama araçlarına, verilerin toplanmasına ve verilerin analizine ilişkin başlıklara yer verilmiştir.

## Araştırmanın Modeli

Bu araştırmada nitel araştırma desenlerinden, eylem araştırması kullanılmıştır. Swann (2002) ile Yıldırım ve Şimşek (2016) eylem araştırması kapsamında yürütülen çalışmalarda, belirli bir plan ve sistematige bağlı kalındığını, sürecin kayıt altına alındığını ve araştırmacının çalışma içerisinde aktif bir rol oynadığını ifade etmiştir. Bu araştırma modelinde, araştırmacı sürece aktif katılım sağladığından, kuram ile uygulama arasındaki bütünlük bozulmamaktadır (Anagün, 2008). Ayrıca araştırmacı süreç içerisindeki

gözlemlerini, tarafsız olması kaydıyla, veri olarak kullanabilir (Yıldırım ve Şimşek, 2016).

Araştırmacı, yürüteceği eylem araştırmasına ilişkin bir plan hazırlamalı ve süreci bu plana göre yürütmelidir (Beyhan, 2013). Bu araştırmanın eylem planı toplamda 12 haftayı kapsayacak şekilde planlanmıştır. Araştırma kapsamında katılımcılarla 6 oturum gerçekleştirilmiştir.

### Çalışma Grubu

Araştırmanın çalışma grubu, 2019-2020 eğitim öğretim yılında, Şanlıurfa ili Eyyübiye ilçesindeki bir devlet okulunun ilkököl 4. sınıfa devam eden 5 katılımcıdan oluşmaktadır. Katılımcıların 3'ü erkek, 2'si kız öğrencidir. Araştırmanın katılımcıları, aynı sınıf içerisinde öğrenim gören öğrencilerden seçilmiştir. Bu seçim, katılımcıların oturumlar süresince rahat olacağı, grup içerisinde iş birliği ortamı oluşacağı ve her öğrenciyi aynı derste çağırarak, oturumlara olan motivasyonlarının artacağı düşünüldüğünden uygun görülmüştür.

Katılımcıların, okudukları kitap üzerine düşünmesi, çıkarım ve karşılaştırma yapması, analiz etmesi, yorumlaması ve bu sayede derin anlamlara ulaşmaları beklenmektedir. Ateş (2013) ile Demir ve Kan (2017) bu özelliklere sahip öğrencilerin eleştirel birer okuyucu olduklarını ifade etmektedir. Eleştirel okuma becerisi ile Türkçe ders puanı arasında pozitif yönde bir ilişkinin bulunduğu bilindiğinden (Akar vd., 2016) araştırmaya katılmaya aday olacak öğrenciler, Türkçe dersinin ilk sınav puanı göz önüne alınarak belirlenmiştir. Araştırmanın gerçekleştirildiği sınıfta 43 öğrenci vardır. Araştırmacı, Türkçe dersi sınav puanı 85 ve üzerindeki 9 öğrenci ile bir araya gelmiş ve bu öğrencilere süreç hakkında bilgi verilmiştir. Söz konusu 9 öğrenci araştırmaya katılmaya gönüllü olmuş ancak okuma çemberi yöntemindeki rol kâğıtlarının sınırlı olmasından dolayı bu öğrencilerle sözlü mülakatlar gerçekleştirilmiş ve mülakatlar neticesinde 5 öğrenci araştırmaya dâhil edilmiştir.

### Veri Toplama Araçları

Bu araştırmanın nicel verileri, Guthrie ve Wigfield (1997) tarafından ortaya konulan ve Yıldız (2010)'un Türkçe'ye uyarladığı "Okuma Motivasyonu Ölçeği" aracılığıyla toplanmıştır. Ölçeğin güvenilirliğini belirleyebilmek amacıyla Yıldız (2010) tarafından Cronbach Alpha iç tutarlık katsayıları ve test tekrar test çalışmaları gerçekleştirilmiştir. Çalışmalar sonucunda, Cronbach Alpha değerinin 0,86, test tekrar test çalışmaları kullanılarak hesaplanan faktörler arasındaki ilişkinin orta ve yüksek düzeyde olduğu saptanmıştır.

Araştırmanın nitel bulguları ise video kayıt altına alınan oturumlar analiz edilerek oluşturulmuştur. Çalışmaya zenginlik katması ve verilerin güvenilirliğinin artması amacıyla da yarı yapılandırılmış görüşmeler yapılarak katılımcıların görüşleri alınmıştır.

### Yarı Yapılandırılmış Görüşme

Nitel bulguları toplamaya yardımcı olan yarı yapılandırılmış görüşme formundaki taslak sorular, ilgili alanyazın incelendikten sonra oluşturulmuştur. Bu sorular 3 alan uzmanına gönderildikten sonra, uzmanların görüşlerin doğrultusunda yeniden güncellenmiştir. Ortaya çıkan son taslak, kapsam geçerliliğinin denetlenmesi adına, tekrar bir uzman görüşüne sunulmuştur. Bu işlemlerden sonra yarı yapılandırılmış görüşme formunun 4 açık uçlu sorusu, araştırmada kullanılmak üzere hazır hale gelmiştir.

Sorular oluşturulunca, araştırmacının zümre öğretmenlerine sunulmuş ve soruların anlaşılır olduğuna dair geri bildirimler alınmıştır. Öğrencilerin, soruların anlaşılabilirliğine dair düşüncelerini inceleyebilmek için bir pilot çalışma yapılması uygun görülmüştür. Pilot çalışma kapsamında, aynı sınıf düzeyinde ama farklı bir sınıftan 5 öğrenciyle 2 hafta süren okuma çemberi oturumları gerçekleştirilmiştir. Oturumların ardından, hazırlanan sorular öğrencilere yönlendirilmiştir. Daha sonra soruların açık ve anlaşılır olup olmadığını saptayabilmek için, öğrencilerle görüşme yapılmıştır. Bu görüşmelerde öğrencilerden "sorunun ne sorduğunu anlayabiliyorum", "sorular içerisinde bilmediğim bir kelime yok" ve "ne cevap vereceğimi biliyorum" gibi dönütler alınmasının ardından, bu soruların araştırmada kullanılacak sorular olduğu kesinleşmiştir.

### Verilerin Toplanması

#### Hazırlık ve Uygulama Aşaması

Çalışma için gerekli olan veri toplama araçları, araştırmacı tarafından derlenmiş ve hazır hale getirilmiştir. Araştırma hakkında gerekli olan bilgilendirme sunumu, okuldaki öğretmenlere ve idarecilere yapılmıştır. Sunum, araştırmacı tarafından hazırlanmış ve öğretmenler odasında gerçekleştirilmiştir. Daha sonra bu sunum, katılımcılara da gerçekleştirilmiş ve araştırma hakkında edinmeleri gereken ön bilgiye sahip olmaları sağlanmıştır. Ardından, katılımcıların oturumlara başlamadan önceki mevcut okuma motivasyonları belirlenmiştir.

Araştırma süresince kullanılacak 15 kitap, araştırmacı tarafından belirlenmiş ve katılımcıların görüşlerine sunulmuştur. Kitaplar belirlenirken öğrencilerin yaş düzeyleri ve ilgi alanları göz önünde bulundurulmuştur. Ayrıca kitaplardaki cümlelerin, kelimelerin uzunluğu ve ifadelerin anlaşılabilirliğini de dikkat edilmiştir. Katılımcılar bu kitaplar içerisinde, Arılar Ordusu, İnsan Ne ile Yaşar, Küçük Prens, Ömer'in Çocukluğu, Yürekdede ile Padişah ve Mesnevi'den Seçmeler isimli kitapları seçmişlerdir. Araştırma kapsamında okunacak bu kitaplar, toplu olarak verilmemiş, her bir oturumun ardından katılımcılara dağıtılmıştır. Toplamda 12 hafta süren 6 oturumdan sonra, katılımcıların güncel okuma motivasyonları belirlenmiş ve araştırma sonlandırılmıştır. Yarı yapılandırılmış görüşmeler, son okuma çemberi oturumunun ardından gerçekleştirilmiştir.

### Araştırmanın Eylem Planı

Bu çalışmada ilk olarak ilgili literatür taranmış ve araştırmanın problem cümlesi belirlenmiştir. Ardından araştırma kapsamında kullanılacak veri toplama araçlarının video ve ses kayıtlarından, yarı yapılandırılmış görüşmelerden, okuma motivasyonu ölçeğinden, araştırmacı gözlem notlarından ve kişisel bilgi formundan oluşması gerektiğine karar verilmiştir. Araştırmanın uygulama sürecine başlamadan önce katılımcılardan kişisel bilgiler alınmış, okuma motivasyonu ölçeğinin ön testi uygulanmış ve ardından okuma çemberi oturumlarının uygulamasına geçilmiştir. Süreç sonlandırılırken okuma motivasyonu ölçeği tekrar uygulanmış ve okuma çemberi oturumları kapsamında detaylı bilgi alabilmek amacıyla yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Elde edilen video kayıtları, okuma motivasyonu ölçeği verileri ve yarı yapılandırılmış görüşmelerdeki ses kayıtları incelenerek bulgular oluşturulmuştur. Söz konusu bulgular ve incelenen literatür yardımıyla, araştırmanın yazım süreci de tamamlanmıştır.

## Araştırma Sürecinin Yürütüldüğü Ortam

Araştırmanın yürütüldüğü ortam, araştırmacının görev yaptığı, Şanlıurfa ilinin Eyyübiye ilçesine bağlı bir devlet okuludur. Okuldaki öğrenci mevcudu tam zamanlı öğretim yapmaya imkân vermediği için, okul yarı zamanlı olarak eğitim vermektedir. Bu yüzden ortaokul öğrencileri sabah 07.00 – 12.40, ilkokul öğrencileri de öğlen 12.50-17.20 saatleri arasında öğrenim görmektedir. Okulda 16 derslik, 1 adet bilişim teknolojileri sınıfı, 1 adet kütüphane ve 1 adet fen laboratuvarı vardır. Ayrıca okul bünyesinde 47 öğretmen ve 1175 öğrenci yer almaktadır.

Çalışmanın yürütüldüğü yerin, araştırmacının görev yaptığı okul seçilmesinin birkaç nedeni vardır. Bu nedenler arasında; söz konusu katılımcılarla, velilerle ve sınıf öğretmenleriyle kaliteli bir iletişim kurulabilmesi ve katılımcıların kendilerini rahat hissetmelerinin sağlanması gösterilebilir. Ayrıca okul hafta sonu neredeyse tamamen boş ve sessiz olduğu için oturumlar cumartesi günlerinde gerçekleştirilmiştir. Bu sayede oturumların kalitesinin artacağı da düşünülmüştür. Katılımcılar her iki haftada bir kez cumartesi günü saat 14.00 – 15.10 arasında okula davet edilmiştir. Oturumların hafta sonu gerçekleştirilmesi, katılımcıların derslerinden de geri kalmamalarına yardımcı olmuştur.

Oturumların gerçekleştirileceği ortam, araştırmacı ve okul idaresinin görüşleri ile okul koşulları göz önünde bulundurularak seçilmiştir. Bu bağlamda katılımcıların alışık olduğu sınıf ortamından uzaklaştırıldığında, kendilerini daha rahat ifade edebilecekleri düşünülmüş ve oturumların kütüphanede gerçekleştirilmesi uygun görülmüştür. Bu kütüphanede 1 beyaz tahta, 5 adet kitaplık, 10 öğrenciye yetecek masa ve sıra, 1 öğretmen masa ve sandalyesi, 3 bilgisayar, 1 projeksiyon cihazı, 1 dünya modeli ve etrafa yapıştırılmış çeşitli afişler yer almaktadır.

## Araştırmada Kullanılan Kitapların Seçimi

Okuma çemberlerindeki her oturum için, her bir katılımcının 1 kitap okuması gerekmektedir. Bu kitaplar seçilirken, katılımcıların seviyeleri, ilgileri ve gelişim düzeyleri göz önünde bulundurulmalıdır. Ayrıca katılımcıların kendi okuyacakları kitapları seçmeleri ve bu sayede sürece teşvik edilmeleri sağlanmalıdır. Araştırma için seçilecek kitaplarda 2 ölçüte dikkat edilmiştir. Bu ölçütlerden ilki, kitapların ilkokul öğrencileri için hazırlanmış Millî Eğitim Bakanlığı onaylı 100 Temel Eser içerisinde seçilmesidir. Yıldız ve Akyol (2011) Millî Eğitim Bakanlığı tarafından geliştirilen, öğrencilerin kitap okumaya ve bu sayede okuma alışkanlığı kazandırmaya teşvik eden 100 Temel Eser kampanyasının, pek çok öğrencinin okuduğu kitap sayısında artışa yol açtığını ifade etmektedir. Bu ifade ilk ölçütü oluşturmuş ve okunacak kitaplar 100 Temel Eser içerisinde seçilmiştir.

İkinci ölçüt, seçilen kitapların katılımcıların gelişim düzeylerine hitap edip etmediğini belirlenmesi için alan uzmanlarının belirttiği görüşlerdir. Bu 100 Temel Eser içerisinde, araştırmacı tarafından 50 tane kitap seçilmiştir. Seçilen kitaplar 2 alan uzmanının görüşlerine sunulmuştur. Alan uzmanlarından ilki 33, ikincisi ise 27 tane kitabın kullanılabilmesine dair görüş belirtmiştir. Araştırmacı, iki alan uzmanının da ortak onay verdiği 15 tane kitabı belirlemiş ve bu kitapları satın almıştır. Ardından bu kitaplar katılımcıların görüşlerine sunulmuştur. Katılımcıların 6 kitabı seçmesi ile de kitap seçim süreci tamamlanmıştır. Araştırma kapsamında İnsan Ne ile Yaşar, Küçük Prens, Arılar Ordusu,

Mesnevi'den Seçmeler, Ömer'in Çocukluğu ve Yürekdede ile Padişah kitapları kullanılmıştır. Kitaplar her iki haftada bir kez katılımcılara dağıtılmış ve oturumlardaki tartışmalar bu kitaplar üzerinden gerçekleştirilmiştir. Toplamda 12 hafta boyunca 6 oturum gerçekleştirilmiş ve eylem planında herhangi bir gecikme yaşanmamıştır.

## Yarı Yapılandırılmış Görüşme Formunun Uygulanması

Yarı yapılandırılmış görüşme formu, son okuma çemberi oturumu gerçekleştirildikten sonra, araştırmacı tarafından uygulanmıştır. Yarı yapılandırılmış görüşmelere başlamadan önce katılımcılara formun amacı, niteliği ve sürecin nasıl işleyeceği anlatılmıştır. Bu anlatım, uygulamadan önceki ders saatinde, bütün katılımcılara aynı anda yapılmıştır.

Görüşme formundaki açık uçlu sorular araştırmacı tarafından sözlü olarak sorulmuş ve katılımcıların aynı cevabı vermelerinin önüne geçebilmek ve kendi özgün fikirlerini söyleyebilmelerine olanak sağlamak amacıyla her bir katılımcıyla yalnız görüşülmüştür. Görüşmeler en fazla 25, en az 15 dakika sürmüştür ve katılımcıların da izinleri alınarak ses kayıt cihazına kaydedilmiştir. Kayıtlar, görüşmelerin ardından araştırmacı tarafından dikte edilmiştir. Diktelerde bilimsel araştırma etiğine bağlı kalınması amacıyla, katılımcıların isimleri gizli tutulmuştur. Bu yüzden katılımcılara K1, K2, K3, K4 ve K5 takma isimleri verilmiştir. Araştırmanın bulguları hazırlanırken bu diktelerden de faydalanılmıştır. Kvale (1996), verilerin görüşmeler aracılığıyla elde edildiği nitel veri araştırmalarında görüşmelerin kayıt altına alınmasının ve dikte edilmesinin, araştırmanın güvenilirliğini arttıracaklarını savunmaktadır.

## Okuma Motivasyonu Ölçeği'nin Uygulanması

Araştırmanın nicel verileri, Yıldız (2010) tarafından Türkçe'ye uyarlanmış olan Okuma Motivasyonu Ölçeği kullanılarak oluşturulmuştur. Ölçek, okuma çemberi oturumlarından önce ve sonra olmak üzere 2 kez katılımcılarla uygulanmıştır.

Uygulama süreci için 1 ders saatinin yeterli olacağı düşünülmüş ve sınıf öğretmeniyle hangi ders saatinin uygun olduğu görüşülmüştür. Katılımcılarda ölçeğe karşı isteksizlik oluşturmanın önüne geçilmesine önem verilmiştir. Bu yüzden katılımcıların resim, müzik veya beden eğitimi gibi daha rahat bir dersin yerine, matematik veya fen bilimleri gibi daha zorlayıcı bir ders saatinde alınmaları uygun görülmüştür. Bu doğrultuda katılımcının sınıf öğretmeni görüşülmüş ve matematik dersi için öğrenciler adına randevu alınmıştır. Belirlenen ders saatinin girişinde, katılımcıların sınıfına gidilmiş ve katılımcılar ölçeğin uygulanacağı yere davet edilmiştir.

Ölçek hem araştırmacıya hem de katılımcılara kolaylık oluşturması amacıyla okul ortamında uygulanmıştır. Bu doğrultuda okul idaresinden gerekli izinler alınmış ve uygulama ortamı için en uygun yerin kütüphane olduğu kararlaştırılmıştır. Kütüphanenin seçilmesinin nedenleri arasında, içerisinde sessiz olması, dışarıdan rahatsız edilememesi ve sadece araştırmacı ve katılımcıların olmasına imkân sağlaması gösterilebilir. Ayrıca kütüphane içerisinde masa ve sıralar da ölçeğin uygulanma sürecinde kullanılabilmiştir. Bu kütüphane içerisinde 5 adet kitaplık, 1 beyaz tahta, 10 öğrencilik masa ve sıra, 1 öğretmen masa ve sandalyesi, 1 dünya modeli, 1 projeksiyon cihazı, 3 bilgisayar ve etrafa yapıştırılmış çeşitli afişler yer almaktadır.

Ölçek bütün katılımcılara aynı anda uygulanmıştır. Katılımcıların oturma düzeni, birbirlerinin kağıdını



görmelerini engelleyecek biçimde düzenlenmiştir. Alınan bu tedbire ek olarak katılımcılar, ölçeğe verdikleri cevapların sadece araştırmacı tarafından görüleceği, herhangi bir not değerinin olmadığı ve doğru veya yanlış bir cevabın bulunmadığına dair bilgilendirilmiştir. Bu oturma düzeni ve bilgilendirmeler, katılımcıların özgün cevaplarını ortaya çıkarabilmek ve ölçeği bağımsız olarak doldurmalarını sağlamaya yöneliktir. Her bir katılımcıya, önünde ölçeği doldurabileceği bir masa ve kalem, silgi ve açacak gibi kırtasiye malzemeleri verilmiştir.

Ölçeğin uygulanma sürecine geçilmeden önce, içeriği, amacı ve sürecin nasıl işleyeceği katılımcılara anlatılmıştır. Sonra araştırmacı tarafından, katılımcılara ölçeğin üzerindeki yönerge okunmuş ve tahtaya örnek birkaç işaretleme yapılmıştır. Bu şekilde, ölçeğin doldurulması sürecinde katılımcıların teknik bilgiye sahip olmaları amaçlanmıştır. Bu çalışmaların ardından, ölçeğin her bir maddesi katılımcılara yüksek sesle okunmuştur. Her okunan maddenin ardından, araştırmacı tarafından gereken kontroller yapılmış ve her katılımcının maddeyi cevaplandığı görüldükten sonra bir diğer maddenin okunmasına geçilmiştir. Uygulamadan önceki bilgilendirme 5 dakika, uygulama süreci de yaklaşık olarak 30 dakika sürmüştür. Son okuma çemberini ardından aynı uygulama ortamında aynı süreç tekrarlanmış ve nicel veri bulguları tamamlanmıştır.

### Verilerin Analizi

Eylem araştırması olarak tasarlanan bu çalışmanın bulguları, nicel ve nitel veriler yardımıyla oluşturulmuştur. Nitel verilerin elde edilmesinde, okuma çemberi oturumlarının video kayıt altına alındığı görüntülerden, araştırmacının gözlem notlarından ve yarı yapılandırılmış görüşme formundan faydalanılmıştır. Kayıt altına alınan oturumların her biri, araştırmacı tarafından dikte edilmiştir. Bu diktelerden, katılımcıların kendilerine özel bölümler dosyalanarak, her katılımcı için bir veri seti oluşturulmuştur. Ayrıca bu veri setlerine araştırmacının oturumlar süresince tuttuğu gözlem notları da eklenmiştir. Bunlara ek olarak, araştırmanın verilerine zenginlik katması amacıyla, katılımcıların oturumlara, sürece ve kitaplara verdikleri tepkileri görebilmek için yarı yapılandırılmış görüşmeler kullanılmıştır. Formdaki bilgiler betimsel analize tâbi tutularak düzenlenmiş ve bulgulara eklenmiştir. Betimsel analizden geçen bulgular, araştırmacı tarafından derlenir, konu ve temalara göre ayrılır ve kendi içerisinde bir neden-sonuç ilişkisinde incelenerek, okuyucuya açık ve anlaşılır bir biçimde sunulur (Yıldırım ve Şimşek, 2016).

Araştırmanın nicel verileri Yıldız (2010) tarafından Türkçe'ye uyarlanan Okuma Motivasyonu Ölçeği aracılığıyla toplanmıştır. Ölçek, 14 tane dışsal ve 7 tane içsel okuma motivasyonu maddesini içermekte ve toplamda 21 maddeden oluşmaktadır. Ölçekten elde edilen veriler, SPSS 24 paket programındaki Wilcoxon İşaretli Sıralar Testi kullanılarak, yorumlanmaya açık hale getirilmiştir (IBM Corp., 2016).

### Etik Kurul Beyanı

Araştırmanın öncesinde Düzce Üniversitesi'nden araştırmanın etik uygunluğuna dair "Etik Kurul Onayı" alınmıştır (Belge Tarihi, Toplantı No ve Karar Sayısı: 27.12.2019 tarihli 21 sayılı toplantısındaki 2019/116 karar).

### Bulgular

Bu bölümde araştırmanın nicel verilerinden elde edilen bulguların istatistiksel analizlerine, analizlerin yorumuna ve nitel verilerin sunumuna yer verilmiştir.

### 1. Probleme İlişkin Bulgular ve Yorumlar

#### 1.a Katılımcıların İçsel ve Dışsal Okuma Motivasyonu Puanı

**Tablo 1.** Katılımcıların Uygulama Öncesi ve Sonrası İçsel ve Dışsal Okuma Motivasyonu Puanı

Katılımcılar	Uygulama öncesi içsel motivasyonu puanı	Uygulama sonrası içsel motivasyonu puanı	Uygulama öncesi dışsal motivasyonu puanı	Uygulama sonrası dışsal motivasyonu puanı
K1	15	24	32	45
K2	18	26	33	42
K3	16	22	35	45
K4	19	19	28	40
K5	15	22	33	41

Tablo 1' de katılımcıların 21 maddelik Okuma Motivasyonu Ölçeği'nde içsel okuma motivasyonunu belirlemeye yönelik 7 maddeden aldıkları ve dışsal okuma motivasyonunu belirlemeye yönelik 14 maddeden aldıkları puanlar görülmektedir. Tablodaki uygulama öncesi ve sonrasındaki içsel okuma motivasyonu puanları incelendiğinde, K4 isimli katılımcı dışında, tüm katılımcıların içsel okuma motivasyonu puanında bir artış olduğu göze çarpmaktadır. Tablodaki en büyük puan artışı, 9 puan ile K1 isimli katılımcıda meydana gelmiştir. Bu artışı 8 puan ile K2, 7 puan ile K5 ve 6 puan ile de K3 takip etmektedir. K4 'ün uygulama öncesi ve sonrasında, ölçekten aldığı içsel okuma motivasyonu puanı ise sabit kalmıştır. Katılımcıların dışsal okuma motivasyonu puanlarında da uygulama öncesi ve sonrası bir artış olduğu görülmektedir. Bu artışın en fazla görüldüğü K1'de 13 puan artışı meydana gelmiştir. K1'den sonra artış sırasıyla 12 puan ile K4, 10 puan ile K3, 9 puan ile K2 ve 8 puan ile K5 gelmektedir.

#### 1.b Katılımcıların Wilcoxon İşaretli Sıralar Testi Sonuçları

**Tablo 2.** Katılımcıların Okuma Motivasyonu Ölçeği'ne İlişkin Wilcoxon İşaretli Sıralar Testi Sonuçları

Ön-Test / Son-Test	N	Sıra Ort.	Sıra Top.	z	p
Anlama Puanları	Negatif 0	0	0	-2,02	*,043
	Pozitif 5	3,00	15,0		
	Eşit -	-	-		

\*p>,05

Tablo 2' de katılımcıların uygulama öncesi ve sonrası okuma motivasyonlarının Wilcoxon İşaretli Sıralar Testi kullanılarak oluşturulmuş verilerine yer verilmiştir. Tablo incelendiğinde, Wilcoxon İşaretli Sıralar Testi sonucunda ortaya çıkan anlamlılık değerinin 0,43 olduğu görülmektedir. Bu sonuç, p<,05 olduğu için, katılımcıların uygulama öncesi

ve sonrasındaki okuma motivasyonlarında bir fark olduğunu göstermektedir.

## 2. Probleme İlişkin Bulgular ve Yorumlar

### 1. Katılımcı

K1 oturumlarda sırasıyla bağ kurucu, okuma aydınlatıcısı, ressam, özetleyici, ressam ve sorgulayıcı rollerini üstlenmiştir. Oturumlarda genellikle son konuşmacı olmayı tercih eden K1, sürecin başında rolleri anlamakta güçlük çekerken ilerleyen oturumlarda rollerini benimsemeye başlamıştır. K1, kendisine konuşma sırası gelince önce rolünün özelliklerini açıklayıp ardından rolüne yönelik paylaşımlar yapmıştır. İlk oturumda kitap ile kendi hayatı arasında bağ kurmayı tercih eden K1, bu yolla kitabı daha fazla sevdiğini dile getirmiştir. K1 resim yapmayı sevdiğinden okuma aydınlatıcı rolünü de resimler üzerinden anlatmıştır. Üçüncü oturumda da ressam rolünü alması K1'in kitaba olan motivasyonunun artmasına yardımcı olmuş olabilir. K1 bu durumu görüşmelerde de ifade etmiştir. Özetleyici rolünü üstlendiği zaman ise özetlemenin aslında ne kadar zor bir beceri olduğunu fark etmiştir. K1, beşinci ve altıncı oturumlarda ise kitaba tamamen bağlı kalmaktansa metin dışı anlamlar kurmaya başlamıştır. Sorgulama yaparken dile getirdiği sorular ve metni yorumlayarak oluşturmaya çalıştığı görseller K1'in metin dışı anlam kurmaya başladığının göstergesi olmuştur. Üst düzey bir anlam kurma becerisini gerçekleştirmeye başlaması K1'in okuma motivasyonunun arttığına bir delil olarak gösterilebilir.

### 2. Katılımcı

K2 oturumlarda sırasıyla sorgulayıcı, bağ kurucu, özetleyici, okuma aydınlatıcı, sorgulayıcı ve ressam rollerini kullanmıştır. K2 aldığı ilk rol olan sorgulayıcı rolünü oldukça beğendiğini dile getirmiştir. Rol kapsamında 2'si kapalı, 1'i açık uçlu olmak üzere toplamda 3 soru hazırlamıştır. İkinci oturumda bağ kurucu rolünü açıklarken resim çizmede zorlandığından bahsetmiş ve diğer katılımcıların da böyle bir sorunu olduğunu görmüştür. Üçüncü oturumda ilk defa üstlendiği özetleyici rolünü anlatırken, hikâye içerisindeki çarpıcı bölümleri yakalayabildiği ve kitabın vermek istediği mesajları doğru aktarabildiği görülmüştür. Dördüncü oturumda okuma aydınlatıcı rolü için seçtiği bölümü dile getirirken duygularına hâkim olamayarak sinirlendiği ve üzüldüğü, araştırmacının notlarına yansımıştır. Bu durum K2'nin kitaptaki karakteri içselleştirdiğine ve bu sayede kitabı okurken daha iyi odaklandığına bir delil olarak gösterilebilir. Beşinci oturumda tekrar sorgulayıcı rolünü alan K2'nin sorduğu üç sorunun da açık uçlu olduğu görülmüştür. Sorduğu sorular sayesinde hem kendisi metni daha iyi anlamış hem de diğer katılımcıların metni daha derinlemesine düşünmesine yardımcı olmuştur. Son olarak altıncı oturumda K2, üstlendiği ressam rolü için kitaptaki bir bölümü çok ayrıntılı bir şekilde tasvir etmiştir. Bu detaylı çizimi yapabilmesi için kitabı severek okuması gerektiği ve bu durumun da okuma motivasyonunun arttığına bir işaret olduğu söylenebilir.

### 3. Katılımcı

K3 oturumlarda sırayla okuma aydınlatıcı, sorgulayıcı, bağ kurucu, ressam, araştırmacı ve özetleyici rollerini almıştır. İlk oturumda K3, okuduğu ilk kitabın Şanlıurfa'dan söz etmesinin kendisini heyecanlandırıldığını dile getirmiştir. Bu durumun, aldığı okuma aydınlatıcı rolünde de bu hususa dikkat çeken K3'ün, okuma motivasyonuna pozitif olarak yansıdığı söylenebilir. İkinci oturumda sorgulayıcı rolünü alan K3'ün sorduğu sorulardan 2'si açık uçlu, 1'i kapalı uçludur. K3'ün

sorduğu sorular diğer katılımcıların oldukça ilgisini çekmiş ve hepsi konuşmaya istekli olup kendi düşüncesini söylemiştir. Üçüncü oturumda bağ kurucu rolünde kendi yaşamından bir kesite yer veren K3, kitaptan bir ana fikir çıkarmıştır. K3'ün kitabın içerisinde bir ana fikir çıkarması, kitabı detaylı okuyup üzerine düşündüğünü göstermektedir. Bu durum okuma motivasyonunun artmasına bir delil olarak gösterilebilir. Dördüncü oturum için çizdiği resimde kitaptaki duygusal bir bölüme değinen K3'ün, kitaptaki olayları ve karakterleri benimsediği söylenebilir. Bu durum araştırmacının gözlem notlarına da yansımış ve K3'ün resmini anlatırken duygu yüklü cümleler kurduğu görülmüştür. Karakterle özdeşleşmesi K3'ün okumaya odaklandığını da gösterir niteliktedir. Beşinci oturumda araştırmacı rolünü ilk ve son kez alan K3, kitabın yazarını araştırarak sunmuştur. Diğer katılımcıların yazarı tanıması kitabı daha iyi anlamalarına yardımcı olmuş olabilir. K3 altıncı oturumda özetleyici rolünü almış ve oldukça detaylı bir özet çıkarmıştır. Çıkardığı özet, kitabın tamamını kapsadığından, K3'ün kitabı derinlemesine analiz ettiği ve bu sayede okuma motivasyonunun arttığı söylenebilir.

### 4. Katılımcı

Oturumlarda sırasıyla sözcük avcısı, ressam, okuma aydınlatıcı, sorgulayıcı, bağ kurucu ve okuma aydınlatıcı rollerini üstlenen K4, ilk oturumda rolünü sunan ilk kişi olmak istemiştir. Sözcük avcısı rolü için dört kelime seçen K4, seçtiği kelimeleri diğer katılımcılara da sormuş ve her kelimenin tanımını en az bir katılımcı doğru bilmiştir. Seçtiği bazı kelimelerin zorluğu göz önüne alınırsa diğer katılımcıların da okurken sözlüğe baktığı ve bu sayede doğru cevabı verebildiği söylenebilir. Bu durum katılımcıların metni okurken merak ettiklerini ve bir inceleme sürecine girdiklerini gösterir niteliktedir. K4'ün ikinci oturumda ressam rolü için çizdiği resmi oldukça rahat bir şekilde anlatması, metni zevk alarak okumasından da kaynaklanabilir. K4 üçüncü oturumda okuma aydınlatıcı rolünü almış ve kitapta kendisini eğlendiren bölümleri seçerek sunmuştur. Kitabın kendisini eğlendirmesi ve bunu diğer katılımcılara sunması, K4'ün kitaptan ve okuma eyleminden aldığı zevki göstermektedir. Özellikle ikinci ve üçüncü oturumlarda kitap sayesinde bu kadar eğlenmesinin, K4'ün okuma motivasyonuna olumlu yönde etki ettiği söylenebilir. Dördüncü oturumda üstlendiği sorgulayıcı rolünde sorduğu sorular incelendiğinde K4'ün kitaptaki karakterle empati kurduğu ve onun gibi düşünmeye çalıştığı söylenebilir. Bu durum da K4'ün, kitabı severek okuduğuna bir işaret olabilir. Beşinci oturumda K4 bağ kurucu rolünü üstlenmiş ve kitap ile kendi yaşamı arasındaki bazı kesitleri eşleştirmiştir. Altıncı oturumda ise okuma aydınlatıcı rolünü almış ve kitaptaki karakterin zor durumda kaldığı bölümleri seçmiştir. Araştırmacının gözlem notlarına bakıldığında K4'ün seçtiği bölümleri anlatırken heyecanlandığı anlaşılmaktadır. Buradan hareketle K4'ün kitabı içselleştirdiği ve okuma motivasyonunun artmış olabileceği yorumunu yapmak mümkündür.

### 5. Katılımcı

Sırasıyla ressam, sözcük avcısı, sorgulayıcı, bağ kurucu, okuma aydınlatıcı ve bağ kurucu rollerini alan K5, ilk seçtiği ressam rolünde kitabın geniş bir özetini ortaya çıkarmıştır. Belirli bir bölümü çizmeyiip, kitap içerisindeki unsurları birbirinden bağımsız bir şekilde resmetmiş olması, zihninde kitabın genel bir özetini ortaya çıkarmak istediğini gösterebilir. K5 ikinci oturumda sözcük avcısı rolünü

üstlenerek 4 tane kelime seçmiştir. Seçtiği kelimelerin anlamlarını diğer katılımcılara sormuş ve katılımcıların da bu kelimeleri gözden geçirip cümledeki anlama ulaşmalarına yardımcı olmuştur. Bu durum K5'in ve diğer katılımcıların metindeki derin anlamlara ulaşmasına ve okuma motivasyonlarının artmasına yardımcı olmuş olabilir. Üçüncü oturumda sorgulayıcı rolünü üstlenen K5, 2'si açık uçlu ve 1'i kapalı uçlu olmak üzere 3 soru hazırlamıştır. Özellikle, sorduğu bir soru, hayali bir düşünceyi içermesine rağmen, diğer katılımcıların oldukça ilgisini çekmiş ve hepsi kendi özgün görüşünü belirtmiştir. Dördüncü oturumda ele aldığı bağ kurucu rolünde kitaptaki karakter ile kendi yaşamı arasında toplamda 3 bağ kurmuştur. Kurduğu bağların kendi yaşamına dayanması hem kitaba olan motivasyonunu arttırmış hem de okurken kitabı daha çok benimsemesine yardımcı olmuş olabilir. Beşinci oturumda üstlendiği okuma aydınlatıcı rolünde K5' in aktardığı bölümler incelendiğinde, seçtiği bölümlerdeki karakterlerin yaptıklarına odaklanmış ve bunları doğru veya yanlış bulduğu görülmüştür. Buradan hareketle K5'in metni eleştirel bir gözle okuduğu söylenebilir. K5 altıncı oturumda tekrar bağ kurucu rolünü almış ve bu sefer 5 tane bağ kurabilmiştir. Bu durum K5'in okuduklarıyla hayatı arasında ilişki kurmakta daha az zorlandığını gösterir niteliktedir. Ayrıca okuma çemberi oturumlarından sonra K5'in okuyacağı başka kitaplarla hayatı arasında daha fazla bağlantı kurabileceğine ve bu sayede okuma eyleminden de daha fazla keyif alabileceğine de bir işaret olabilir.

### Sonuç, Tartışma ve Öneriler

Okuma çemberi yönteminin ilkökul 4. sınıf öğrencilerinin okuma motivasyonlarına olan etkisinin incelendiği bu araştırmada, okuma çemberi yönteminin, katılımcıların okuma motivasyonlarına olumlu ve pozitif yönde etki ettiği sonucuna ulaşılmıştır. Araştırma kapsamında 5 katılımcı ile 6 okuma çemberi oturumu gerçekleştirilmiştir. Süreç 12 hafta sürmüş ve katılımcılardan hem nitel hem de nicel veriler toplanmıştır. Araştırmanın nicel bulgularına bakıldığında, katılımcıların uygulama öncesi ve sonrasındaki okuma motivasyonlarında, anlamlı farklılık görülmektedir. Ayrıca Okuma Motivasyonu Ölçeği yardımıyla, katılımcıların içsel ve dışsal okuma motivasyonları da belirlenmiş ve her iki motivasyon boyutundan aldıkları puanlarda artış olduğu saptanmıştır. Bu artış, sadece K4 isimli katılımcının içsel okuma motivasyonunda görülmemektedir.

Tablo 1'e bakıldığında, katılımcıların okuma çemberi oturumlarından önceki ve sonraki okuma motivasyonlarının içsel ve dışsal boyutları görülmektedir. Bu tablolar incelendiğinde, K1'in hem içsel hem de dışsal okuma motivasyonundaki en yüksek artışa sahip olduğu söylenebilir. Bu durum K1'in kendisini sürece daha iyi adapte ettiğine ve süreçten en çok verim alanın kendisi olduğuna bir işaret olarak gösterilebilir. Ayrıca K1'in hem kendi başarısını önemseydiğini hem de çevresel etmenlere bağlı kaldığını söylemek de mümkündür. K5 isimli katılımcının da her iki okuma motivasyonunda artış saptanmıştır. K5'in, K1'den farklı olarak içsel okuma motivasyonunda daha fazla artış görülmüştür. Bu durumdan yola çıkılarak, başarı hissini tatma, eylemlerden zevk alma ve merak duygusunu yenme gibi içsel faktörlerin K5 üzerinde daha fazla etkili olduğu söylenebilir.

K2 isimli katılımcının ise içsel okuma motivasyonunda ikinci, dışsal okuma motivasyonunda dördüncü sırada olduğu görülmektedir. K2 dışsal okuma motivasyonunda sondan bir önceki sırada yer almaktadır. Ancak her iki testteki puanları

incelendiğinde dışsal okuma motivasyonundaki artışın, içsel okuma motivasyonundan 1 puan fazla olduğu görülmektedir. Bu durum K2'nin ödül-ceza ilişkisi, ilgi çekme veya beğenilme isteği gibi dışsal etmenlerden daha fazla etkilendiğini gösterebilir. Aynı şekilde K3'ün de dışsal okuma motivasyonundan daha fazla puan aldığı görülmektedir. Bunlara ek olarak K4 isimli katılımcının sadece dışsal okuma motivasyonunda artış görüldüğü de göze çarpmaktadır. Bu katılımcılardaki artışın, dışsal okuma motivasyonu boyutunda daha fazla olması, araştırmanın sonucunu olumsuz yönde etkilememektedir. Çünkü alanyazına bakıldığında, dışsal okuma motivasyonunun okuma miktarını pozitif yönde etkilediğini ortaya koyan araştırmalar da görülmektedir (Becker, McElvany & Kortenbruck, 2010; Chiu et al., 2015; Fan et al., 2012; Froiland & Oros, 2014).

Araştırmanın nitel bulguları incelendiğinde, katılımcıların okuma çemberi yöntemindeki rol kağıtlarını doldurmada zorlandıkları görülmektedir. Bu durum, özellikle birinci ve ikinci oturumlarda bağ kurucu rolünde göze çarpmaktadır. Ancak süreç içerisinde bu sorunun ortadan kalktığı, katılımcıların kurduğu bağlardan anlaşılmaktadır. Katılımcıların zorlandığı bir diğer temel rol sorgulayıcı rolüdür. İlk oturumlarda sorgulayıcı rolünü alan katılımcıların sorduğu sorulara bakıldığında, soruların daha kapalı uçlu olduğu görülmüştür. Sorgulayıcı rolünün, katılımcıların kitap hakkında konuşmalarına olanak sağlayan en önemli rol olduğu düşünülmektedir. Bu yüzden bu rolü alan katılımcıların açık uçlu sorular sorması oldukça önemlidir. İlerleyen oturumlara bakıldığında, katılımcıların daha açık uçlu ve metin hakkında konuşmaya imkân veren sorular kullandığı görülmüştür.

Bir başka temel rol olan ressam rolünü bütün katılımcılar rahatlıkla sunabilmiştir. Ressam rolünü alan katılımcı, kitap içerisindeki herhangi bir anı, olayı, karakteri veya düşünceyi çizmelidir. Resmi çizebilmesi için de kitabı dikkatli okumalı ve anlamalıdır. Dikkatli ve anlamaya dayalı okuyan okuyucuların da kitabı daha fazla içselleştirebileceği söylenebilir. Bu rolde katılımcıların çizim yeteneğinden çok, çizdiklerini anlatmaları ön plana çıkmaktadır. Bu durumun, katılımcıların çizim yaparken rahat olmalarının önünü açtığı söylenebilir. Çizilen resimlerin neredeyse tamamında kitaba bağlı kalındığı görülmüştür. Ayrıca katılımcıların çizdiği resmi açıklamada da bir sorun yaşamadıkları gözlemlenmiştir. Özellikle K5 isimli katılımcının Arılar Ordusu isimli kitap için çizdiği resim, kitabın genel bir özeti niteliğindedir.

Katılımcıların, son temel rol olan okuma aydınlatıcı rolünde de zorlanmadıkları araştırmacı tarafından gözlemlenmiştir. Okuma aydınlatıcı rolünü alan katılımcı, kitap içerisinde hoşuna giden bir bölümü veya katılımcının gözden kaçırmış olabileceğini düşündüğü bir kısmı belirler ve bunu oturumlar esnasında sunar. Yani katılımcı, kitap içerisindeki çarpıcı, eğlenceli veya düşündürücü bölümleri yeniden hatırlatmakta ve kitabın vermek istediği mesajı, duyguyu veya düşünceyi açığa çıkarmaktadır. Katılımcıların bu rolü sunmada herhangi bir sorun yaşamamaları, diğer katılımcıların da kitaptan, okuma eyleminden ve süreçten zevk almasına yardımcı olmuş, okuma motivasyonlarının gelişmesine katkıda bulunmuş olabilir.

Araştırma kapsamında, özetleyici, sözcük avcısı ve araştırmacı yan rolleri de kullanılmıştır. Katılımcıların özetleyici rolünde kitabın genel bir özeti sunması, sözcük avcısı rolünde kitaptaki bilinmeyen kelimelerin anlamlarını çıkarması ve araştırmacı rolünde kitaba dair herhangi bir konuyu araştırmaları gerekmektedir. Her üç rol de metnin aydınlatılmasına, anlaşılmasına, yorumlanmasına ve

hatırlanmasına yardımcı olmuştur. Bu sayede bu rollerin oturumlara zenginlik kattığı ve katılımcıların okuma motivasyonlarına olumlu yönde etki ettiğini söylemek mümkündür. Çünkü katılımcıların okudukları kitabı yeniden gözden geçirmesi ve bilmedikleri kelimelerin anlamlarını öğrenerek cümleleri tekrar düşünmesi sayesinde okuduklarını daha iyi anladıkları söylenebilir.

Okuma motivasyonunun, bireylerin gelecekteki akademik başarılarını etkilediği bilindiğinden, ilkökul kademesinde kazandırılması önemli görülmektedir. Miller (2015), okuduğu kitap ile etkileşime giren öğrencilerin, kitap okumaya karşı daha fazla motive olabileceklerini öne sürmektedir. Okuma çemberindeki roller, özellikle bağ kurucu, öğrencilerin kitap ile iç içe geçmesine ve kitabı detaylı incelemelerine fırsat vermektedir. Powell et al., (2006), öğretmenlerin yöntem kullanmadan her öğrenciyi eşit seviyede motive edemeyeceklerini öne sürmektedir. Bu çalışmada da görüldüğü üzere okuma çemberi yöntemi okuma motivasyonunu arttıran ve öğretmenlerin rahatlıkla kullanabileceği bir yöntemdir.

Gerçekleştirilen araştırmalar, düşük sosyo-ekonomik düzeye sahip öğrencilerin okuma ve yazma becerilerini geliştirmelerinde, akranlarına göre daha fazla zorlandıklarını ortaya koymaktadır (Beswick & Sloat, 2006; Tramonte & Wilms, 2010). Bu çalışmanın da düşük sosyo-ekonomik düzeye sahip öğrencilerin yer aldığı bir bölgede yürütüldüğü ve çalışma sonucunda öğrencilerin okuma motivasyonlarının olumlu ve pozitif yönde etkilendiği göz önüne alındığında, okuma çemberlerinin bu bölgelerdeki öğrenciler için kullanılabilecek kritik bir yöntem olduğu söylenebilir. Doğan vd., (2019), Aytan (2018), Çermik vd., (2019) ve Karatay'ın (2017) çalışmalarında, okuma çemberi yöntemi öğretmen adaylarının beğenisine sunulmuştur. Çalışmalardaki öğretmen adayları, okuma çemberinin iş birliği kazandırma, dayanışmayı artırma, özgün düşünmeye yardımcı olma ve kelime hazinesini destekleme gibi faydalarından bahsetmişlerdir. Bu araştırmalar, okuma çemberi yönteminin sadece öğrenciler tarafından değil, öğretmen adayları tarafından da oldukça işlevsel ve faydalı bulunduğunu göstermektedir.

Levy (2011) mevcut okuma programlarını yetersiz bulunduğunu ve okuma çemberlerinin bu yetersizliği doldurabilecek önemli bir okuma yaklaşımı olduğunu savunmaktadır. Okuma çemberi yöntemi ilkökul kademesindeki öğrencilerin yanı sıra ortaokul kademesindeki öğrenciler için de kullanılabilecek bir yöntemdir. Avcı vd., (2013), Sarı vd., (2017) ve Balantekin ve Pilav'ın (2017), araştırmalarında, okuma çemberinin ortaokul kademesindeki öğrencilerin okuduğunu anlama becerileri üzerindeki etkisi incelenmiştir. Sonuç olarak deney ve kontrol grupları arasında okuduğunu anlama becerileri açısından anlamlı bir farklılık bulunmuştur. Abdelrasoul (2014), Brown (2002) ve Hamilton (2013) da doktora tezleri kapsamında ortaokul öğrencileriyle okuma çemberi oturumları gerçekleştirmişlerdir. Araştırmaları sonucunda öğrencilerin, iş birliği, dayanışma, yardımlaşma gibi sosyal becerilerinin arttığı ve okuma becerilerinin geliştiği bulgularına ulaşılmıştır. Söz konusu araştırmaları, bu çalışmanın bulgularını da desteklemektedir.

Skeen (2014) farklı katılımcılarla okuma çemberi yöntemini hem yüz yüze hem de çevrimiçi ortamda uygulamış ve hangi ortamın öğrencileri daha iyi motive ettiğini araştırmıştır. Sonuç olarak her iki ortamın da öğrencileri eşit şekilde motive ettiği sonucuna ulaşmıştır. Pei (2018) de yabancı dil olarak İngilizce öğrenen Çin'li öğrencilerle sanal

okuma çemberi oturumları düzenlemiş ve katılımcıların bağımsız İngilizce okuma becerilerinde artış gözlemlemiştir. Youngblood (2014) ortaöğretim öğrencilerini iki farklı gruba bölmüş ve bir grupla yüz yüze diğer grupla internet blogları aracılığıyla okuma çemberi tartışmalarını yürütmüştür. Araştırma sonucunda her iki gruptaki katılımcıların da süreçten verim aldığını, iş birlikli çalışmaya dahil olduklarını ve okunan metinlerdeki derin anlamları yakalayabildiklerini görmüştür. Buna benzer olarak Whittingham (2013) ve Walker (2010) bir grup öğrenciyle sanal okuma çemberi oturumları gerçekleştirmiş ve öğrencilerin dil öğrenme, yaşam boyu öğrenme, iletişim kurma ve okumaya motive olma gibi çeşitli akademik becerilerinde gelişme olduğu sonucuna ulaşmışlardır. Bu araştırmalardan da görüldüğü üzere okuma çemberi yöntemi sadece yüz yüze ortamlarda değil, aynı zamanda çevrimiçi ortamlarda da rahatlıkla kullanılabilecek işlevsel bir yöntemdir. Mevcut araştırmanın bulguları da bu çalışmaları destekler niteliktedir.

Okuma çemberleri üzerine gerçekleştirilen farklı çalışmalarda, okuma çemberinin, metinleri derinlemesine çözümlenmeye imkân sunan ve bu metinleri anlama becerilerine katkı sağlayan bir yöntem olduğu belirtilmektedir. (Almasi et al., 2001; Daniels, 2002). Jocius ve Shealy'nin (2018) çalışmasında, öğrencilerin metinleri daha iyi anlayabilmelerine ve yorumlayabilmelerine yardımcı olmak amacıyla farklı sınıf içi etkinlikler uygulanmıştır. Araştırma kapsamında kullanılan okuma çemberi yönteminin, diğer etkinlik ve yöntemlerle kıyaslandığında en etkili yöntem olduğu ifade edilmiştir. Ayrıca bu yöntemin öğrencilerin sosyal becerilerini ve eleştirel düşüncelerini zenginleştirebileceği de öne sürülmüştür.

Bu araştırmanın katılımcıları 4. sınıf öğrencilerinden oluşmaktadır. Daniels (2002) okuma çemberi yönteminin 3. sınıftan itibaren kolaylıkla uygulanabileceğini ifade etmektedir. Bu yüzden bütün branş ve sınıf öğretmenleri bu yöntemi kendi sınıflarında rahatlıkla uygulayabilir. Okuma çemberi sürecinde okunacak kitaplar belirlenirken öğrencilerin ilgileri, seviyeleri ve istekli göz önünde bulundurulursa, oturumların daha verimli geçeceği söylenebilir. Sınıflarında okuma çemberi yöntemini kullanacak öğretmenler, katılımcılarla birlikte süreç planlaması yaptıkları takdirde oturumların kalitesini arttıracaklardır. Süreç devam ederken, yazılı veya sözlü sınav, doğru-yanlış soruları veya çoktan seçmeli testler gibi geleneksel ölçme teknikleri yerine biçimlendirici değerlendirme araçlarının seçilmesi de öğrencilerden alınacak geri dönütün daha işlevsel olmasına katkı sağlayacaktır. Bu çalışma kapsamında seçilen kitaplar belirlenirken belirli bir tema, konu veya ders göz önünde bulundurulmamıştır. Yöntemi sınıflarında uygulayacak öğretmenler, öğrencilerle birlikte çeşitli gün ve haftaları içeren, derslere değinen ve kazandırılmak istenen bir davranış veya düşünceye yönelik kitapları seçebilirler.

Bu çalışmada okuma çemberinin okuma motivasyonuna olan etkisi incelenmiştir. Araştırmacılar, okuma çemberi yönteminin farklı değişkenler üzerindeki etkilerini inceleyen çalışmalar gerçekleştirebilirler. Araştırmanın katılımcıları da 4. sınıf öğrencileriyle sınırlandırılmıştır. Farklı araştırmalarda farklı yaş ve sınıf düzeyindeki katılımcıların okuma motivasyonları incelenebilir. Okuma çemberi oturumlarında okunan kitapların hepsi hikâye edici metinler arasından seçilmiştir. Araştırmacılar bilgi verici metinleri de kullanarak farklı araştırmalar planlayabilirler. Mevcut çalışmada 6 okuma çemberi oturumu 12 hafta boyunca devam ettirilmiştir.

Bu araştırmaya alternatif olarak daha uzun süreli çalışmalar gerçekleştirilerek katılımcıların okuma motivasyonları veya başka değişkenler incelenebilir.

### Yazar Katkı Oranı

Bu makalenin tüm yazarları, makalenin bütün süreçlerinde eşit oranda çalışmıştır. Ayrıca çalışmanın son hali bütün yazarlar tarafından okunmuş ve onaylanmıştır.

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### Kaynakça

- Abdelrasoul, M. (2014). *Using reading circles strategy for developing prepatory students' critical reading skills and social skills*. [Unpublished doctoral dissertation]. Ain Shams University.
- Akyol, H. (2005). *Türkçe ilk okuma yazma öğretimi*. Pegem.
- Akar, C., Başaran, M., & Kara, M. (2016). İlkokul 4. Sınıf öğrencilerinin eleştirel okuma becerilerinin çeşitli değişkenler açısından incelenmesi. *Electronic Turkish Studies*, 11(3), 1-14. <http://dx.doi.org/10.7827/TurkishStudies.9306>
- Almasi, J., O'Flahavan, J., & Arya, P. (2001). A comparative analysis of student and teacher development in more and less proficient discussions of literature. *Reading Research Quarterly*, 36(2), 96-120. <https://doi.org/10.1598/RRQ.36.2.1>
- Almasi, J. (1995). The nature of fourth graders' sociocognitive conflicts in peer-led and teacher-led discussions of literature. *Reading Research Quarterly*, 30(3), 314-351. <https://doi.org/10.2307/747620>
- Alvermann, D. & Young, J. (1996). Middle and high school students' perceptions of how they experience text-based discussions. *Reading Research Quarterly*, 31(3), 244. <https://doi.org/10.1598/RRQ.31.3.2>
- Anagün, S. (2008). *İlköğretim beşinci sınıf öğrencilerinde yapılandırıcı öğrenme yoluyla fen okuryazarlığının geliştirilmesi: Bir eylem araştırması*. [Yayımlanmamış doktora tezi]. Anadolu Üniversitesi.
- Ateş, S. (2013). Eleştirel okuma ve bir beceri olarak öğretimi. *Turkish Journal of Education*, 2(3), 40-49. <https://doi.org/10.19128/turje.181063>
- Avcı, S., Yüksel, A., & Akıncı, T. (2010). Okuma alışkanlığı kazandırmada etkili bir yöntem: Okuma çemberi. *M.Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*(32), 5-24. Retrieved from <https://dergipark.org.tr/en/pub/maruaebd/issue/357/1929>
- Avcı, S., Baysal, N., Gül, M., & Yüksel, A. (2013). Okuma çemberi yönteminin okuduğunu anlama becerisine etkisi. *Kuramsal Eğitimbilim Dergisi*, 6(4), 535-550. <http://dx.doi.org/10.5578/keg.6710>
- Aytan, T. (2018). Perceptions of prospective Turkish Teachers regarding literature circles. *International Journal of Educational Methodology*, 4(2), 53-60. <https://doi.org/10.12973/ijem.4.2.53>.

- Aytaş, G., ve Kardaş, D. (2014). Dezavantajlı öğrencilerin okuma anlama gelişimleri. *Turkish Studies*, 9(11), 79-92. <https://doi.org/10.7827/TurkishStudies.7493>
- Balantekin, M., & Pilav, S. (2017). Okuma çemberi yönteminin okuduğunu anlama becerisine etkisi. *Kırıkkale Üniversitesi Sosyal Bilimler Dergisi*, 7(2), 149-170. Retrieved from <https://dergipark.org.tr/en/pub/kusbd/issue/30549/310152>
- Baker, L., & Wigfield, A. (1999). Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly*, 34(4), 452-477. <https://doi.org/10.1598/RRQ.34.4.4>
- Batchelor, K. (2012). The "us" in discuss: Grouping in literature circles. *Voices from the Middle*, 20(2), 27-34. Retrieved from [https://www.researchgate.net/profile/Katherine\\_Batchelor/publication/293482886\\_The\\_us\\_in\\_discuss\\_Grouping\\_in\\_literature\\_circles/links/56b8a94d08ae3c1b79b2e814.pdf](https://www.researchgate.net/profile/Katherine_Batchelor/publication/293482886_The_us_in_discuss_Grouping_in_literature_circles/links/56b8a94d08ae3c1b79b2e814.pdf)
- Becker, M., & McElvany, N. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology*, 102, 773-785. <https://doi.org/10.1037/a0020084>
- Beswick, J., & Sloat, E. (2006). Early literacy success: A matter of social justice. *Education Canada*, 46, 23-26.
- Beyhan, A. (2013). Eğitim örgütlerinde eylem araştırması. *Journal of Computer and Education Research*, 1(2), 65-89. Retrieved from: <https://dergipark.org.tr/en/pub/jcer/issue/18614/196496?publisher=jcer>
- Biancarosa, G., & Snow, C. (2004). *Reading next: A vision for action and research in middle and high school literacy: A report from carnegie corporation of New York*. Alliance for Excellent Education.
- Boulhrir, T. (2017). Twenty-first century instructional classroom practices and reading motivation: Probing the effectiveness of interventional reading programs. *International Journal of Education and Literacy Studies*, 5(3), 57-66. <https://doi.org/10.7575/aiac.ijels.v.5n.3p.57>
- Brown, B. (2002). *Literature circles in action in the middle school classroom*. [Doctoral dissertation]. Retrieved from ERIC (ED 478 458).
- Burkett, J. (2013). *Teacher perception on differentiated instruction and its influence on instructional practice*. [Unpublished doctoral dissertation]. Oklahoma State University.
- Chiu, S., Hong, F., & Hu, H.-y. (2015). The effects of family cultural capital and reading motivation on reading behaviour in elementary school students. *School Psychology International*, 36(1), 3-17. <https://doi.org/10.1177/0143034314528488>
- Cho, K. & Krashen, S. (2001). Sustained silent reading experiences among Korean teachers of English as a foreign language: The effect of a single exposure to interesting, comprehensible reading. *Reading Improvement*, 38(4), 170-174.
- Clarke, L. & Holwadel, J. (2007). Help! What is wrong with these literature circles and how can fix them? *The Reading Teacher*, 61(1), 20-29. <https://doi.org/10.1598/RT.61.1.3>
- Conradi, K., Jang, B., & McKenna, M. (2014). Motivation terminology in reading research: A conceptual review. *Educational Psychology Review*, 26, 127-164.



- <https://doi.org/10.1007/s10648-013-9245-z>.
- Çağlayan, E. (2021). Türkiye'deki dezavantajlı grupların ve roman vatandaşların eğitimi hakkında yapılan çalışmaların analizi/incelemesi. *Roman Dili ve Kültürü Araştırmaları Enstitüsü Dergisi*, 2(1), 1-15.
- Çermik, H., Doğan, B., Ateş, S., & Yıldırım, K. (2019). Öğretmen adaylarının okuma çemberlerine ilişkin görüşleri. *Akademik Sosyal Araştırmalar Dergisi*, 7(87), 1-15. <http://dx.doi.org/10.16992/ASOS.14>
- Çetinkaya, F. Ç. & Topçam, A. B. (2019). A different analysis with the literature circles: Teacher candidates' perspectives on the profession. *International Journal of Education ve Literacy Studies*, 7(4), 8-16. <https://doi.org/10.7575/aiac.ijels.v.7n.4p.8>
- Çetinkaya, F.Ç., Ateş, S. & Yıldırım, K. (2016). Lise düzeyinde okuduğunu anlama ve akıcı okuma arasındaki ilişkilerin incelenmesi: Prozodik okumanın aracılık etkisi. *Turkish Studies*, 11, 809-820. <http://dx.doi.org/10.7827/TurkishStudies.9339>
- Çiftçi, Ö., & Temizyürek, F. (2008). İlköğretim 5.sınıf öğrencilerinin okuduğunu anlama becerilerinin ölçülmesi. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5(9), 109-129. Retrieved from <https://dergipark.org.tr/en/pub/mkusbed/issue/19561/208532>
- Daniels, H. (1994). *Literature circles: Voice and choice in the student-centered classroom*. Stenhouse.
- Daniels, H. (2002). *Literature Circles: Voice and Choice in Book Clubs and Reading Groups*. Stenhouse.
- Demir, R. & Kan, M. O. (2017). 7. Sınıf öğrencilerinin eleştirel okuma becerileri. *Mersin University Journal of the Faculty of Education*, 13 (2), 666-682. <https://doi.org/10.17860/mersinefd.324205>
- Dhanapala, K. (2006). Intrinsic motivation, extrinsic motivation and L2 reading comprehension of university learners in Japan and Sri Lanka. *Preceedings of the JACET Summer Seminar*, 6, 39-43.
- Disadvantaged Groups. (2021, 10 Ocak). Disadvantaged groups. Erişim adresi: <https://eige.europa.eu/thesaurus/terms/1083>
- Doğan, B., Yıldırım, K., Çermik, H., & Ateş, S. (2018). Okuma çemberleri: Niçin ve nasıl? Örnek bir uygulama. *Ana Dili Eğitimi Dergisi*, 6(3), 747-765.
- Elhess, M., & Egbert, J. (2015). Literature circles as support for language development. *English Teaching Forum*, 53(3), 13-22. Retrieved from [https://americanenglish.state.gov/files/ae/resource\\_files/03\\_etf\\_53-3\\_3\\_elhess\\_egbert.pdf](https://americanenglish.state.gov/files/ae/resource_files/03_etf_53-3_3_elhess_egbert.pdf).
- Fındık, L.Y. (2012). *PISA 2009 sonuçlarına göre Türkiye'deki sosyoekonomik açıdan dezavantajlı öğrencilerin okuma becerileri alanındaki başarılarının değerlendirilmesi*, [Yayımlanmamış yüksek lisans tezi]. Hacettepe Üniversitesi.
- Froiland, J., & Oros, E. (2014). Intrinsic motivation, perceived competence and classroom engagement as longitudinal predictors of adolescent reading achievement. *Educational Psychology*, 34, 119-132. <https://doi.org/10.1080/01443410.2013.822964>
- Gagné, M., & Deci, E. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26(4), 331-362. <https://doi.org/10.1002/job.322>
- Grolnick, W., & Ryan, R. (1987). Autonomy in children's learning: An experimental and individual difference investigation. *Journal of Personality and Social Psychology*, 52(5), 890-898.
- Guthrie, J., & Wigfield, A. (2000). Engagement and motivation in reading. M. Kamil, P. Mosental, P. Pearson, and R. Barr In, *Handbook of Reading Research III* (s. 403-422). Longman.
- Guthrie, J., McRae, A., & Klauda, S. (2007). Contributions of concept-oriented reading instruction to knowledge about interventions for motivations in reading. *Educational Psychologist*, 42, 237-250. <https://doi.org/10.1080/00461520701621087>
- Hamilton, T. (2013). *An exploration of the influences of literature circles on secondary student*. [Unpublished doctoral dissertation]. Lindewood University.
- Hsu, J. (2004). Reading without teachers: Literature circles in an EFL classroom. *The Proceedings of 2004 Cross-Strait Conference on English Education* (s. 401-421). National Chiayi University.
- Jocius, R., & Shealy, S. (2018). Critical book clubs Reimagining literature reading and response critical book clubs: Reimagining literature reading and response. *Reading Teacher*, 71(6), 691-702. <https://doi.org/10.1002/trtr.1655>
- Ivey, G. (2014). The social side of engaged reading for young adolescents. *The Reading Teacher*, 68(3), 165-171. <https://doi.org/10.1002/trtr.1268>
- Karatay, H. (2017). The effect of literature circles on text analysis and reading desire. *International Journal of Higher Education*, 6(5), 65-75. <https://doi.org/10.5430/ijhe.v6n5p65>
- Kenyon, S., Palikara, O., & Lucas, R. (2018). Explaining reading comprehension in children with developmental language disorder: The importance of elaborative inferencing. *Journal of Speech, Language and Hearing Research*, 61, 2517-2531. [https://doi.org/10.1044/2018\\_JSLHR-L-17-0416](https://doi.org/10.1044/2018_JSLHR-L-17-0416)
- Ketch, A. (2005). Conversation: The comprehension connection. *The Reading Teacher*, 59(1), 8-13. <https://doi.org/10.1598/RT.59.1.2>
- Kilbane, C., & Milman, N. (2010). Using literature circles to provide support for online discussions. *Distance Learning*, 7(2), 65-67.
- Kraiter, S. (2017). Literature circle modules in the high school classroom and their effect on student. *Master of Science in Education Research Project. Southwest Minnesota State University Education Department Marshall, Minnesota*.
- Levy, R. (2011). Literature circles go to college. *Journal of Basic Writing*, 30(2), 53-83. Retrieved from <https://www.jstor.org/stable/43443917>
- Lloyd, S. (2004). Using comprehension strategies as a springboard for student talk. *Journal of Adolescent ve Adult Literacy*, 48(2), 114-124. <https://doi.org/10.1598/JAAL.48.2.3>
- Logan, S., Medford, E., & Hughes, N. (2011). The importance of intrinsic motivation for high and low ability readers' reading comprehension performance. *Learn Individ Differ*, 21(1), 124-128. <https://doi.org/10.1016/j.lindif.2010.09.011>
- Long, T. & Gove, M. (2003). How engagement strategies and literature circles promote critical response in a fourth grade, urban classroom. *The Reading Teacher*, 57(4), 350-361. Retrieved from <https://www.jstor.org/stable/20205370>

- Maraccini, B. (2011). *Teacher perceptions of the use of literature circles and student engagement in reading*. (Order No. 3518832, Piedmont College). ProQuest Dissertations.
- Marinak, B. & Gambrell, L. (2016). *No more reading for junk. Best Practices for Motivating Readers*. Heinemann.
- Miller, R. (2015). Learning to love reading: A self-study on fostering students' reading motivation in small groups. *Studying Teacher Education*, 11(2), 103-123. <https://doi.org/10.1080/17425964.2015.1045771>
- Miller, L., Straits, W., Kucan, L., Trathen, W. ve Dass, M. (2007). Literature circle roles for science vocabulary. *The Science Teacher*, 74(5), 52–56.
- Moeller, V., & Moeller, M. (2007). *Literature circles that engage middle and high school students*. Eye on Education.
- Moran, C., Diefendorff, J., Kim, T., & Liu, Z. (2012). A profile approach to self-determination theory motivations at work. *Journal of Vocational Behavior*, 81, 354-363. <https://doi.org/10.1016/j.jvb.2012.09.002>
- Pambianchi, L. (2017). *Literature circles in a fifth grade classroom: A qualitative study examining how the teacher and students used literature circles and the impact they have on student learning*. [Unpublished doctoral dissertation]. Mississippi State University.
- Parault, S. & Williams, H. (2010). Reading motivation, reading amount, and text comprehension in deaf and hearing adults. *Journal of Deaf Studies and Deaf Education*, 15(2), 120-135. <https://doi.org/10.1093/deafed/enp031>
- Park, Y. (2011). How motivational constructs interact to predict elementary students' reading performance: Examples from attitudes and self-concept in reading. *Learning and Individual Differences*, 51(4), 347-358. <https://doi.org/10.1016/j.lindif.2011.02.009>
- Pearson, C. (2010). Acting up or acting out? Unlocking children's talk in literature circles. *Literacy*, 44(1), 3-11. <https://doi.org/10.1111/j.1741-4369.2010.00543.x>
- Pei, L. (2018). *Impact of virtual literature circles on chinese university efl students' independent english reading*. [Unpublished doctoral thesis]. Oakland University.
- Pitton, D. (2005). Literature circles: Capturing students' interest in reading. *Academic Exchange Quarterly*, 9(4), 1-7.
- Powell, R., McIntyre, E., & Rightmyer, E. (2006). Johnny won't read, and Susie won't either: Reading instruction and student resistance. *Journal of Early Childhood Literacy*, 6, 5-31. <https://doi.org/10.1177/1468798406062172>
- Protacio, M. (2012). Reading motivation: A focus on English learners. *The Reading Teacher*, 66(1), 69-77. <https://doi.org/10.1002/TRTR.01092>
- Rutherford, A., Carter, L., Hillmer, T., Kramer, M., Parker, A., & Siebert, S. (2009). Promoting intrinsic reading: Implementing literature circles with intermediate- grade students and preservice teachers. *International Journal of The Book*, 6(4), 43-49.
- Ryan, R., & Deci, E. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54-67. <https://doi.org/10.1006/ceps.1999.1020>
- Sarı, T., Kurtuluş, E., & Yücel-Toy, B. (2017). Okuma çemberi yönteminin ortaokul 7. sınıf öğrencilerinin okuma-anlama becerilerine etkisinin incelenmesi. *Yıldız Journal of Educational Research*, 2(2), 1-14. Retrieved from <https://dergipark.org.tr/en/pub/yjer/issue/65844/1025630>
- Schiefele, U., Schaffner, E., Möller, J., & Wigfield, A. (2012). Dimensions of reading motivation and their relation to reading behaviour and competence. *Reading Research Quarterly*, 47(4), 427-463. <https://doi.org/10.1002/RRQ.030>
- Shannon, P. (1995). *Texts, lies, and videotape: Stories about life, literacy and learning*. Heinemann.
- Skeen, C. (2014). Comparing interactions in literature circles in both online and in class discussions. *Sam Houston State University*.
- Slavin, R., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best-evidence synthesis. *Reading Research Quarterly*, 43(3), 290-322. <https://doi.org/10.1598/RRQ.43.3.4>
- Su, C. (2009). *An explanatory mixed methods study of Taiwanese junior college learners' attitudes toward their participation in literature circles*. [Unpublished doctoral dissertation]. Texas A&M University.
- Swann, C. (2002). Action research and the practice of design. *Massachusetts Institute of Technology Design Issues*, 18(1), 49-61.
- Tekşan, K. (2019). The perceptions of students studying in the faculty of education towards reading in terms of their reading motivation. *International Journal of Progressive Education*, 15, 162-184. <https://doi.org/10.29329/ijpe.2019.212.12>
- Tramonte, L. & Willms, J. (2010). Cultural capital and its effects on education outcomes. *Economics of Education Review*, 29, 200-213. <https://doi.org/10.1016/j.econedurev.2009.06.003>
- Veto, D. (2006). Motivating reluctant adolescent readers. *School Administrator*, 63(4), 21.
- Youngblood, K. (2014). Breaking tradition: Bringing the literature circle into the 21st century. *Studies in Teaching 2014 Research Digest: Action Research Projects Presented at Annual Research Forum* (s. 100-106). Winston-Salem, NC: Wake Forest University, Department of Education.
- Yıldırım, A. & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin.
- Yıldız, M. (2010). İlköğretim 5. sınıf öğrencilerinin okuduğunu anlama, okuma motivasyonu ve okuma alışkanlıkları arasındaki ilişki [Yayımlanmamış doktora tezi]. *Gazi Üniversitesi*.
- Yıldız, M., & Akyol, H. (2011). İlköğretim 5. sınıf öğrencilerinin okuduğunu anlama, okuma motivasyonu ve okuma alışkanlıkları arasındaki ilişki. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 31(3), 793-815.
- Walker, A. (2010). *Using social networks and ICTs to enhance literature circles: A practical approach*. Araştırma Raporu. 18.09.2020 tarihinde [www.eric.ed.gov](http://www.eric.ed.gov) sitesinden indirilmiştir.
- Wang, J. & Guthrie, J. (2004). Modeling the effects of intrinsic motivation, extrinsic motivation, amount of reading, and past reading achievement on text comprehension between US and Chinese students. *Reading Research Quarterly*, 39, 162-186. <https://doi.org/10.1598/RRQ.39.2.2>
- Waugh, R. & Bowering, M. (2005). Creating scales to measure reading comprehension, and attitude and behavior, for grade 6 students taught ESL through a cooperative learning

- method. R. Waugh In, *Frontiers in educational psychology* (s. 183-219). Nova Science.
- Whittingham, J. (2013). Literature circles: A perfect match for online instruction. *Tech Trends*, 57(4), 53-58. <https://doi.org/10.1007/s11528-013-0678-5>
- Whittingham, J. (2014). Reading motivation: a study of literature circles. *Academic Exchange Quarterly*, 18(2), 72-76.
- Wigfield, A. (1997). Children's motivations for reading and reading engagement. J. Guthrie, & A. Wigfield In, *Reading Engagement: Motivating Readers Through Integrated Instruction* (s. 13-33). International Reading Association.
- Wigfield, A., Gladstone, J. & Turci, L. (2016). Beyond cognition: Reading motivation and reading comprehension. *Child Development Perspectives*, 10, 190-195. <https://doi.org/10.1111/cdep.12184>

## Extended Summary

### Introduction

Reading motivation is a skill that is at the centre of literacy skills, has an important place in the development of reading, and reading comprehension skills, and helps students gain reading habits (Akyol, 2005; Baker & Wigfield, 1999; Boulhrir, 2017). Reading motivation, in addition to being composed of many factors and dimensions, is divided into two as intrinsic and extrinsic reading motivation. Intrinsic reading motivation can be defined as students' participation in reading activities related to topics they are interested in and enjoy (Park, 2011). Extrinsic reading motivation is when students are activated by an external stimulus.

Researchers have revealed some features that should be in the methods that can be used to improve reading motivation. Of these, Slavin et al., (2008) focused on peer collaboration, Ivey (2014) on social interaction, Guthrie et al., (2007) on experiencing the text, Protacio (2012) on being process-oriented, Miller (2015) on discussion. Marinak and Gambrell (2016) emphasized the freedom to choose the reading material and Boulhrir (2017) emphasized the materials that can be used for the text. The professional method, includes all these features, is accepted by Rutherford et al., (2009), Miller (2015), and Brown (2002) to be highly effective in increasing reading motivation is the reading circle.

The reading circle has been used recently in our country and has been the subject of various research. The reading circle can be defined as a dynamic process or a task-oriented method in which a certain number of participants come together after reading the same text to discuss and analyze it (Daniels, 1994; Daniels, 2002; Ketch, 2005; Maraccini, 2011; Youngblood, 2014). In the reading circle, there are 11 roles in total, four main and seven side roles. Each participant assumes a different role for each book and reads the book according to these roles and discusses it with other friends.

When the theoretical background is examined, it is possible to come across many studies on the reading circle method (Aytan, 2018; Avcı, Yüksel and Akıncı 2010; Daniels, 2002; Doğan et al., 2018; Çermik et al., 2019; Çetinkaya and Topçam, 2019; Long and Gove, 2003) and the relationship between reading and reading comprehension skills and reading motivation (Becker and McElvany, 2010; Biancarosa and Snow, 2004; Guthrie and Wigfield, 2000;). In this study, the effect of the reading circle method on the reading motivation of 4<sup>th</sup>-grade primary school students will be examined. The research differs from other studies in that it is conducted with students from low socio-economic backgrounds.

This study intends to investigate the following two questions.

1) What is the effect of the reading circle method on the reading motivation of primary school 4<sup>th</sup> grade students?

a. What is the effect of the reading circle method on the intrinsic reading motivation of 4<sup>th</sup> grade primary school students?

b. What is the effect of the reading circle method on the extrinsic reading motivation of primary school 4<sup>th</sup> grade students?

c. Is there a significant difference between the reading circle method and the reading motivation of primary school 4<sup>th</sup> grade students?

2) What are the views of primary school 4<sup>th</sup> grade students about the reading circle method?

## Methodology

### Model

In this study, action research, one of the qualitative research designs, was used. In this research model, since the researcher actively participates in the process, the integrity between theory and practice does not deteriorate (Anagün, 2008).

### Action Plan of the Research

In this study, first, the relevant literature was reviewed and the problem statement of the research was determined. Then, it was decided that the data collection tools to be used in the research should consist of video and audio recordings, semi-structured interviews, reading motivation scale, researcher observation notes, and personal information form. Before starting the implementation process, personal information was obtained from the participants, a pre-test of the reading motivation scale was applied, and after that, the reading circle sessions were started. While the process was ending, the reading motivation scale was reapplied, and semi-structured interviews were conducted to obtain detailed information about reading circle sessions. Findings were created by examining the video recordings, reading motivation scale data, and audio recordings of semi-structured interviews. With the help of these findings and the literature reviewed, the writing process of the research was completed.

### Study group

The study group consists of five participants (3 males, 2 females) who attend the 4<sup>th</sup> grade of a public school in the Eyyübiye district of Şanlıurfa in 2019-2020 academic year. Participants were selected from students in the same class. This choice was intentional as it was thought that the participants would be comfortable during the sessions, a collaborative atmosphere would be created within the group, and their motivation for the sessions would increase by inviting each student to the same lesson.

### Personal Information Form

The participants were coded to protect their privacy. In this context, it is possible to talk about five participants coded as P1, P2, P3, P4, and P5. To get to know the participants better, a 15-item personal information form including questions such as gender, parents' education levels and occupation, number of siblings, and the most loved and hated lessons was given.

### Data Collection Tools

Quantitative data of this study were obtained by using the "Reading Motivation Scale" introduced by Guthrie and Wigfield (1997) and adapted into Turkish by Yıldız (2010). The qualitative findings of the research were created by analysing the video-recorded sessions. To enrich the study and increase the reliability of the data, the participants' opinions were taken through a semi-structured interview form.

### Validity and Reliability of the Semi-structured Interview Form

The draft questions of the semi-structured interview form, which helped to collect the qualitative findings, were created after making a literature review. After these questions were sent to 3 experts, they were updated again in line with the experts' opinions. The final draft was submitted to an expert's opinion again to check the content validity. After these

procedures, 4 open-ended questions of the semi-structured interview form were ready to be used in the research.

### **Data Collection**

#### **Preparation and Implementation**

The data collection tools were compiled and made ready by the researcher. The necessary information presentation about the research was made to the teachers and administrators at the school. The presentation was prepared by the researcher and was held in the teachers' room. Later, this presentation was also made with the participants, and it was ensured that they had the necessary preliminary information about the research. Then, the current reading motivations of the participants before starting the sessions were determined.

15 books that can be used during the research were determined by the researcher and presented to the participants' opinions. Participants chose the books named *Arılar Ordusu*, *İnsan Ne ile Yaşar*, *Küçük Prens*, *Ömer'in Çocukluğu*, *Yürekdede ile Padişah*, and *Mesnevi'den Seçmeler*. Not all these books were given but were distributed to the participants after each session. After six sessions lasting 12 weeks, the participants' current reading motivations were determined and the research was concluded. Semi-structured interviews were conducted after the final reading circle session.

#### **Application of Semi-Structured Interview Form**

The semi-structured interview form was applied by the researcher after the last reading circle session. Before starting the semi-structured interviews, the participants were told about the purpose and content of the form and how the process would work. This explanation was given to all participants at the same time during the lesson before the application. The open-ended questions in the interview form were asked orally by the researcher, and each participant was interviewed alone to prevent the participants from giving the same answer and to allow them to express their original ideas. The interviews lasted for a maximum of 25 and at least 15 minutes and were recorded on a voice recorder with the consent of the participants.

#### **Application of the Reading Motivation Scale**

It was thought that one lesson hour would be sufficient for the application and the class teacher was consulted about which lesson hour was appropriate. It was crucial to prevent the participants from feeling reluctant about the scale. Therefore, it was appropriate to interview the participants during a more challenging lesson such as mathematics or science instead of a more comfortable one such as painting, music, or physical education. In this respect, the class teacher of the participants was interviewed, and an appointment was made on behalf of the students for the mathematics lesson. At the beginning of the determined lesson, the participants' class was visited, and they were invited to the place where the scale would be applied.

Before the application process of the scale was started, the content, purpose, and the process were explained to the participants. Then the researcher read the instructions about the scale and made some sample markings on the board. In this way, it is aimed that the participants have knowledge about filling out the scale. After that, each item of the scale was read aloud to the participants. After each item, the researcher made the necessary checks and after seeing that each participant answered the item, s/he moved on to reading another item. The

briefing before the application took five minutes and the application process took approximately 30 minutes. After the last reading circle, the same process was repeated in the same application environment and the quantitative data findings were completed.

#### **The Environment of the Research**

The environment in which the research was conducted is a public school in the Eyyübiye district of Şanlıurfa where the researcher works. The environment where the sessions will be held was chosen considering the researcher's and the school administration's opinions and the school's conditions. In this context, it was thought that the participants would be able to express themselves more easily when they left the classroom environment they are used to, and it was deemed appropriate to hold the sessions in the library. In this library, there are one whiteboard, five bookshelves, tables, and desks sufficient for ten students, one teacher's desk and chair, three computers, one projector, one world globe, and various posters.

#### **Selection of the Books**

Two criteria were taken into consideration in the selection of the books. The first of these criteria is to select the books among 100 Essential Books approved by the Ministry of National Education prepared for primary school students. Yıldız and Akyol (2011) state that the 100 Essential Books application, developed by the Ministry of National Education, which encourages students to read books and thus gain the habit of reading, led to an increase in the number of books read by many students. This statement formed the first criterion, and the books to be read were selected from among 100 Essential Books.

The second criterion is the experts' opinions to determine whether the selected books address the developmental levels of the participants. Among these 100 Essential Books, 50 books were selected by the researcher. The selected books were presented to two experts. The first expert stated that 33 books, and the second expert stated that 27 books could be used. The researcher identified 15 books that were approved jointly by the two experts and purchased these books.

#### **Data Analysis**

The videos of the reading circle sessions, the semi-structured interview form, and the observation notes of the researcher were used to obtain the qualitative data. Each of the recorded sessions was dictated by the researcher. To enrich the data of the research, a semi-structured interview form was used to see the participants' reactions to the sessions, the process, and the books. The information in the form was arranged by descriptive analysis and added to the findings. The quantitative data were collected through the Reading Motivation Scale, which was adapted into Turkish by Yıldız (2010). The scale includes 14 extrinsic and 7 intrinsic reading motivation items and consists of 21 items in total. The data obtained from the scale were made open to interpretation by using the Wilcoxon Signed-Rank Test in the SPSS 24 package program (IBM Corp., 2016).



## Findings

### 1. Findings and Comments Related to the Problem

#### 1.a Participants' Intrinsic Reading Motivation Scores and Averages

It is noteworthy that there was an increase in the intrinsic reading motivation scores of the participants before and after the implementation, except for the participant named P4. P1 coded participant has the highest increase in terms of score and average which are 9 and 1.3 respectively. This is followed by P2 with 8 points and 1.2, P5 with 7 points and 1, P3 with 6 points and 0.9.

#### 1.b Participants' Extrinsic Reading Motivation Scores and Averages

It was determined that there was an increase in the extrinsic reading motivation scores and averages of all participants before and after the implementation. P1 has the highest increase in terms of score and average which are 13 points and 1 respectively. This is followed by P4 with 12 points and 0.8, P3 with 10 points and 0.7, P2 with 9 points and 0.7 and P5 with 8 points and 0.6.

#### 1.c Participants' Wilcoxon Signed-Rank Test Results

The data of the participants' reading motivations before and after the implementation, which was created using the Wilcoxon Signed-Rank Test, were included. When the Table 1-2 are examined, it is seen that the significance value obtained as a result of the Wilcoxon Signed-Rank Test is 0.43. Since this result was  $p .043 < .05$ , it shows that there is a significant difference in reading motivations of the participants before and after the implementation.

### 2. Findings and Comments Related to the Problem

#### 1<sup>st</sup> Participant

P1 roles are the connector, literary luminary, illustrator, summarizer, illustrator, and questioner, respectively. P1 preferred to establish a connection between the book and his/her own life in the first session and expressed that s/he liked the book more in this way. Since P1 likes to paint, s/he represented the literary luminary role through pictures. Taking the role of the illustrator in the third session may have increased P1's motivation for reading the book. P1's role was the summarizer in the fourth session and included sections from his/her own life while summarizing the book. In the fifth and sixth sessions, P1 started to construct non-textual meanings instead of being completely dependent on the book. The questions s/he expressed while making inquiries and the visuals s/he tried to create by interpreting the text were the indicators that P1 started to construct non-textual meanings. The fact that P1 started to realize a high-level meaning-making skill can be shown as evidence that his reading motivation increased.

#### 2<sup>nd</sup> Participant

P2 roles are the questioner, connector, summarizer, literary luminary, questioner, and illustrator, respectively. P2 selected the striking chapters in the book as the summarizer, identified him/herself with the character in the book as the literary luminary, asked open-ended questions as the questioner, and described a chapter in the book in detail as the illustrator. The fact that s/he prepared his/her roles in the circle in a rich

framework can be interpreted as evidence that P2 read the book by focusing and thus his/her motivation to read increased. In addition, it can be said that thanks to these roles, s/he adopted the characters in the book and made sections of his/her own life from the books.

#### 3<sup>rd</sup> Participant

P3 roles are the literary luminary, questioner, connector, illustrator, researcher, and summarize, respectively. P3 expressed in the literary luminary role that s/he was excited since the story in the book took place in Şanlıurfa. The remarkable questions s/he asked as the questioner, the main idea s/he produced for the book in the role of connector, using emotional expressions while describing the picture s/he drew, the description of the book's author in the role of the researcher, and finally summarizing the book in the role of summarizer helped P3 to have a positive attitude towards reading and to increase reading motivation. In particular, the fact that s/he summarized the entire book may indicate that P3 has analysed the book in depth.

#### 4<sup>th</sup> Participant

P4 coded participant's roles are the vocabulary enricher, illustrator, literary luminary, questioner, connector, and literary luminary, respectively. P4 chose informative words in the role of the vocabulary enricher, explained the picture s/he drew fluently in the role of the illustrator, presented the roles that s/he liked in the role of the literary luminary, established a connection between the book and his/her own life in the role of connector, and mentioned the parts of the book character in the role of the literary luminary. The researcher stated that P4 was excited while telling the sections that s/he chose. From this point of view, it is possible to say that P4 internalized the book, and his/her motivation to read may have increased.

#### 5<sup>th</sup> Participant

P5 roles are the illuminator, vocabulary enricher, questioner, connector, literary luminary, and connector, respectively. P4 presented a broad summary of the book in the role of the illuminator. Choosing four words for the vocabulary enricher role, P5 presented the meanings of these words to the other participants by using them in a sentence. In the third session, s/he asked three questions, two of which were open-ended and one was close-ended, as the questioner. In the fourth session, as the connector, s/he made three connections between the character in the book and his/her own life. The fact that the connections s/he established were based on his/her own life may have both increased his/her motivation for the book and helped him/her to adopt the book more while reading. When the chapters conveyed by P5 in the literary luminary role in the fifth session were examined, it was seen that s/he focused on what the characters in the chapters s/he chose were doing and criticized them as right or wrong. P5, who made 5 connections in the role of the connector in the last session, was the participant who made the most connections in this role throughout the sessions.

### Result and Discussion

This study examined the effects of the reading circle method on the reading motivation of 4<sup>th</sup> grade primary school students. It was concluded that the reading circle method had a positive effect on the reading motivation of the participants. Considering the quantitative findings of the study, there is a

significant difference in reading motivations of the participants before and after the implementation. In addition, with the help of the Reading Motivation Scale, the intrinsic and extrinsic reading motivations of the participants were determined, and it was determined that there was an increase in the scores and averages they got from both motivation dimensions. Only P4 coded participant's intrinsic reading motivation did not increase.

When the participants' intrinsic and extrinsic reading motivations before and after the reading circle sessions are examined, it is seen that P1 has the highest increase in both intrinsic and extrinsic reading motivation. This situation can be shown as a sign that P1 has adapted him/herself better to the process and is the one who gets the most from the process. There was an increase in both reading motivations of P5. Unlike P1, P5 had a greater increase in intrinsic reading motivation. Based on this situation, it can be said that internal factors such as the feeling of achievement, enjoying the actions, and overcoming the sense of curiosity are more effective on P5.

It is seen that the P2 ranks second in intrinsic reading motivation and fourth in extrinsic reading motivation. P2 is in the penultimate rank in extrinsic reading motivation. However, when the scores in both tests are examined, it is seen that the increase in extrinsic reading motivation is one point higher than the intrinsic reading motivation. This may indicate that P2 is more affected by external factors such as the reward-punishment relationship, and the desire to attract attention or to be liked. Likewise, it is seen that P3 gets more points in extrinsic reading motivation. In addition to these, it is striking that only the extrinsic reading motivation of P4 increased. The fact that the increase in these participants is higher in extrinsic reading motivation does not adversely affect the result of the research. In the literature, there are also studies showing that extrinsic reading motivation positively affects the amount of reading (Becker, McElvany, & Kortenbruck, 2010; Chiu et al., 2015; Fan et al., 2012; Froiland & Oros, 2014).

At the end of the process, semi-structured interview forms applied with the participants were also examined and compiled. Considering the participants' opinions in these interviews, it can be said that the reading circle method had a positive effect on them. Some of the expressions are: *"It was very nice to be able to draw something from the books (P1)"*, *"It was very fun to ask questions from the book and discuss these questions with my friends (P2)"*, *"When my friend summarized the book, I understood the book better (P3)"*, *"I wish we had read more books. This way we could gather and talk more (P1)"*, *"I didn't know there were such beautiful books in the world. I loved reading this way (P2)"*, *"I was excited to read books with such roles. I wish there were more roles. It was a lot of fun (P4)"* and *"I think I will enjoy reading more (K5)"*.

Since reading motivation affects the academic success of individuals, it is important to gain it during the primary school. Miller (2015) suggests that students who interact with the book they read may be more motivated to read. Roles in the reading circle, especially the connector, allow students to interact with the book and examine the book in detail. Powell et al., (2006) argue that teachers cannot motivate every student equally without using methods. As seen in this study, the reading circle method increases reading motivation, and teachers can easily use it.

Levy (2011) argues that current reading programs are inadequate and that reading circles are important reading

approaches that can fill this deficiency. The reading circle method can be used not only for primary school students but also for secondary school students. In the research of Balantekin and Pilav (2017), Sarı et al., (2017), and Avcı et al., (2013), the effect of the reading circle method on secondary school students' reading comprehension skills was examined. As a result, a significant difference was found between the experimental and control groups in terms of reading comprehension skills. Abdelrasoul (2014), Brown (2002), and Hamilton (2013) also conducted reading circle sessions with secondary school students as part of their doctoral dissertations. As a result of their research, they found that students' social skills such as collaboration, solidarity, and cooperation increased, and their reading skills improved. These studies also support the findings of this study.

#### **Author Contributions**

All authors of this paper have worked equally on all aspects of the paper. In addition, the final version of the study read and approved by the authors.

#### **Ethical Declaration**

Prior to the study, "Ethics Committee Approval" was obtained from Düzce University regarding the ethical suitability of the research (Document Date, Meeting No. and Decision No.: 2019/116 decision at the meeting numbered 21 dated 27.12.2019).

#### **Conflict of Interest**

The authors of this study are not involved in any research-related conflict of interest between any organization or individual.

## Investigation of the Effects of Understanding by Design Model on Problem-Solving, Collaboration, and Academic Achievement in Social Studies Course

### Sosyal Bilgiler Dersinde Tasarımla Anlama Modelinin Problem Çözme, İş Birliği ve Akademik Başarı Üzerindeki Etkilerinin İncelenmesi

Tuğçe Erdağı<sup>1</sup>  Hakan Dündar<sup>2</sup> 

<sup>1</sup> Master's Student, Kırıkkale University, Institute of Social Sciences, Kırıkkale, Türkiye

<sup>2</sup> Prof. Dr., Kırıkkale University, Institute of Social Sciences, Kırıkkale, Türkiye

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##### \*Sorumlu Yazar

Tuğçe Erdağı

[tugceerdagi06@gmail.com](mailto:tugceerdagi06@gmail.com)

**Abstract:** The purpose of this study is to examine the effect of the Understanding by Design Model (UbD) on students' problem-solving skills, collaboration skills, and overall academic achievement in the fourth-grade social studies course. The research was conducted with mixed methods, and an enriched design was used in the study. The participants of the study consisted of 41 fourth-grade students: 22 in the experimental group and 19 in the control group. 'Problem-Solving Steps Teacher Observation Form', 'Cooperative Learning Rubric', and 'UbD Application Teacher Interview Form' were used as qualitative data collection tools. 'Problem-Solving Skills Scale', 'Cooperative Work Scale', and 'Social Studies Academic Achievement Test' were used as quantitative data collection tools. Descriptive statistics results were used to analyze qualitative data, and Mann-Whitney U, Welch t-test, ANOVA, and Shapiro-Wilk test were used to analyze quantitative data. The findings obtained from the data of the study show that UbD contributed to the development of problem-solving and collaborative working skills, increased academic achievement, and increased students' motivation towards the learning process.

**Keywords:** Understanding by Design (UbD), problem-solving, collaboration, academic achievement

**Öz:** Bu araştırmanın amacı ilköğretim dördüncü sınıf sosyal bilgiler dersinde Anlamaya Dayalı Tasarım Modelinin (UbD) öğrencilerin problem çözme, iş birliği becerisi ve akademik başarısına etkisini incelemektir. Araştırma karma yöntemle yürütülmüş ve araştırmada zenginleştirilmiş desen kullanılmıştır. Araştırmanın katılımcılarını dördüncü sınıfa devam eden 22'si deney, 19'u kontrol grubunda olmak üzere toplam 41 öğrenci oluşturmaktadır. Araştırmada nitel veri toplama araçlarından "Problem Çözme Basamakları Öğretmen Gözlem Formu", "İş Birlikli Öğrenme Rubriği", "UbD Uygulaması Öğretmen Görüşme Formu" kullanılmıştır. Nicel veri toplama aracı olarak "Problem Çözme Becerisi Ölçeği", "İş Birlikli Çalışma Ölçeği", "Sosyal Bilgiler Akademik Başarı Testi" kullanılmıştır. Nitel verilerin analizinde betimsel istatistik sonuçlarından, nicel verilerin analizinde Mann-Whitney U, Welch t-testi, ANOVA ve Shapiro-Wilk testinden faydalanılmıştır. Araştırmanın verilerinden elde edilen bulgular, UbD'nin problem çözme ve iş birlikli çalışma becerisinin gelişimine, akademik başarının artmasına katkı sağladığı ve öğrencilerin öğrenme sürecine karşı motivasyonlarını artırdığını göstermektedir.

**Anahtar Kelimeler:** Anlamaya dayalı Tasarım (UbD), problem çözme, işbirliği, akademik başarı

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## Introduction

Social studies has been defined as a field of research that makes interactive use of social and human sciences to develop citizenship competencies (NCSS, 1994, as cited in Öztürk, 2009, p.4). In addition to this, social studies also aims to provide individuals with skills such as being productive in a democratic society, putting the right decision-making mechanisms into action, planning the future by looking at the past, and citizenship awareness.

The Social Studies curriculum (2015) aims to raise individuals who are active and creative, who develop positive relationships, and who aim to improve their citizenship competencies. While conducting studies to achieve this goal, all sciences such as history, geography, anthropology, archeology, economics, law, philosophy, political science, psychology, and sociology have been utilized within the scope of the social studies course. In social studies teaching, which has been affecting an important part of human life since the day it was taken into the teaching process, raising conscious citizens who are beneficial to society has been one of the focal points in the program.

Curricula have some general objectives. These objectives are complementary and supportive of each other from pre-

school to high school completion and are specified in detail for each level. A student who completes primary school is expected to be a self-confident and self-disciplined individual with high awareness, who has acquired verbal, numerical, and social skills that they can actively use in daily life, and who makes choices that affect their life for their benefit (Ministry of National Education and the Board of Education and Discipline, 2023).

The general and specific objectives of the Social Studies programs include outcomes and topics, values, skills, and competencies that are formed in a spiral manner at different levels (Ministry of National Education, Board of Education and Discipline, 2005; 2015; 2023). Especially in the Social Studies program, which started to be used in 2005, values, skills, and concepts were included in detail for the first time. Starting this year, it is seen that thinking skills such as decision-making, problem-solving, creative thinking, and critical thinking are among the skills that students should acquire.

Skill can be defined as being able to do anything of interest and affinity. Bolat (2021) defined the concept of skill as the ability to behave following the specified criteria by using the individual's existing physical tendency or competencies developed through the teaching process. Skill is also

associated with people's being in harmony with society throughout their lives, adapting easily to the world they live in, and being successful in education and business life (Şimşek et al., 2022).

The ability to produce new ideas by analyzing information and thoughts to reach a result and by identifying the connections between situations is called thinking skills (Özdemir, 2021). Thinking skills include processes such as critical, creative, innovative, and analytical thinking (Binkley et al., 2012). According to the research report of the Board of Education (2023), high-level thinking skills are classified as innovative and creative thinking, problem-solving, decision-making, reflective thinking, critical thinking, analytical thinking, and metacognition.

John Dewey presents problem-solving as a life skill with systematized stages. Dewey considers this skill as a 'reflection on life' (Yenice, 2011, as cited in Bolat, 2021). Problem-solving skills have been recognized as important for more than 60 years. It came to the fore especially in the 1980s (Muir et al. cited in Bolat, 2021). Problem-solving can be defined as consciously examining the problem, choosing the most appropriate one among the ways to solve it, and being aware of the differences in the whole process.

The skill of collaboration involves the processes of sharing responsibility and division of labor by meeting at a common point by the individuals involved in the study before starting to work within the framework of a subject. This skill also includes processes such as cooperation, sharing, acting according to instructions and rules. In addition, cooperation includes processes such as acting according to rules (Özdemir, 2021, p. 29).

Many systems and models have been developed, and many different applications have been made in the world to gain the life skills and thinking skills in the explanations. All experiments that have been tried throughout history, whether successful or unsuccessful, have been produced and tried to develop and contribute to the individual. One of these approaches, the Understanding by Design (UbD), is a model that aims to enable individuals to acquire knowledge and skills permanently and transfer them to life.

UbD is an approach to learning that takes students' readiness and learning characteristics into account, aims for permanent understanding, and supports students to easily transfer this understanding to life. According to Wiggins and McTighe (2005), UbD is not a prescriptive program, but a way of thinking in which goals are at the center. In this model, information or ideas that are considered important are expected to be more easily understood by the student and used where necessary.

Through UbD, a framework is created by determining learning and teaching priorities. Planning within the boundaries of this framework should consist of students' readiness, skills and predispositions, their developmental status, the conditions of the teaching environment, their responsibilities, and the assessment process. By identifying goal-oriented methods and designing materials, a guiding map of what the student needs to acquire should be created. The ideal design process is aimed at creating a productive and authentic learning process for the student, far beyond providing the student with technical skills (Wiggins & McTighe, 2005, p. 14).

Teachers, who are defined as designers in UbD, need to clearly define their goals and the results they want to achieve at the beginning of the design process. Then, comprehension

objectives and related basic questions are created for these knowledge and skill objectives. Then, process and outcome evaluations are made with various teaching methods and techniques and finally, the learning process is planned in detail. This whole process consists of desired outcomes, evidence, and instructional planning (Wiggins & McTighe, 2005).

Determining the desired outcomes is the first stage of planning. It consists of three parts: attainment, comprehension, and transfer. The big idea, basic questions, comprehension statements, knowledge and skill acquisitions, and transfers are determined in this section (Altun & Yurtseven, 2020, p. 38). At this stage, the teacher should have determined the appropriate time interval and should plan with appropriate choices for this period (Wiggins & McTighe, 2005, p. 18). In the stage of determining the desired results, the big idea, basic questions, comprehension goals, knowledge and skill gains, and transfer process, which are among the basic concepts of UbD, take place. The big idea is the definition of the whole process to be gained by the student regarding the theme or topic.

At the end of the process, students are expected to construct what they have learned and acquired in line with this idea. The comprehension process is seen as a critical process in which permanent understanding is the focus, and this process is supported by basic questions. Knowledge is shaped within the framework of skill objectives. The transfer process can be defined as students' use of what they have learned in environments outside of school or in new processes they encounter by mobilizing their own will and decisions.

The stage of determining the evidence is divided into two, namely, process assessment and summative assessment. In the process assessment phase, traditional or alternative assessment and evaluation tools are included in the implementation phase of the plan, while in the summative assessment phase, there is a performance task that the student must perform at the end of the subject or unit. Performance tasks are tasks that are included in every plan in this design model and that students perform by using their knowledge and skills effectively. Wiggins and McTighe (2005, p. 18) state that before planning assessments and activities, teachers should know how to think like an evaluator.

The third and final step, the preparation of the learning plan, should be designed to ensure integrity with the previous two steps. In addition, in this section, students should be in contact with activities that will support the necessary knowledge and skills (Altun & Yurtseven, 2020, p. 40). The teacher can prepare the methods, techniques, and materials to be used in this section in advance or reorganize them during or at the end of the process.

UbD aims to increase student achievement and ensure permanent and effective learning. In addition, this model emphasizes the concept of permanent comprehension and the transfer process and aims for a process in which students actively participate and individual differences are taken into account (Wiggins & McTighe, 2011). There are many studies on the effects of UbD in the world, and it is seen that these studies have positive effects on student participation, achievement, attitude toward the learning process, and motivation (Andrews, 2011; Bodur & Yurtseven, 2021; Özdemir & Yurtseven, 2023; Som et al., 2016).

In studies conducted to investigate the effect of UbD on student achievement (Andrews, 2013; Geylan, 2023; Keskin Çinkaya, 2022; Tshering, 2022; Uyguç, 2022), it was

concluded that student achievement was positively affected. In these studies, in addition to student achievement, behavioral development, attitude, and retention variables were examined. In the studies examining the effect of UbD on students' thinking skills (Chaisa & Chinokul, 2021) and its effect on problem-solving skills (Durmaz, 2014), the results that UbD contributed to students' thinking skills were shared. These studies also investigated the effects of UbD on class participation, attention and motivation, self-efficacy, and self-regulation skills. In a study examining the effect of UbD on collaborative work (Florian & Zimmerman, 2015), critical thinking and effective communication skills were also examined, and it was concluded that UbD had a positive effect on skill development.

In this study, unlike other studies, the effects of UbD on student achievement and students' problem-solving and collaboration skills were examined together through qualitative and quantitative data. It is thought that the study will contribute to the field within the scope of the Social Studies course and the UbD processes. In line with these explanations, it was aimed to answer the following questions to examine the effect of the Social Studies lesson plans designed with UbD on fourth-grade students' problem-solving and collaboration skills and academic achievement:

1. What is the effect of the Understanding by Design Model (UbD) on students' problem-solving skills in the 4th-grade social studies course?
2. What is the effect of the Understanding by Design Model (UbD) on students' collaboration skills in the 4th-grade social studies course?
3. What is the effect of the Understanding by Design Model (UbD) on students' academic achievement in the 4th-grade social studies course?
4. According to the opinions of classroom teachers, what is the effect of the Understanding by Design Model (UbD) on students' problem-solving, collaboration, and academic achievement.

## Method

### Research Model

This research was conducted with mixed methods. Mixed methods are studies in which qualitative and quantitative methods are used together (Büyüköztürk et al., 2021).

In this study, in which the effect of UbD on students problem-solving and collaboration skills and academic achievement was examined, an enriched research design, the triangulation method, one of the mixed method designs, was used. In the enriched design, qualitative and quantitative data are collected simultaneously, and the findings are examined to see if they support each other (Creswell & Plano Clark, 2007, as cited in Büyüköztürk et al., 2021). This design can also be called a convergent parallel design.

The quantitative part of the study was conducted with a post-test control group experimental model. The experimental model is the examination of the effect of different teaching programs, methods, classroom practices, and lesson plans on individuals or groups (Büyüköztürk et al., 2021). The experimental model with the post-test control group is the one in which the experimental and control groups are formed by random assignment and only the post-test is applied. In these studies, pretesting is seen as unnecessary or impossible (Karasar, 2016).

The qualitative part of the research was conducted as a case study. Case studies are used to see the details of an event, to develop possible explanations for an event, and to evaluate an event (Gall et al., 1996).

### Work Group

This study, which examined the effect of the Social Studies lesson plan prepared based on UbD on students' problem-solving and collaboration skills and academic achievement, was conducted in a private school in Etimesgut district of Ankara province in the fall semester of the 2023-2024 academic year. Two fourth-grade classes were randomly selected as experimental and control groups. The study was conducted with a total of 41 students: 22 in the experimental group and 19 in the control group. Simple random sampling was used in the study. In this method, all units in the universe have an equal and independent chance to be selected for the sample. In simple random sampling, universe units are known and listed. Units are selected until the sample size is reached (Büyüköztürk et al., 2021). The reason for choosing this study group for the research was that the only grade level in the curriculum that includes the Social Studies course is the fourth grade. Another reason is that the study group meets the criteria of easy accessibility and affordability. In convenience sampling, the researcher determines the number that is sufficient for the research among the existing elements as the sample. For this reason, it is also defined as random sampling (Singleton & Straits, 2005, as cited in Baltacı, 2018).

### Data Collection Tools

#### Qualitative Data Collection Tools

**Problem-Solving Steps Teacher Observation Form:** The researchers sorted the problem-solving steps into 22 sub-steps and created an observation form. The observation form was presented to two expert classroom teachers and one instructor, and their opinions were taken. In line with the opinions expressed, some items were combined, some items were removed, and some items were formally edited. The observation form was finalized with 16 items. These items include processes such as defining the problem, collecting and synthesizing data, making use of previous knowledge, investigating the source of the problem, determining possible solutions, deciding on the appropriate one, determining the cause-and-effect relationship, and making observations. This form was filled in for each student by the branch classroom teacher of the experimental group at the end of the five-week implementation.

**Collaborative Learning Rubric:** The rubric, originally named 'Collaborative Work Skills' and created by Sarah Nilsson, was translated into Turkish by Önger (2019) as 'Collaborative Learning Rubric'. The rubric includes the categories of 'working with others', 'quality of work', 'problem solving', 'focusing on the task', 'being prepared', and 'monitoring group activity'. The cooperative learning rubric was piloted in a 3rd grade class of 18 students at a private school in Etimesgut district of Ankara, and the items did not need to be revised. At the end of the five-week UbD implementation, the experimental group branch classroom teacher filled out this form for each student in the class.

**UbD Practice Teacher Interview Form:** First of all, the researchers clearly defined the answers sought by the research from the beginning to the end. Then, by analyzing the general questions asked, a semi-structured interview form consisting



of 25 functional questions was prepared. Since semi-structured interviews are conducive to deepening the questions along with fixed options, the questions were prepared in this context. During the preparation of the questions, the criteria of relevance, suitability for the participant, and ease of answering were taken into consideration. The prepared question form was presented to the expert opinion, and a few of the interview questions were eliminated and turned into 15 questions. Then, a sample application was made with three expert classroom teachers, and some of the questions were eliminated again and some were structured. Finally, the interview form was finalized with 10 open-ended questions and used as the main data collection tool. The questions in the interview form were designed to elicit opinions on the reflection of the UbD implementation on the teaching environment, its effect on problem-solving and collaboration skills, its effect on the academic process, and its effect on students' attitudes and motivation. The interview questions were directed to four teachers who taught in the experimental group after the UbD implementation, and teachers' opinions about the process were obtained. The interviews were conducted face-to-face and individually in a private environment. The interviews of the teachers who gave permission were audio recorded, while the interviews of the teachers who did not give permission were recorded by taking notes. The same interviewer acted as the interviewer in all interviews and refrained from making personal directives.

### Quantitative Data Collection Tools

**Problem Solving Skills Scale:** In the study, the 'Problem Solving Skills Scale' developed by Sezgin (2011) was used to measure students' problem-solving skills. The scale was taken from Sezgin's master's thesis. The scale consists of eight sections and is unidimensional. It covers eight sub-skills of problem-solving skills. The study group in the development phase of the scale consisted of 264 fourth, fifth, sixth, seventh, and eighth graders. In the preparation phase of the scale, 16 sub-steps of problem-solving skills were taken, and the items were created after the item frequency, the items to be measured were reduced to eight. The scale was made ready for application by taking expert opinions. The application time of the scale for fourth-grade students was determined as 30 minutes.

**Collaborative Work Scale:** In the study, the 'Collaborative Work Scale' developed by Durmuş (2020) was used to measure the collaborative work skills of fourth-grade students. While preparing the scale, 52 items were prepared and presented for expert opinion. After the expert opinion, a draft of 43 items was prepared and data were collected from 479 students. As a result, a three-factor, 17-item scale was obtained. The alpha coefficients of the factors in the scale are known to be .83 for Collaborative Learning Skills, .64 for Group Reflection, .61 for Positive Commitment, and .87 for Cooperative Learning Scale. The administration time of the scale for fourth-grade students was determined as 20 minutes.

**Social Studies Academic Achievement Test:** While developing this achievement test, the following steps were followed: determining the unit and related achievements, preparing test items, getting expert opinion for content validity, trial application, item difficulty, and discrimination analysis, and creating the test. First of all, learning areas were examined, and it was decided to conduct the application

concerning the 'Individual and Society' unit. Thirty questions were prepared to cover five learning outcomes related to the unit. While preparing the questions, the 4th grade Social Studies textbook by the Ministry of National Education, and auxiliary resources were utilized, but original questions were also created. Test questions were analyzed according to Bloom's taxonomy at the stage of selecting and creating questions. The pre-test was applied to 107 fourth-grade students. As a result of the application, the difficulty and discrimination indices of the items were calculated. The items whose item difficulty index related to each outcome were outside the range of .3 - .8 and the items that were furthest away from the value were removed from the test. The actual achievement test was created with the remaining 20 items. The test was administered to the experimental and control groups as a pre-test at the beginning of the process and as a post-test at the end of the process.

Permissions for the measurement tools used in the study were obtained by contacting the researchers who developed the original scales. In addition, permissions for all measurement tools used in the study were obtained from the Kırıkkale University Social Sciences Research Ethics Committee. Research permissions were obtained from AYSE.

### Data Analysis

#### Qualitative Data Analysis

Both descriptive and content analyses were used to analyze the qualitative data obtained from the research. Descriptive analysis is the analysis of the documents used in the research and the documents collected during interviews and observations on the basis of subject and question (Ekiz, 2020). Content analysis is a systematic, repeatable technique in which results are summarized in smaller content categories by coding based on certain rules (Büyüköztürk et al., 2021). The data analysis stages of the Miles and Huberman model were followed in the study. In this model, there are processes of data reduction, display, description and verification (Punch, 2020). In the data reduction part of the study, the collected data were organized, divided into sections and summarized. In this process, preparations were made for the notetaking and data coding steps. The data were sorted by bringing them together and organizing them. Coding is the process of giving labels, names or descriptions to groups of data. Notetaking can involve many things: substantive, theoretical, methodological and personal. These processes are not in a sequential order (Punch, 2020).

In order to increase the reliability of the research, audio recordings and notes of the interviews with the participants were taken. For the internal validity of the study, the researcher acted as a practitioner in the experimental and control groups. For the external validity of the research, expert opinion was taken at the stages of data analysis, coding, and interpretation. Inter-expert coding agreement was calculated as %89. This similarity, called internal consistency in this model, is calculated with the formula  $\Delta = C \div (C + \Theta) \times 100$ . Consensus is expected to be at least 80% (Miles & Huberman, 1994).

#### Quantitative Data Analysis

Mann-Whitney U, Welch t-test, ANOVA, and Shapiro-Wilk tests were used in the SPSS statistical program for significance tests of quantitative data.

**Table 1.** Mann-Whitney U test results of problem-solving skill scores according to the teaching method applied

Group	n	Row Total	Rank Mean	U	Z	p	d
Experiment	22	571.50	25.98	99.50	-2.916	0.004	1.00
Control	19	289.50	15.24				

**Table 2.** Experimental group averages in the problem-solving steps teacher observation form

Statistics	Problem Solving Steps															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
N	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
$\bar{X}$	.95	.86	.68	.68	.90	.40	.63	.77	.68	.5	.86	.27	.63	.72	.81	.40

## Findings

This section presents the findings of the study conducted to examine the effect of UbD on students' problem-solving, collaboration skills, and academic achievement. The findings were analyzed according to the four sub-problems of the research, respectively.

### Investigation of the Effect of Understanding by Design Model (UbD) on Students' Problem-Solving Skills

**Problem-Solving Skills Scale:** To compare the mean total problem-solving skill scores of the students in the experimental group using the UbD method and the students in the control group using the traditional method, the normality of the distributions was first analyzed with the Shapiro-Wilk test, and it was determined that the experimental group score distributions were not normal ( $S-W_{\text{deney}(22)} = 0.856$ ,  $p = 0.004$ ;  $S-W_{\text{kontrol}(19)} = 0.953$ ,  $p = 0.439 > 0.05$ ). Accordingly, Mann-Whitney U test, which is a nonparametric test, was used to compare the averages. The results of the analysis are given in Table 1.

According to the Mann-Whitney U results shown in Table 1, there was a statistically significant difference between the mean problem-solving skill scores of the experimental and control group students ( $U = 99.50$ ,  $p < 0.05$ ,  $d = 1.00$ ). According to the rank averages, there was a significant difference in favor of the experimental group students. The effect size  $d = 1.00$  has a value greater than 0.8, in other words, the significant difference between the mean problem-solving skill scores of the experimental and control group students is quite high.

**Problem-Solving Steps Teacher Observation Form:** The 16-item observation form, which was prepared to observe processes such as defining the problem, data collection and synthesis, utilizing previous knowledge, investigating the source of the problem, identifying possible solutions, deciding on the appropriate one, determining the cause-effect

relationship, and making observations, was completed by the experimental group classroom teacher. Table 2 shows the results of the problem-solving steps observation form filled out by the class teacher of the experimental group.

It is observed that the rate of realization of the problem-solving steps by the 22 students in the class is generally quite high. Among the sixteen problem-solving steps in the students' observation form, 'defining the problem (.95)' ranked first, 'utilizing previous knowledge (.90)' ranked second, and 'applying the solution result (.86)' ranked third. According to the teacher observation results, the rates of 'producing different solutions (.40)', 'investigating the source of the problem (.40)', and 'verifying the result (.27)' are at the bottom of the problem-solving steps in which students were observed.

### Investigation of the Effect of Understanding by Design Model (UbD) on Students' Collaboration Skills

**Cooperative Work Scale:** To test the significant difference between the cooperative work skills of the experimental and control group students, a normality test was performed to determine how the data were distributed. It was determined that the collaborative skill scores of both groups were normally distributed ( $S-W_{\text{test}(22)} = 0.951$ ,  $p = 0.337$ ;  $S-W_{\text{kontrol}(19)} = 0.966$ ,  $p = 0.693$ ). In addition, the homogeneity of the variances of the measurements was also examined by Levene's test and it was determined that the condition of homogeneity of variances was not met ( $F = 12.265$ ;  $p = 0.001$ ). In this context, Welch's t-test, which is a parametric test, was applied (Table 3). According to the results obtained, it was determined that there was a statistically significant difference between the mean cooperative learning skill scores of the students in the experimental and control groups ( $t_{(23,96)} = 5.073$ ;  $p < 0,05$ ). According to the cooperative learning scores of the groups, the cooperative learning scores of the students in the experimental group ( $\bar{X} = 3.46$ ) were higher than the students in the control group ( $\bar{X} = 2.77$ ). The effect size is large with Cohen's  $d = 1.67$ .

**Table 3.** Welch's t-test results of collaborative skill scores according to the applied teaching method.

Group	n	$\bar{X}$	SS	Sd	t	p	d
Experiment	22	3.46	0.24	23.96	5.073	<0.001	1.67
Control	19	2.77	0.55				

**Table 4.** Cooperative learning rubric experimental group averages

Statistics	Collaborative Work Categories					
	Working with Others	Quality of the work	Quality of the work	Focus on the task	Preparedness	Group activity monitoring
N	22	22	22	22	22	22
$\bar{X}$	2.40	2.22	2.27	2.5	2.31	2.27

**Table 5.** Descriptive statistics for the experimental and control group achievement test results

Measurements	Experimental Group			Control Group		
	N	$\bar{X}$	SS	N	$\bar{X}$	SS
Pre-test	22	0.50	0.17	19	0.58	0.14
Final test	22	0.87	0.08	10	0.74	0.15

**Table 6.** Shapiro-Wilk test results for experimental and control group pre- and post-test score distributions

Measurements	Experimental Group			Control Group		
	S-W	sd	P	S-W	sd	p
Pre-test	0.917	19	0.102	0.915	22	0.061
Final test	0.959	22	0.461	0.950	19	0.390

**Table 7.** ANOVA results of pretest and posttest scores of the experimental and control groups

Variance source	Sum of squares	sd	Mean squares	F	p	( $\eta^2$ )
Between subjects	1.178	40	0.038			
Group	0.008	1	0.008	0.262	0.612	0.007
Error	1.170	39	0.030			
Within subjects	1.935	41	1.619			
Measurement	1.401	1	1.401	168.374	<0.001*	0.812
Group*Measurement	0.210	1	0.210	25.282	<0.001*	0.393
Error	0.324	39	0.008			
Total	3.113	81				

\*p<0,05

**Cooperative Learning Rubric**

The collaborative work status of the experimental group is presented in Table 4 according to the results of the collaborative work rubric. Although the highest score that can be obtained according to the collaborative work categories is four, all scores were filled in individually by the group class teacher according to the observation results for each student. It is observed that the average scores of the 22 students in the class are close to each other in each category. However, in the collaborative work categories, it is seen that the highest mean scores of the students are in the category of 'focusing on the task (2.50)' and the lowest in the category of 'quality of work (2.22)' out of four points.

**Investigation of the Effect of Understanding by Design Model (UbD) on Students' Academic Achievement**

Descriptive statistics for the pre-test and post-test scores obtained during the implementation process in the experimental and control groups are given in Table 5.

When the pre-test and post-test averages applied during the research are analyzed in Table 5, it is seen that the achievement averages of both groups increased, and the increase in the experimental group was higher. The group, instructional strategy, or the interaction of group and instructional strategy may have been effective in the increases in these mean scores. In this context, in this study in which two different teaching methods were used, a two-way analysis of variance for mixed measures was conducted to determine whether there was a significant difference between the students' achievement scores before and after the application. To test the assumptions of the test before the analysis, the normality of the distributions of the measurements of the dependent variable, the equality of the covariances of the groups, and the equality of the variances of the measurements obtained from different groups were tested, respectively. Since there were only two measurements, the assumption of sphericity was not tested. The normality test

results for the distributions of the scores in each pore are presented in Table 6.

Table 6 shows that the experimental and control group pre- and post-test score distributions are normal at a 0.05 confidence level. As a result of the Box'M Test for covariance equality, which is another assumption, it was determined that this assumption was met ( $F_{(4,1090723,031)} = 3.128, p = 0.025 > 0.01$ ). As a result of the Levene's Test conducted to determine the equality of variances in the measurements of the different groups, the condition of equality of variances was met in the pre-test measurements but not in the post-tests (Pre-test:  $F_{(1,39)} = 1.082, p = 0.305$ ; Post-test:  $F_{(1,39)} = 4.995, p = 0.031$ ). However, Stevens (1996, p. 249) stated that analysis of variance is highly resistant to violations of this assumption when sample sizes are close to each other ( $n1/n2 < 1.5$ ).

The results of the two-way analysis of variance for mixed measures to test whether there is a significant difference between the achievement scores of the students before and after the application of the teaching strategies are given in Table 7.

As seen in Table 7, there was no significant difference between the mean scores of the experimental and control groups without test distinction ( $F_{(1,39)} = 0.262; p = 0.612 > 0.05$ ). When the effect of measurement was tested, in other words, a significant difference was detected when the pre-test and post-test mean scores were compared regardless of the groups ( $F_{(1,39)} = 168.374; p < 0.01, \eta^2 = 0.812$ ). When the common effect of measurement and group was taken into account, it was determined that there was a significant difference between the averages ( $F_{(1,39)} = 25.282; p < 0.01, \eta^2 = 0.393$ ). According to this situation, it was determined that the change in pre-test and post-test score averages differed with the method applied in the test and control groups. In other words, the interaction of different teaching methods and measurements was found to be significant. In the experimental group, while the pre-test mean was  $\bar{X} = 0.50$ , the post-test mean was  $\bar{X} = 0.87$  and a higher increase was obtained

compared to the control group. According to this, being in the experimental group where UbD teaching was applied and being in the control group where the traditional method was applied had a different effect on student achievement. This effect can be said to be a moderate effect ( $\eta^2 = 0.393$ ). As a result, students showed a higher increase in achievement in the environment where UbD-based teaching was applied.

### **Investigating the Effects of Understanding by Design Model (UbD) on Students' Problem Solving, Collaboration, and Academic Achievement from the Views of Classroom Teachers**

After the implementation, semi-structured interviews consisting of 10 questions were conducted with 4 teachers in the experimental group. Similar codes were thematized by content analysis and descriptive analysis of the qualitative data. The themes that emerged according to the findings of the interviews with the four teachers in the experimental group were 'Opinions about UbD', 'The effect of UbD on problem-solving skills', 'The effect of UbD on collaborative work', 'The effect of UbD on academic achievement', 'The effect of UbD on students' attitudes towards the course', and 'The contribution of UbD to the learning process'. While analyzing the data, the support of the interview data for the research hypotheses, the support of the literature, the support of similar interviews, and the main theme of the interview were examined.

T1, who taught as a classroom teacher in the experimental group, expressed a positive opinion about the implementation process of UbD and stated that it contributed especially to interest and motivation in the lesson. He stated that he did not have a direct observation about the effect of UbD on problem-solving skills, but the effect of UbD on collaborative work can be observed, especially in group work. She reported that the effect of UbD on academic achievement and attitudes towards the course was positive since students were active in the learning process. T1, who stated that UbD contributed to the learning process, stated that it would be very useful to carry out the whole curriculum planning in this way, especially in terms of reaching the target.

T2, who taught as a physical education and game lesson teacher in the experimental group, expressed a positive opinion about the implementation process of UbD because it increased the motivation of the students. He stated that he had no idea about the effect of UbD on problem-solving skills and academic achievement. He stated that the positive effects of UbD on collaborative work were seen, especially in team games and acting in groups. In addition, she stated that students' motivation towards the learning process increased with UbD practices, and that the application was positively effective.

T3, who conducts the English lessons of the class, stated that there were positive reflections on the implementation process of UbD and students' motivation towards the learning process. She stated that there was a noticeable improvement in the group work and problem-solving skills of the students, who had previously experienced conflicts while working together. In addition, she stated that it contributed positively to students' attitudes towards the course, that students enjoyed the activities and were more enthusiastic about expressing themselves.

T4, who conducted the mind games and thinking skills course in the experimental group, stated that the students eagerly awaited the next lessons after the application. She also

stated that it positively affected students' problem-solving and cooperative working skills. T4 stated that the fact that the students were actively involved in the process directly in UbD increased their motivation towards the lesson, and that the students expressed this. It was suggested by T4 that it would be more beneficial to continue the application not for a limited period but to cover the whole process.

### **Discussion and Conclusion**

In this study, four sub-problems were examined to examine the effect of the Understanding by Design Model (UbD) on students' problem-solving, collaboration skills, and academic achievement in the fourth-grade social studies course. In this section, the results of the research are discussed in the light of the research findings.

In the study, it was concluded that the Understanding by Design Model had a high impact on students' problem-solving skills. The findings obtained from the opinions of the teachers who participated as observers in the study show that the students were in very good condition, especially in the sub-dimensions of defining the problem, utilizing previous knowledge, and reflecting on the skill. Similar to this result, Durmaz's (2014) study on the problem-solving strategies of gifted students concluded that UbD contributed to students' problem-solving skills. In addition, Chaisa and Chinokul (2021) reported in their research results that the lessons conducted with a rotational design improved thinking skills. In parallel with the observation result of the study, Gloria et al. (2019) reported that UbD had a positive effect on students' mental habits. It is thought that the positive effect of UbD on problem-solving skills is related to the knowledge and skill objectives set by the designer teacher at the beginning of the process. The basic questions created for these objectives are designed to encourage students to actively use their thinking skills. UbD is accepted as a way of careful thinking beyond being a program that sets rules (Wiggins & McTighe, 2005). In connection with all these, it can be said that it also contributes to the development of problem-solving skills.

In the study, it was concluded that the effect of the Understanding by Design Model (UbD) on collaboration skills was positive and significant. Based on the observations of the group teacher, it is thought that the students were better in the categories of focusing on the task and working with others. Similar to the results of this study, Florian and Zimmerman (2015) found that UbD had a positive effect on students' collaboration and effective communication skills. The methods and techniques used in UbD, such as Jigsaw, RAFT, station studies, etc., in the process and result-oriented evaluation stages (Dündar & Erdağı, 2023) are thought to have a positive effect on the development of collaboration skills as group work supports collaborative work. In addition, the designs prepared by students in small groups during the UbD process, in-group sharing, and working together towards the same goal (Wiggins & McTighe, 2005) are among the factors that contribute to this process.

In the study, the effect of the Understanding by Design Model (UbD) on students' academic achievement was examined, and it was concluded that the increase in achievement was higher in the experimental group, where UbD teaching was carried out, compared to the control group. Like this result, Geylan (2023) conducted a study with 10th-grade students to investigate the effects of UbD and concluded that students' academic achievement increased. Andrews (2013) reported that UbD had a positive effect on student

achievement scores. There are many studies with similar results in the literature (Keskin Çinkaya, 2022; Rubrica, 2018; Tshering, 2022; Uyguç, 2022; Yurtseven, 2016). The comprehension step, which is one of the basic concepts of UbD, is monitored through six basic indicators, and corrections related to the process are made continuously (Wiggins & McTighe, 2005). In addition, the eight basic principles of UbD include the process of deepening and developing what is learned through 'big ideas' (Tomlinson & McTighe, 2007). All these approaches in the philosophy of UbD are carried out by focusing on permanent understanding. In this context, it is thought that plans prepared with UbD contribute to student achievement.

In the study, the teachers whose opinions were taken to determine the effect of the Understanding by Design Model (UbD) on students' problem-solving, collaboration, and academic achievement generally reported that the application had a positive effect on problem-solving and collaboration skills and increased students' academic achievement. In addition, they stated that students' interest and motivation toward lessons and their active participation increased as a result of UbD practices. There are studies to support this result. There are many research results similar to this study in the categories of increasing student motivation after UbD implementation (Boozer, 2014; Chaisa & Chinokul, 2021; Gül et al., 2021; Özdemir, 2021), developing positive attitudes towards the course (Geylan, 2023), and active participation (Som et al., 2016; Uluçınar, 2021).

### Recommendations

According to the results obtained from this study, some suggestions can be made. First of all, considering the positive effects of UbD on students, the application can be made widespread throughout the country by piloting it at various levels and in different disciplines in certain regions. Teachers can be supported to increase their knowledge and competencies in this field by providing in-service training on UbD. In this way, awareness of teaching methods and techniques used in UbD, and traditional and alternative assessment and evaluation tools can be increased. Educators can be made aware of process- and outcome-oriented measurement and its reflections on the teaching process. Digital platforms that can be actively used within the scope of this subject can be created to increase UbD practices and to enable UbD practitioners to share and collaborate.

The study is limited to a five-week UbD study conducted with a total of 41 fourth-grade students in a primary school. The research data were collected from the students of the applied branch and the teachers whose opinions were taken. In this context, it is thought that the results of the study on student achievement, problem-solving, and collaborative work will be a guide for other researchers, and it is recommended that UbD research be increased quantitatively.

### Author Contributions

This study was developed based on a master's thesis. The first author is the thesis owner, and the second author is the thesis advisor.

### Ethical Declaration

Before the research, "Ethics Committee Approval" was obtained from Kırıkkale University regarding the ethical suitability of the research (document date and meeting number: 23.08.2023, 186467).

### Conflict of Interest

Both researchers confirm that there is no conflict of interest in the study.

### References

- Altun, S. ve Yurtseven, N. (2020). *Tasarımcı Öğretmen* (2.Baskı). ASOS Yayınları.
- Andrews, A. (2013). *Development and use of essential learning goals and their effect on student achievement in grades two through five* [Doctoral dissertation, St. Louis: University of Missouri].  
<https://irl.umsl.edu/dissertation/282>
- Binkley M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M. & Rumble, M. (2012). Assessment and teaching of 21st-century skills. *Dordrecht: Springer*, 17-66. [http://dx.doi.org/10.1007/978-94-007-2324-5\\_2](http://dx.doi.org/10.1007/978-94-007-2324-5_2)
- Baltacı, A. (2018). Nitel araştırmalarda örnekleme yöntemleri ve örnek hacmi sorunsalı üzerine kavramsal bir inceleme. *Bitlis Eren Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 7(1), 231-274.
- Bodur, Z. T. ve Yurtseven, N. (2021). İngilizce dersinde UbD temelli yaratıcı drama etkinliklerinin öğrenciler üzerindeki yansımalarının incelenmesi. *Yaşadıkça Eğitim*, 35(1), 88-103.
- Bolat, Y. (2021). *Yaşam becerileri eğitimi* (1.Baskı). Ankara: Pegem Akademi.
- Boozer, A. (2014). *Planning backwards to go forward: Examining pre-service teachers' use of backward design to plan and deliver instruction* [Doctoral dissertation, Arizona State University].  
[http://gateway.proquest.com/openurl?url\\_ver=Z39.88-2004&rft\\_val\\_fmt=info:ofi/fmt:kev:mtx:dissertation&res\\_dat=xri:pqm&rft\\_dat=xri:pqdiss:3618183](http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&res_dat=xri:pqm&rft_dat=xri:pqdiss:3618183)
- Burak, D. (2020). *İlkokul sosyal bilgiler öğretimine yönelik uyarlanabilir bir öğrenme ortamının tasarlanması, uygulanması ve değerlendirilmesi* [Yayınlanmamış doktora tezi, Eskişehir: Anadolu Üniversitesi Eğitim Bilimleri Enstitüsü. tez.yok.gov.tr
- Büyüköztürk, Ş., Çakmak, E., Akgün, Ö., Karadeniz, Ş. ve Demirel, F. (2021). *Eğitimde bilimsel araştırma yöntemleri* (31.Baskı). Ankara: Pegem Akademi.
- Chaisa, P. & Chinokul, S. (2021). Effects of reading instruction using backward design framework and citizenship theme to enhance English reading comprehension and social responsibility of tenth-grade Thai EFL students. *LEARN Journal: Language Education and Acquisition Research Network*.14(1), 176-207.  
<https://so04.tcithaijo.org/index.php/LEARN/article/view/248688/168992>
- Durmaz, B. (2014). *Üstün yetenekli ilköğretim öğrencilerinin problem çözme stratejilerini öğrenme düzeyleri* [Doktora tezi, Bursa: Uludağ Üniversitesi Eğitim Bilimleri Enstitüsü]. tez.yok.gov.tr
- Dündar, H. ve Erdağı T. (2023) *Eğitimde büyük fikirler ilkokulda anlamaya dayalı tasarım (UbD) uygulamaları* (1.Baskı). Ankara: Pegem Akademi.
- Ekiz, D. (2020) *Bilimsel araştırma yöntemleri* (6.Baskı). Ankara: Anı Yayıncılık.
- Florian, T. P. & Zimmerman, J. P. (2015). Understanding by Design, moodle and blended learning: A secondary school case study. *MERLOT Journal of Online Learning and Teaching*, 11(1), 120-129.



- Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th ed.). Longman Publishing.
- Geylan, H. A. (2021). *Ekosistem ekolojisine yönelik anlamaya dayalı tasarımın başarı, tutum ve kalıcılığı etkisi* [Doktora tezi, Ankara: Gazi Üniversitesi Eğitim Bilimleri Enstitüsü]. tez.yok.gov.tr
- Gloria, R. Y., Sudarmin, Wiyanto & Indriyanti, D. R. (2019). Applying formative assessment through Understanding by Design (UbD) in the lecture of plant physiology to improve the prospective teacher education students' understanding. *Journal of Turkish Science Education*, 16(3), 350-363. <https://doi:10.1088/1742-6596/983/1/012158>
- Gül, M., Altun, S. ve Yücel Toy, B. (2021). Anlamaya dayalı tasarım uygulamasının (Ubd) öğrencilerin bilişsel ve duyuşsal gelişimlerine etkisi: T.C. inkilap tarihi ve Atatürkçülük dersi üzerine bir çalışma. *Van Yüzüncü Yıl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 51, 123-152.
- Karasar, P. D. (2016). *Bilimsel araştırma yöntemi: Kavramlar ilkeler teknikler* (38.Baskı). Ankara: Nobel Yayın.
- Keskin Çinkaya, Y. (2022). *Anlamaya Dayalı Tasarım (UbD) temelli ters-yüz edilmiş sınıf modelinin, kimya derslerinde öğrenciler üzerine etkisinin incelenmesi* [Yüksek Lisans tezi, İstanbul: Bahçeşehir Üniversitesi Eğitim Bilimleri Enstitüsü.]. tez.yok.gov.tr
- Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An expanded Sourcebook*. (2nd ed). Thousand Oaks, CA: Sage.
- Milli Eğitim Bakanlığı Talim ve Terbiye Kurulu. (2023). Sosyal bilgiler dersi öğretim programı (ilkokul ve ortaokul 4, 5, 6 ve 7. sınıflar). Ankara: Milli Eğitim Bakanlığı.
- Milli Eğitim Bakanlığı Talim ve Terbiye Kurulu Başkanlığı. (2005). Sosyal Bilgiler 4.-5. sınıf programı. Ankara: Milli Eğitim Bakanlığı.
- Milli Eğitim Bakanlığı Talim ve Terbiye Kurulu Başkanlığı. (2015). Sosyal bilgiler dersi 4, 5, 6 ve 7. sınıflar öğretim programı. Ankara: Milli Eğitim Bakanlığı Talim ve Terbiye Kurulu Başkanlığı.
- Önger, S. (2019). İşbirliği. B. Aksoy, B. Akbaba ve B. Kılcan (Ed.), *Sosyal bilgilerde beceri eğitimi* (s. 277) içinde. Ankara: Pegem Akademi Yayınları
- Özdemir, C. (2021). *Hayat bilgisi dersinde yer alan sorumluluk değeri ve iş birliği becerisinin kazandırılmasında uzman mantosu yaklaşımının etkisi* [Doktora tezi, Trabzon: Trabzon Üniversitesi Lisansüstü Eğitim Enstitüsü.]. tez.yok.gov.tr
- Özdemir, E. (2021). *UbD temelli farklılaştırılmış fen bilimleri derslerinin öğrencilerin motivasyonlarına, bilimsel süreç becerilerine ve akademik başarılarına etkisinin incelenmesi* [Yüksek Lisans tezi, İstanbul: Bahçeşehir Üniversitesi Eğitim Bilimleri Enstitüsü.]. tez.yok.gov.tr
- Özdemir, E. ve Yurtseven, N. (2023). UbD temelli farklılaştırılmış fen öğretiminin öğrencilerin motivasyonlarına, bilimsel süreç becerilerine ve akademik başarılarına etkisi. *Ulusal Eğitim Akademisi Dergisi* 7(1), 1-16.
- Öztürk, C. (2009). *Sosyal bilgiler öğretimi* (1.Baskı). Ankara: Pegem Akademi Yayınları.
- Punch, K. F. (2020). *Sosyal araştırmalara giriş* (5.Baskı). Ankara: Siyasal Kitabevi
- Rubrica, R. D. (2018). *An action research on project-based learning and understanding by design and their effects on the science achievement and attitude of science students* [Doctoral dissertation, Philippines: Caloocan City]. <https://files.eric.ed.gov/fulltext/ED585254.pdf>
- Sezgin, E. (2011). *Problem çözme becerisi ölçeğinin geliştirilmesi* [Yüksek Lisans tezi, Ankara: Ankara Üniversitesi Eğitim Bilimleri Enstitüsü]. tez.yok.gov.tr
- Som, İ., Türkan, A. ve Altun, S. (2016). UbD modeline göre Eğitim Bilimlerine Giriş dersinin tasarlanması: Öğretmen adaylarının başarı, tutum ve derse ilişkin görüşlerinin değerlendirilmesi. *International Journal of Social Sciences and Education Research* 2(4), 1341-1351.
- Şimşek, U., Topkaya, Y. ve Şentürk, M. (2022). 21. Yüzyıl becerileri ve eğitimi. M. Şentürk, U. Şimşek ve Y. Topkaya (Ed.), *Yenilikçi yaklaşımlarla 21.yüzyıl becerileri eğitimi* (s. 2) içinde. Ankara: Vizetek Yayıncılık.
- Tomlison, C.A. & McTighe, J. (2007). *Integrating differentiated instruction understanding by design: connecting content and kids* (2nd edition). Alexandria, Virginia USA: Association for Supervision and Curriculum Development.
- Tshering, S. (2022). The impact of using Understanding by Design (UbD) model on class 10 student's achievement in chemistry. *International Journal of Chemistry Education Research*, 6(1), 29-33. <https://doi: 10.20885/ijcer.vol6.iss1.art4>
- Uluçınar, U. (2021). Findings of qualitative studies on Understanding by Design: A meta-synthesis. *International Journal of Curriculum and Instructional Studies*, 11(2), 167-194. <https://doi.org/10.31704/ijocis.2021.009>
- Uyguç, H. O. (2022). *Tasarım yoluyla anlama modelinin 6. sınıf fen bilimleri dersindeki akademik başarı ve kalıcılığa etkisi* [Yüksek Lisans tezi, Gaziantep: Gaziantep Üniversitesi Eğitim Bilimleri Enstitüsü]. tez.yok.gov.tr
- Wiggins, G. & McTighe, J. (2005). *Understanding by design* (2nd edition). Alexandria, Virginia USA: Association for Supervision and Curriculum Development.
- Yurtseven, N. (2016). *Yabancı dil öğretiminde eylem araştırmasına dayalı UbD (Anlamaya dayalı tasarım) uygulamalarının öğretmenler ve öğrenciler üzerindeki yansımalarının incelenmesi* [Doktora tezi, İstanbul: Yıldız Teknik Üniversitesi Sosyal Bilimler Enstitüsü.]. tez.yok.gov.tr

## Finding Clues and Implications for Success on the PISA: An Overview of Chinese, Singaporean, Estonian, Canadian, and Finnish Early Childhood Education and Care

### PISA'da Başarı İçin İpuçları ve Çıkarımlar Bulmak: Çin, Singapur, Estonya, Kanada ve Finlandiya Erken Çocukluk Eğitimi ve Bakımına Genel Bir Bakış

Sümeıra Eryiđit<sup>1</sup>  Funda Eda Tonga Çabuk<sup>2</sup>  Feyza Tantekin Erden<sup>3</sup>  Fatma Yalçın<sup>4</sup> 

<sup>1</sup> Research Assistant, Middle East Technical University, Faculty of Education, Department of Elementary and Early Childhood Education, Ankara, Türkiye

<sup>2</sup> Research Assistant Dr., Zonguldak Bülent Ecevit University, Faculty of Education, Department of Elementary Education, Zonguldak, Türkiye

<sup>3</sup> Prof. Dr., Middle East Technical University, Faculty of Education, Department of Elementary and Early Childhood Education, Ankara, Türkiye

<sup>4</sup> Assist. Prof. Dr., TED University, Faculty of Education, Department of Elementary Education, Ankara, Türkiye

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##### \*Sorumlu Yazar

Sümeıra Eryiđit

Middle East Technical University,  
Faculty of Education, Department  
of Elementary and Early  
Childhood Education, Ankara,  
Türkiye

[seyigit@metu.edu.tr](mailto:seyigit@metu.edu.tr)

**Abstract:** The significance of early childhood education and care (ECEC) with respect to the development and future success of children as well as the wellbeing of society has long been established. Hence, the intent of the study was to investigate ECEC in China, Singapore, Estonia, Canada, and Finland, where successful results on the Programme for International Student Assessment (PISA) have been a common occurrence. Using Bereday's model of comparative research, data were gathered from various sources and investigated. Thus, the demographic information, general outlook of educational systems, organization of ECEC, teacher qualifications, and funding and fees were illustrated to understand the future implications of ECEC. To provide better ECEC opportunities and ensure future success for learners, the significance of higher enrolment rates, a wider range of ECEC services, a higher GDP allocated to ECEC, better teacher qualifications, financial opportunities for families, a lower teacher-child ratio, and group size were highlighted.

**Keywords:** Early childhood education and care, PISA, educational systems, international assessment

**Öz:** Erken çocukluk eğitimi ve bakımının (EÇEB), çocukların gelişimi ve gelecekteki başarısı ile toplumun refahı açısından önemi uzun süredir ortaya konmaktadır. Bu bağlamda bu çalışmanın amacı, Uluslararası Öğrenci Değerlendirme Programı'nda (PISA) başarılı sonuçlar elde eden Çin, Singapur, Estonya, Kanada ve Finlandiya'daki erken çocukluk eğitimi ve bakımını incelemektir. Bereday'in karşılaştırmalı araştırma modeli kullanılarak çeşitli kaynaklardan veriler toplanmış ve toplanan bu kaynaklar araştırmacılar tarafından incelenmiştir. Böylece, EÇEB'in gelecekteki etkilerini anlamak için demografik bilgiler, eğitim sistemlerinin genel görünümü, EÇEB'in organizasyonu, öğretmen nitelikleri, finansman ve ücretler gösterilmiştir. Daha iyi erken çocukluk eğitimi ve bakımı fırsatları sunmak ve öğrencilerin gelecekte başarılı olmalarını sağlamak için daha yüksek kayıt oranları, daha geniş erken çocukluk eğitimi ve bakımı hizmetleri yelpazesi, erken çocukluk eğitimi ve bakımına ayrılan daha yüksek devlet harcamaları, daha iyi öğretmen nitelikleri, aileler için finansal fırsatlar, daha düşük öğretmen-çocuk oranı ve grup büyüklüğünün önemi vurgulanmıştır.

**Anahtar Kelimeler:** Erken çocukluk eğitimi ve bakımı, PISA, eğitim sistemleri, uluslararası değerlendirme

Eryiđit, S., Tonga Çabuk, F. E., Tantekin Erden, F. & Yalçın, F. (2024). Finding clues and implications for success on the PISA: An Overview of Chinese, Singaporean, Estonian, Canadian, and Finnish early childhood education and care. *Erzincan University Journal of Education Faculty*, 26(2), 339-351. <https://doi.org/10.17556/erziefd.1376854>

## Introduction

The theoretical underpinnings of education have a pivotal role in the lives of individuals. Within a given culture, a substantial degree of education yields numerous beneficial effects on social and economic challenges, including but not limited to poverty, infant mortality, child marriage, child labor, and primary school dropout rates (Cahill, 2019). Hence, the three paramount subjects for nations revolve around the assessment, surveillance, and enhancement of educational achievement. In order to ascertain the global standing of a country or group of countries, various international assessments are employed to evaluate academic achievement and establish rankings over time. These assessments include the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading Literacy Study (PIRLS), and the Programme for International Student Assessment (PISA) (Kılıç Depren & Depren, 2022).

PISA, administered by the Organisation for Economic Co-operation and Development (OECD) since 2000, is a globally recognized assessment that has widespread participation. PISA evaluates students' proficiency in mathematics, science, and reading, making it the most widely attended international

monitoring study in this domain (OECD, 2019). In conjunction with cognitive assessments, surveys are administered at several levels within the educational ecosystem, encompassing students, teachers, and schools. These surveys serve to gather comprehensive data regarding the education systems of the countries involved in the study. PISA examines both the literary proficiency of pupils and the educational performance of nations. Detailed studies are conducted in each application, focusing on students' success in the chosen core area as well as numerous educational and economic variables (Suna et al., 2020).

Attendance at an early childhood (EC) institution is one of the educational variables mentioned. The PISA extensively gathers data pertaining to the presence and duration of pre-school education among the students partaking in the examination. The significance of early childhood education (ECE) in ensuring the future success of children has been prominently underscored in many OECD studies, such as the "Starting Strong" series (OECD, 2001, 2006, 2012, 2015b, 2017b). Additionally, there are several studies which present the correlation between attending an EC institution and PISA performance. To illustrate, according to a study conducted by Pholpirul (2017), ECEC leads to the positive development of

cognitive skills with respect to their long-term effects. Importantly, the cognitive skills of reading, mathematics, and science are tested through the Programme for International Student Assessment (PISA) (Pholphirul, 2017; Xu & Dronkers, 2016). Furthermore, if a student has attended ECEC, they are likely to have higher scores in reading by an increase of 5.2%, science by 5.4% higher, and mathematics by an increase of 6.7%. Thus, these results show that ECEC can significantly impact higher academic performance and cognitive skills; particularly in mathematics (Pholphirul, 2017). On the other hand, Aráuz (2017) investigated factors associated with the poor performance of eight Latin American countries on the PISA 2012 and found that children's attendance at ECEC is one of the key factors in their prospective academic performance. Likewise, Manu et al. (2021) longitudinally followed 1010 Finnish kindergarteners to understand the relationship between reading comprehension skills in the PISA and kindergarteners' pre-reading skills. They find that kindergartener pre-reading skills are prominent predictors of reading comprehension in the ninth grade. In light of these studies, it was clear that PISA scores are highly associated with attending ECEC. Thus, ECEC attendance can be predictive of students' future academic achievement (Herrerias, 2017). Yet, according to results from the 2015 PISA, to enhance academic achievement scores, at least two years of ECEC are needed (OECD, 2016b). Similarly, Aydın et al. (2018) posited that children in countries with higher achievement on the PISA 2015 attend ECEC programs for three to four years. For this reason, it is suggested by researchers that a long term and qualified ECEC is a primary key to success on the PISA.

As is shown in the research-based evidence, ECEC is a critical part of a society in achieving improvements in economic growth and social well-being, and as a result, policymakers should continue to focus on improving ECEC in terms of its quality and quantity (Author et al., 2022). Additionally, as is indicated in the studies referred to in the current research, there is a positive correlation between children attending a qualified ECEC at the appropriate stage of development and their future academic success. At this juncture, the question that arises is, "What type of early childhood education promotes the future success and well-being of students?" At this point, it is deemed essential to analyse the early childhood education of countries with high PISA scores and to identify the common or distinctive early childhood education practices employed by these nations. Policymakers in Türkiye and other developing nations with comparable socioeconomic structures may find these practices instructive. At that point, it might be essential to examine Türkiye's performance in reading, math, and science in the 2018 PISA assessment to conduct a significant comparison with other countries. The mean scores in reading, mathematics, and science for 79 countries on the PISA 2018 assessment varied as follows: 340-555, 325-591, and 336-590, respectively. Türkiye ranked 40th in reading, 42nd in math, and 39th in science out of 79 participating nations, with average scores of 466, 459, and 468, respectively. With the exception of math, Türkiye's reading and science scores are below the OECD averages. China, Singapore, Estonia, Canada, and Finland had the highest reading scores: 555, 549, 523, 520, and 520, respectively. Similarly, the mean math scores for China, Singapore, Estonia, Canada, and Finland

were 591, 569, 531, 523, and 512, respectively. Lastly, China scored 590, Singapore scored 551, Estonia scored 530, Finland scored 522, and Canada scored 518 (MONE, 2019; OECD, 2019d; 2019e). According to the statistics, Türkiye and other nations that have achieved comparable results should reassess and restructure their existing policies and practices pertaining to education, particularly ECE, which is regarded as a critical determinant in forecasting students' future academic achievements. For this reason, the purpose of this study was to investigate ECEC systems in the most successful countries according to the PISA 2018 results, which include China, Singapore, Estonia, Canada, and Finland. This study does not suggest that ECEC is solely responsible for success in PISA. The aforementioned countries were selected for the study to provide insight into their ECEC system and policies in order to find clues and implications for success. Depending on the rationale that qualified ECEC results lead to increased academic success in future life, the aim of this study was to describe, analyse, and compare ECEC in the targeted high-achieving countries in terms of its structural quality components, which include organizational information such as adult-child ratio, group size, government and policy level regulations, teacher qualifications, and finance and funding (Ishimine et al., 2010). Another motivation in this study was that by referring to developmentally appropriate practices in high-achieving countries, the aim was to present implications in relation to ECEC for developing and lower-achieving countries.

## Method

### Research Model

In the current study, the researchers utilized a juxtaposed research methodology advocated by Bereday (1964) according to a comparative research model. The comparative model of analysis provides a valuable guideline for researchers due to its systematization. According to Bereday's model, comparative analysis comprises four steps, including description, interpretation, juxtaposition, and comparison. Thus, with the help of juxtaposition, researchers have the chance to investigate various educational systems as well as contrast and allocate their principles and approaches in a parallel way (Bereday, 1964). In the current study, predictions were made using this model by examining descriptive research data from five countries and making comparisons within the sub-components.

### Data Collection Procedure

The researchers in this comparative study utilized the document review method, which is a qualitative research approach. In the field of comparative education, the literature is defined as either a primary, secondary, or auxiliary source (Bereday, 1964). In this study, sources from the official reports of governments and ministries, books, leaflets, and other such materials were analysed for research review purposes. The researchers also selected sources such as scientific articles, official websites, and reports. For data collection, first, databases and websites were searched using keywords. In Table 1, information regarding the keyword searches along with the databases, academic articles, and websites is provided.

**Table 1.** Keywords and databases

Keywords	Educational systems Organization of the ECEC Teacher Qualifications Funding and Fees
Database	Academic Websites
	SCOPUS, Springer, Ebsco, OECDiLibrary, World Bank Data Catalog, Web of Science, DOAJ European Commission, Ministry of Education, United Nations Development Programme (UNDP), United Nations (UN), National Center on Education and the Economy (NCEE), National Agency for Education (EDUFI), Government websites, Ministry of Social and Family Development, Government Official Statistics, Child Care Resource and Research Unit, Early Childhood Workforce Initiative, ResearchGate, Systems of Early Education and Professionalization (SEEPRO)

The researchers identified a total of 7461 academic articles and reports by using the keywords in the specific databases mentioned in Table 1. Furthermore, a total of 35 websites were selected following the keyword search and a quick pre-review regarding their relation to the current subject of study. These materials are marked with a \*\* in the end-text reference. Additionally, the researchers utilized specific criteria to narrow down the article and report search such as being a full-text article, being from the social sciences or educational sciences, as well as being an open-access and peer-reviewed article. After applying these criteria, the researchers reviewed articles and reports in the databases according to their titles and removed any duplicates. Next, the remaining articles and reports were reviewed by scanning their abstracts. The process of quickly scanning the article and report abstracts was to eliminate any that were irrelevant. Finally, a total of 17 journal articles and reports were chosen from databases which met the established criteria. As shown in Table 2, these studies investigate professional development, the general educational system, human development indicators, the world population, quality, policies, cultural foundations, and the development of ECEC. Out of 17 documents, ten studies examine China, five

studies examine Finland, and four studies examine other countries as shown in Table 2.

## Findings

### Demographic Information for the Countries

China, Singapore, Estonia, Canada, and Finland all possess a variety of discrete similarities and dissimilarities. The general demographic information regarding the countries being investigated is presented in Table 3. As can be seen in Table 3, while China is a heavily-populated country, the other countries have a low population (United Nations [UN], 2019). Only China and Finland are considered to have homogeneous populations with regards to ethnicity. According to the United Nations Development Programme (UNDP, 2020), except for China, all four countries in this study are considered to be very highly developed nations. Moreover, the amount of financial allocation to education (The World Bank, 2021a) as well as being considered highly or very highly-developed (UNDP, 2020) are the most remarkable and frequently occurring points among all countries in this study.

**Table 2.** Articles and reports from selected databases\*

Article	Subject	Investigated countries
1 Author et al., 2022	Professional development of teachers	Finland, Estonia, Singapore, China
2 Hu & Szente, 2009	Quality of ECEC	China
3 Li & Wang, 2017	Development of ECEC	China
4 Liu & Pan, 2013	Policy on ECEC	China
5 Manning et al., 2019	Teacher qualification in ECEC (meta-analysis)	No specific country
6 OECD, 2015a	Educational context, policies, and reforms	Canada
7 OECD, 2016a	Overview of the school system and reforms	China
8 OECD, 2019a	Educational structure, performance and finances	Canada
9 OECD, 2019b	Educational structure, performance and finances	Finland
10 OECD, 2021b	Educational inequalities and outcomes	China
11 Qi & Melhuish, 2017	Development of ECEC	China
12 Salminen, 2017	ECEC system	Finland
13 Santiago et al., 2016	School resources (funding, organization and teaching profession)	Estonia
14 UNDP, 2020	Human development indicators	Finland, Estonia, Singapore, China and Canada
15 UN, 2019	World population	Finland, Estonia, Singapore, China and Canada
16 Zhang, 2016	ECEC system	Singapore
17 Zhu, 2009	Cultural foundations and policies of the ECEC	China

\*Articles and reports are marked with a \* in the end-text reference.

**Table 3.** General demographic information of the countries

Countries	Location	Population (UN, 2019)	Ethnicity	Human Development Index (UNDP, 2020)	Government Expenditure on Education (% of GDP) (The World Bank, 2021a)
China	Eastern Asia	1.439 billion	Homogeneous	highly developed	3.5 (2019)
Singapore	South-eastern Asia	5.850 million	Heterogeneous	very highly developed	2.9 (2013)
Estonia	Northern Europe	1.327 million	Heterogeneous	very highly developed	5 (2017)
Canada	Northern America	37.742 million	Heterogeneous	very highly developed	5.3 (2011)
Finland	Northern Europe	5.541 million	Homogeneous	very highly developed	6.4 (2017)

**Table 4.** Educational systems of countries

Countries	Compulsory ECEC	Years of Compulsory Education
China	No	9 years
Singapore	No	6 years
Estonia	No	9 years
Canada	Changes by province	10 years (Changes by province)
Finland	No*	10 years

\*reflects the specific situation in Finland.

### General Outlook of the Education Systems of the Countries

The information in Table 4 represents a summary of information related to the educational systems of the countries studied. As can be seen in Table 4, ECEC is not compulsory in most of these countries. However, the governments of China, Singapore, and Estonia have utilized various strategies to enhance ECEC, such as advocating for individuals to consider private kindergartens, expanding funding for ECEC (OECD, 2016a), developing resources for curriculum, enhancing teacher training qualifications and standards (Ministry of Education [MOE], 2021a; Tan et al., 2016), as well as providing various chances for pre-primary education such as day nurseries, nursery schools or special nursery schools (Santiago et al., 2016; Teichmann et al., 2014). As Canada has a decentralized educational system, some differences can be seen between each province. Furthermore, while in some Canadian provinces, ECEC is compulsory, in others it is not (OECD, 2015a). Also, different from the other countries researched, in Finland, compulsory education comprises one year of pre-primary education as well as nine years of basic education (Finnish National Agency for Education [EDUFI], 2018).

### Organization of the ECEC

The organization of ECEC and related information for Canada, China, Singapore, Estonia, and Finland are presented in Table 5. As is indicated in Table 5, each country provides various institutions for delivering ECEC. To illustrate, kindergarten and childcare centres/programs are some commonly used names for these institutions, whereas nursery school, pre-school, pre-primary school, and daycare centres are rarely used as names for these institutions. In the following section, detailed information related to these institutions within Canada and Finland is provided.

According to the Childcare Resources and Research Unit (2021), in Canada, ECEC services have a variety of differences. For example, kindergarten services are provided for all five-year-old children in every Canadian province and territory. On the other hand, kindergarten services for three- and four-year-old children are available in Ontario and Saskatchewan (Friendly et al., 2018a). While in the provinces of Nova Scotia and Quebec, they also provide kindergarten programs for four-year-olds (Friendly et al., 2018b). Along with kindergartens, childcare programs are provided in various ways, such as childcare centres, nurseries, and regulated family (home) care.

As in Canada, ECEC services in China are provided through various institutions. For example, kindergartens are provided for young children between the ages of three and six (Hu & Szente, 2009), whereas preschool is provided for children between the ages of five and six. Additionally, nurseries are provided for children from birth up to the age of three (Zhu, 2009). Qi and Melhuish (2017) state that apart from the previously mentioned services of nursery, preschool, and kindergarten, there is also a relatively new childcare service to provide early learning and development for children from birth up to three years of age.

As for Singapore, two types of ECEC services are available for young children. The first is childcare centres which are for children ranging from two months to six-years-old, and type two is kindergartens that serve children ranging from two years old to six years old (Neuman, 2019). In the second type of service, children are grouped by age and trained together. For this reason, each age group is categorized by a group name, such as pre-nursery classes, nursery one and two, and kindergarten one and two. To illustrate, children younger than three-years-old attend pre-nursery classes as part of their preschool education, while three-year-olds attend nursery one, four-year-olds attend nursery two, five-year-olds attend kindergarten one and six-year-olds attend kindergarten two (Zhang, 2016).

In Estonia, the government provides three types of ECEC services for children from birth to the age of three years old, kindergarten/pre-primary school for children up to seven years old, and preschool/pre-primary school for children with special needs up to seven years old (Ministry of Education and Research [MoER], 2015). The MoER (2015) states that kindergarten groups can be based on the age of children, such as younger (three to five years old), medium (five to six years old), and older (six to seven years old). While mixed age groups are also an alternative option for preschools, forming groups with both special needs children and those showing healthy development is also a common practice in many preschools.

Salminen (2017) reports that ECEC in Finland is provided through two types of services, including daycare centres and home-based care. Home-based care is preferred for younger children as the first step to ECEC and to act as a transition to daycare centres. In daycare centres, groups are initially formed according to the children's ages; however, more flexible and mixed-age groups may be preferred depending on the needs of the daycare centre. In addition to daycare centres, pre-primary education can be provided in a primary school in separate or



mixed classes with first- or second-grade peers (Official Statistics Finland, 2019). Also, daycare and home-based services, clubs, ECEC activities orchestrated by municipalities, as well as church and non-governmental institutions, provide various part-time services for promoting child development (European Commission/EACEA/Eurydice, 2022b). Importantly, apart from China, all the countries investigated have both full-day and half-day services (European Commission/EACEA/Eurydice, 2022b; Friendly et al., 2018a; MoER, 2015; Qi & Melhuish, 2017; Salminen, 2017).

As for compulsory education, in China, Singapore, and Estonia, pre-primary education is not compulsory, whereas in Finland, it has been compulsory since 2015 (European Commission/EACEA/Eurydice, 2022a; MOE, 2021b; National Center on Education and the Economy [NCEE], 2021; Salminen, 2017). However, compulsory education legislation in Canada differs based on the individual territories and provinces (Friendly et al., 2018a). In contrast to the uncommon practice of compulsory education occurring among the target countries, many parents prefer to enroll children in ECEC services, and as a result, high enrolment rates in ECEC can draw attention.

ECEC services are mostly provided by the government in countries such as Canada, Estonia, and Finland, in contrast to Singapore and China (MoER, 2022; Ministry of Social and Family Development [MSF], 2021; OECD, 2019a, 2019b, 2021b; Singapore Department of Statistics [DOS], 2022). Furthermore, private institutions tend to be more common in China and Singapore, as can be seen in Table 5. In Estonia and Finland, the government and municipalities are responsible for providing ECEC to young children (European Commission/EACEA/Eurydice, 2022a, 2022b). Also, in Estonia, private and public ECEC services are available for parents' to freely choose, and municipalities within the country are responsible for providing those services (MoER, 2022). Thus, either private or publicly funded institutions within the target countries provide the two options for children to attend ECEC.

Importantly, the enrolment rates are nearly universal in Estonia and Singapore, with 91.3% and 92%, respectively (OECD, 2019c; National Institute of Education, 2023). On the other hand, Finland with 88.2% and China with 85.2 % have lower enrolment rates (Ministry of Education, People's Republic of China [MoE P.R.C.] & Xinhua, 2021; OECD, 2019c). Moreover, the lowest enrolment rate in ECEC institutions is in Canada with 60% (Statistics Canada, 2019). The reason for the low enrolment rate in Finland is that parents often prefer to enroll their older children in ECEC services rather than the younger children (Salminen, 2017). Furthermore, Finland also offers a rich variety of other forms of ECEC, and as a result, childcare benefits such as childcare leave and child home care allowance are available (European Commission/EACEA/Eurydice, 2022c). The reasons for the low ECEC enrollment rate in Canada are similar. For example, other available options, such as care by relatives or non-relatives and before-and-after school programs, might be the cause of low enrolment (Statistics Canada, 2019). On the other hand, locating information regarding China is difficult to find and the enrolment rate for three-year-old children and pre-primary school students according to the Chinese Ministry of Education, does not include any age-specific descriptions. Most recent information regarding enrolment in ECEC services provided by the Chinese Ministry of Education is

listed under the heading of media highlights, and no further explanation of low enrolment is mentioned (MoE P.R.C. & Xinhua, 2021).

The teacher-child ratio was determined beforehand for all five target countries, however, in Canada, depending on the specific province or territory, the ratio requirements change (Friendly et al., 2018a). For example, in classes for young children older than three-years-old, the teacher-child ratio in Finland is 1:7, while in Estonia it is 1:10 (European Commission/EACEA/Eurydice, 2022d; Salminen, 2017). Singapore has a 1:15 teacher-child ratio in classes for three- to four-year-old children, and 1:25 for four- to seven-year-old children (Zhang, 2016). Also, it is reported that in rural China, class size is rather larger than requirements, and it is officially stated that the approximate number is 1:16 (MoE P.R.C., 2020; Qi & Melhuish, 2017). According to Qi and Melhuish (2017), the reason for larger class sizes is the lack of kindergarten opportunities and teaching staff. Furthermore, in most cases, preschools in urban areas are often more crowded due to the higher population density. Also, ECEC services provided in China and Finland cover children from birth to six years old, however, as shown in Table 5, each country's coverage of ECEC by age differs. In addition to the teacher-child ratio, group size requirements are specified by the government and Ministry of Education in China, Finland, and Estonia (European Commission/EACEA/Eurydice, 2022c; Qi & Melhuish, 2017; Santiago et al., 2016). For example, in Estonia, group size in crèche is up to 14, in pre-primary up to 20, and in mixed groups up to 18 children (Santiago et al., 2016). However, group size information regarding Singapore was not available. While the requirements in Canada are again dependent on region (Friendly et al., 2018a), as can be seen in Table 5, with respect to group size, it can be said that group size and the related regulations are different for each country. Finally, as an investment for younger generations, the amount of GDP that is slated for ECEC in both Finland and Estonia, is above the OECD average of 0.7%. According to the OECD, this statistical data provides total public expenditure for ECEC as a percentage of GDP (OECD, 2019c). While Canada fails to reach the OECD average, on the bright side, a new national budget released in April 2021 was promising in terms of improving early child care and education (Child Care Resource and Research Unit, 2021; OECD, 2019c). China and Singapore did not provide a percentage of GDP spent towards ECEC, but it is indicated that a higher allocation has been made to ECEC compared to previous years (MoE P.R.C., 2021; MSF, 2019). Since both Singapore and China provided information related to monetary funds allocated to education, ECEC and GDP percentage accounted for general education systems. Several calculations revealed that the GDP percentage of ECEC accounted for 0.30 and 0.33, respectively (DOS, 2023; MOE P.R.C., 2023a, 2023b; MSF, 2022).

### Teacher Qualifications

Teacher qualifications are a significant element of ECEC (Manning et al., 2019). Among the five countries investigated, both Canada and China have teacher qualification requirements which are less optimal than the other countries studied. In both Canada and China, teacher certification is required, but no degree in an early childhood education specialization is required (Friendly et al., 2018a; Friendly et al., 2021; Qi & Melhuish, 2017). For example, in Canada, only Edwards Island, Ontario, and Quebec require specialization in early childhood education for kindergarten teachers. Whereas

in Singapore and Estonia, teachers are required to possess a bachelor's degree in education, and in Finnish daycare centres, one out of every three teachers must have a bachelor's degree in education or social sciences (Neuman, 2019; Salminen, 2017; Veisson, 2017).

When talking about teacher qualifications, it is not enough to focus only on graduation requirements. Another issue that determines teacher qualification and must be emphasized is in-service teacher education (Author, 2022). In five of these countries, it is emphasized that teachers should develop themselves as they continue in the profession after graduation. Three methods are generally used for this development: a mentoring system, in-service training, and higher education. The mentoring system used in China and Finland involves pairing novice teachers with a more experienced teacher and receiving help with teaching methods, materials, lesson plans, assessment, etc. In the mentoring system, the experienced teacher visits the novice teacher's classroom from time to time, observes the lesson, and provides feedback after the lesson.

In this way, the professional development of the novice teacher is supported by providing one-to-one support. In addition to the mentoring system, in-service training is used in the aforementioned five countries to improve teachers' qualifications. Teachers are encouraged to attend seminars and courses organized by municipalities or universities on various topics. Finally, countries like Singapore and Finland use higher education to improve teachers' qualifications. Teachers are motivated to pursue graduate education, and their salaries are not docked when they take time off for higher education. In this way, all teachers, whether experienced or inexperienced, are encouraged to update their knowledge and improve themselves (Author, 2022).

### **Funding and Fees**

Funding for ECEC services and childcare benefits for families is an integral part of all countries childcare policies. Thus, as displayed in Table 6, the ECEC regulations and policies of Canada, China, Singapore, Estonia, and Finland show both similarities and differences.

In Canada, kindergarten programs for all five-year-old children are free (Friendly et al., 2018a). Similarly, in Finland, compulsory education is free, therefore, pre-primary education is free (European Commission/EACEA/Eurydice, 2022b). Funding for compulsory education in Finland is provided by both local authorities and the national government (EDUFI, 2020). Furthermore, 75 percent of ECEC funding in Finland is provided by local authorities, while the local authorities also receive ECEC designated funding from the national government (EDUFI, 2018). As a result, funding provided by the national government is determined according to the number of children who attend compulsory education within a specified area, and factors such as population density, parent(s) educational background, and the density of foreign languages spoken, all play a role in the amount of ECEC funding allocated (EDUFI, 2020). However, both in Canada and Finland, funding for ECEC programs for children younger than five years old is primarily the responsibility of parents (EDUFI, 2020; Friendly et al., 2018a). For example, in Finland, parents whose children attend programs other than pre-primary school, pay fees ranging from 0 to 289 euros for a full-day program (European Commission/EACEA/Eurydice, 2022b). These fees can differ based on the financial status of families (EDUFI, 2018). In regard to China, information about the fees for ECEC was very limited. According to the MoE

P.R.C. (2019, 2020), the government controls the tuition fees for ECEC programs, which range from approximately 600 to 800 yuan per year.

Estonia and Singapore have different policies regarding ECEC fees in relation to both Finland and Canada. For example, children from disadvantaged backgrounds are supported by the government in both Singapore and Estonia (MoER, 2022; Neuman, 2019). While in Singapore, the government provides funding to non-profit organizations, and in turn these organizations provide aid for ECEC fees to approximately 45,000 eligible families (Neuman, 2019). In Estonia, municipalities financially support private and public ECEC services at an amount decided upon by the municipality (MoER, 2015). Thus, fees may vary according to a child's age, the financial background of the family, the centre's expenditures, and other considerations, but generally range from 0 to 58 euros with an average of 26.10 euros (MoER, 2022).

In a totally different example, China's funding to promote public ECEC services declined in comparison to previous years, and instead, private ECEC programs were encouraged (Li & Wang, 2017). Importantly, the private ECEC institutions are not supported through national funding (Hu & Szente, 2009), therefore, in these cases, the families are the primary source of funding for these ECEC institutions (Liu & Pan, 2013).

### **Discussion**

In the current study, it was found that successful results on the PISA may be an indicator of effective and qualified ECEC programs; therefore, information regarding ECEC in China, Singapore, Estonia, Canada, and Finland was provided. There are a variety of reasons behind the success of these countries regarding their PISA results and investment in ECEC.

In the literature, it was revealed that higher percentages of GDP were spent on education within the target/high achieving countries (The State Council of the People's Republic of China, 2019; Statistics Canada, 2017; The World Bank, 2021a). Shafiq (2010) also argues that the economy is closely associated with education in both positive and negative ways. It is argued that economic difficulties are associated with a lower ratio of adults in the labor force as well as less qualified schooling and, in turn, lower enrollment rates. Whereas the countries previously mentioned, exhibited an opposite pattern. This means that the countries mentioned are highly or very highly developed and therefore likely have more resources to put towards qualified education (UNDP, 2020). Another striking issue might be that the higher GDP per capita allocated towards education within these select countries results from a lower fertility rate. The World Bank (2020) also provides fertility rate data which supports this argument, for example, the global fertility rate is 2.41%, while the fertility rate in China is 1.69%, 1.14% in Singapore, 1.67% in Estonia, 1.49% in Canada, and 1.41% in Finland. As was previously suggested, fertility rates in the targeted countries are lower than the global rate, which in turn might lead to an allocation of more resources per child. Moreover, governmental childcare support may be related to strategies for overcoming low fertility rates. For example, Kim et al. (2017) emphasize that although the outcome is yet to be explored, governments might prefer childcare support as a way of managing low fertility rates within their country.

**Table 5.** Organization of ECEC and related information

	<b>Canada</b>	<b>China</b>	<b>Singapore</b>	<b>Estonia</b>	<b>Finland</b>
Services	Kindergarten, Childcare programs (Center, nursery school, regulated family (home) care)	Kindergarten, preschool, nursery, early learning & development centers	Kindergarten, childcare centers	Crèche, Pre-primary/kindergarten, primary school for children with special needs	Daycare center, home-based care
Length	Full day (May change)	Full day	Half day (may change)	Full day (may change)	Half day (may change)
Compulsory schooling	Not compulsory (Depending on provinces)	Not compulsory	Not compulsory	Not compulsory	Not compulsory*
Distribution of public & private	7% private, 93% public	57% private, 43% public	1.6% public**	97.1% public, 2.9% private	86% public, 14% private
Enrolment rate	60	85.2	92	91.3	88.2
Ratio	Ranges by province or territory Ontario 0-3 years = 1:3 to 1:8 above 3 years = 1:8 to 1:13	15.9	0-3 years = 1:8 to 1:12, above 3 years = 1:15 to 1:25	0-3 years = 1:7, above 3 years = 1:10	0-3 years = 1:4, above 3 = 1:7
Coverage of age	0-5 years	0-6 years	2 months-6 years	1.5-7 years	0-6 years
Group size	Ranges by province or territory Ontario <18 months = 10 18-30 months = 15 30 months-6 years (preschool) = 24 44-68 months (kindergarten) = 26	20-35 child (with 2 teachers and 1 care worker)	Not specified	Crèche - up to 14 children, Pre-primary - up to 20 children, Mixed groups - up to 18 children	Up to 20 children with extra trained person
GDP on ECE	0.28%	0.33% **	0.30% **	0.86%	1.13%

\*In Finland, compulsory schooling includes one-year of pre-primary education for six-year-olds

\*\*No data could be found, so the necessary calculations were completed through data from references.

**Table 6.** Funding and fees of ECEC by country

	<b>Canada</b>	<b>China</b>	<b>Singapore</b>	<b>Estonia</b>	<b>Finland</b>
Fee	Free (pre-primary) Paid education (for children younger than five years old)	Not specified Government controlled tuition fee-app. 600-800 yuan per year	\$400-2000	No more than 20% of minimum wage – approximately 0-58 €	Free (pre-primary 0-289 € (for children younger than five- years-old)
Funding	Parents (for children younger than five years old)	Parents	State-funded (children from disadvantaged backgrounds)	State-funded (children from disadvantaged backgrounds)	Local authorities & federal government (pre-primary) Parents (for children younger than five years old)

Another issue is that quality indicators such as teacher-child ratio, educational level of teachers, and group size are essential to ECEC when it comes to the comparison of educational systems (OECD, 2006). The reason for this occurring has been demonstrated in earlier research: better and longer-lasting outcomes are associated with attending high quality ECEC programs (Early et al., 2007). Therefore, higher outcomes on the PISA might be related to not only the presence of ECEC in high achieving countries but also due to having qualified ECEC within these countries. Importantly, Pianta et al. (2009), emphasize that the teacher-child ratio is closely related to high quality learning opportunities. Similarly, lower child-adult ratios across various types of ECEC institutions are supportive of the child-adult learning relationship due to the low ratios allowing the adult educators and caregivers to focus more attention on the needs of each child as well as decrease the amount of time spent in classroom management (OECD, 2021a). The OECD average child-adult ratio across countries is 10 children for every teacher working in ECEC institutions, yet this ratio ranges from 31 in the United Kingdom to three in Denmark, Iceland, and New Zealand (2021a). As for the target countries in this study, it was suggested in the findings that the teacher-child ratio was around or slightly higher than the OECD average and, as a result, could be a primary reason explaining the quality of ECEC services as well as the indirect reason for their success in PISA.

As was mentioned previously, another significant finding was that China, Singapore, Estonia, Canada, and Finland resemble one another in terms of either having high enrolment rates in ECEC or by providing rich opportunities for childcare. This finding can be justified for several reasons. For example, first, this could be related to a cultural understanding of the role of women within the workplace (OECD, 2021a). According to this point of view, target countries tend to pay more attention to women in the labor force (The World Bank, 2021b), and as a result, they provide a greater variety of ECEC services (i.e., home-based care, kindergarten, crèche, clubs, etc.) which serve children from birth to the age of six years old. In this way, children can benefit from ECEC over the long term. As indicated in OECD (2016b), at least two years of ECEC is necessary to enhance PISA academic achievement scores. This argument is backed up by Aydın, Selvitopu and Kaya (2018), who assert that children in high achieving countries for the PISA 2015 attend ECEC programs for approximately three to four years. Another argument to explain the high enrolment rates, can be the fees and

funds related to ECEC services. Again, as indicated in the study findings, when ECEC opportunities were provided by governments, it was shown that those countries generally provided state funded education or free government schools. In many cases, the governments predetermine the cost of education. For example, the OECD (2021a) suggests that public financial support is critically important for the development and quality of ECEC services due to the fact that funding allows for the training of ECEC staff as well as providing qualified materials and equipment. From this point of view, it can be argued that high-achieving countries enable ECEC programs to train their staff as well as obtain better materials for supporting children's development. Thus, qualified ECEC, which is seen as a key feature for future academic success, is provided for all children within these countries. Additionally, one prominent implication for the higher-achieving countries is that in countries such as Finland, the cost of ECEC is predetermined based on parental income. Thus, due to the range of predetermined costs, which is dependent on the parents' income level, the parents may or may not be required to pay for ECEC services. Importantly, this implies that the parents of disadvantaged and/or immigrant children may benefit from ECEC services. This is extremely essential for providing equity in education among all social groups as well as providing opportunities for children and parents from diverse backgrounds and reaching higher educational outcomes in general (Makarova, 2016). On the other hand, the OECD (2017b) claims that if ECEC services are not utilized due to a lack of financial support, especially among children from disadvantaged backgrounds, their participation in ECEC will be greatly affected by their parents' lower financial status. The claims that ECEC has a possible effect on decreasing inequalities within the field of education can be substantiated (Ehrlich et al., 2013). From this point of view, the fee and funding practices of the five targeted countries may be associated with the high enrolment rates in ECEC as well as indirectly with increased educational outcomes.

Another reason behind the success of ECEC and PISA results may be related to teacher qualifications. For example, although teacher qualifications in Canada and China are lower than others, the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2014) emphasizes that teachers should have at least a secondary education for teaching in ECEC. Thus, as is stated in the literature, China and Canada do require more expertise than is stated as the minimum

qualification by UNESCO. Yet, this case might be related to the high population ratio of these two countries. As indicated in the findings of the current study, Canada and China have 37.7 million and 1.4 billion people, respectively (UN, 2019). As a result, these countries may need to employ a greater number of ECEC staff, which may lead them to accept less qualified workers in the ECEC setting. On the other hand, this situation has implications for the global community, particularly for the countries that are low achievers in PISA. First, countries may be high achievers in PISA even if they have a high population. Second, countries should make policies considering their own local conditions. As for the practices of other high-achieving countries regarding teacher qualification, according to the findings of this study, there were slightly different practices; for example, at least a BA or certification in teaching is a must to be employed in ECEC. Thus, this could be related to their success in PISA and the relationship between professional development and PISA performance, which are evident in many other studies and reports (OECD, 2017a; Author et al., 2022).

Considering all the things highlighted, it is important to mention that China in many cases provided an exception regarding the PISA results, more specifically the results from Shanghai. This controversy relates particularly to the representativeness and credibility of data collected from China (Xu & Dronkers, 2016); therefore, it is prudent to evaluate the data from China with caution.

### Conclusion and Implications

In light of the findings in this study, suggestions for Türkiye and other developing and low achieving countries regarding PISA are presented in the following section. What is prevalent across these countries is that, although ECE is not compulsory, most of the countries have a high enrolment rate. Two major factors are believed to be closely related to this situation. The first is the widespread understanding of the significance of ECE. Therefore, policies should be formulated to increase awareness of ECE in developing societies, and the significance of this education should be emphasized on every platform. Consequently, it is anticipated that the demand for formal ECE will increase. At this point, there is a need to analyze the situation in Türkiye. Despite the fact that early childhood education is not mandatory in Türkiye, the most recent MoNE statistics (2022-2023) indicate that the net enrolment rate for children between the ages of three and five is 51.38%, while it is 84.95% for children aged five. While the enrolment rate for five-year-old preschoolers is satisfactory, efforts should be made to enhance and expand enrolment for younger children. Long-term early childhood education is significantly more beneficial for future academic achievement than the short one. As for other developing countries, the OECD (2020) asserted that approximately 20% of students who participated in the PISA 2018 test in OECD countries indicated that they had not been enrolled in pre-primary education. Over fifty percent of the pupils in fourteen economies and countries had not attended pre-primary education or attended pre-primary education for less than one year. Similarly, Türkiye, Bosnia and Herzegovina, Baku (Azerbaijan), Colombia, Kosovo, Saudi Arabia, and Serbia, all had pre-primary education deprivation rates ranging from 65 to 75 percent (OECD, 2020).

In addition to institutional preschool education, the availability of alternative ECEC services such as home care and play centres in these countries may reduce the burden of institutional preschool education and enable more children to receive ECEC. Consequently, countries with large populations, such as Türkiye, are able to provide ECE services that can serve as an alternative to institutional early childhood education by taking into account local requirements and economic resources. Thus, the number of children with access to ECE can be expanded, and existing economic resources can be effectively utilized. As a result, more children may benefit from ECEC over the long term as parents have more options for choosing the appropriate ECEC opportunity for their children as well as which best suits the parents' working schedule (i.e., half-day, full-day, club, home-based, daycare, etc.). In Türkiye, home-based early childhood education is not available. Early childhood education (ECE) is primarily provided through institutions under the responsibility of the Ministry of National Education (MONE) and the Ministry of Family, Labor, and Social Services. These two Ministries oversee a range of educational options, including nursery classes, practice classes, nursery schools or kindergartens, daycare centers, and infant schools (MONE, 2022; Avcı et al., 2023). Despite the variability observed in institution-based early education, an alternative approach is required, such as home-based ECE, to address the cultural practice of entrusting children under the age of three to childminders or grandparents who lack official childcare education. Home-based education, facilitated by certified childminders, could potentially serve as a viable substitute for these age groups and older children. This may potentially reduce the financial pressure that institution-based education places on the whole country. Furthermore, if institutions serve children from birth to the six years old it might encourage parents to prefer institutionally based ECE.

Lastly, it is necessary to eliminate inequalities due to social injustice as a way of improving the enrolment rate of ECEC. For example, in the high achieving countries in this study, fees for ECEC can be determined based on parental income, and as in the case of Singapore, the government provides funding to non-profit organizations, and in turn, these organizations provide ECEC aid to eligible families. In these cases, minorities, such as immigrants or children from disadvantaged backgrounds, should be greatly encouraged to attend ECEC. Given that Türkiye and many other societies are becoming more heterogeneous, it is believed that such policies are necessary to secure educational equality. In Türkiye, ECE is offered free of charge at state-operated early childhood education facilities, primarily supported by the Ministry of National Education. Parents are required to pay a minimal charge known as a supplemental payment ("*katkı payı*" in Turkish) to support children's requirements, self-care, and educational program expenditures. The Contribution Charge Determination Commission establishes the contribution charge annually in April. The additional fee is based on socio-economic factors and is waived for parents from disadvantaged backgrounds (MONE, 2014). Free ECE, however, covers six hours per day. Parents are required to pay an additional fee for extended ECE (European Commission / EACEA / Eurydice, 2023). According to the OECD (2020), in 68 out of 78 nations and economies with



comparable data, pupils who did not attend pre-primary education were more likely to be socio-economically disadvantaged and enrolled in schools with greater disadvantages by the age of 15.

Importantly, to achieve the regulations previously mentioned, as in countries who are high-achieving on the PISA, it is essential to raise the total amount of expenditures on education, and in particular on ECEC. Thus, these expenditures should be used to improve the quality of ECEC, such as the level of teacher-child ratio, class size, and teacher qualifications. As a result, by following these suggestions, not only the quantity but also the quality of ECEC may increase within countries which are low-achieving on the PISA. Yet, in comparison to the OECD average of USD 12,647, Türkiye annually allocates USD 5,352 per full-time equivalent pupil across all levels of education (adjusted for purchasing power and including expenditure on research and development). The expenditure per pupil amounts to 19% of the per capita GDP, a figure that falls short of the OECD average of 27% (OECD, 2023). Thus, the group must consist of a minimum of 10 children and a maximum of 20 children (MONE, 2014). On average, in OECD nations, there are 15 children per teacher in pre-primary education, with significant differences between countries (OECD, 2021a). ECE teachers with BAs from the education faculty work for MONE-affiliated institutions (MONE, 2014). Creche and daycare teachers are expected to be preschool education teachers, child development and education graduates, or graduates of vocational high schools for girls' child development and education departments (Ministry of Family, Labor, and Social Services, 2016). According to the regulations, while it is favorable for MONE-affiliated kindergartens to have qualified teachers, private institutions are more permissible in hiring teachers with lower qualifications.

### Author Contributions

All authors were equally involved in all processes of the manuscript. All authors have read and approved the final version of the manuscript.

### Ethical Declaration

The authors declare that the study was not subject to ethics committee approval and that the rules set by the Committee on Publication Ethics (COPE) were followed throughout the study.

### Conflicts of interest

The authors declare that there is no conflict of interest with any institution or person within the scope of the study.

### References

- Aráuz, A. F. (2017). LatinAmérica en PISA 2012: Factores asociados a la alfabetización matemática [Latin America in PISA 2012: Factors related with mathematical literacy]. *Revista de Ciencias Económicas*, 35(1), 1-37.
- \*Author (2022). Details withheld to preserve blind review.
- Avcı, F., Güzel-Akdeniz, M., Akdeniz, E. C., & Yıldız, M. (2023). Türkiye eğitim sistemi erken çocukluk eğitimi. In F. Avcı & Ö. Ateş. (Ed), *Dünyada eğitim sistemleri ve erken çocukluk eğitimi uygulamaları*, pp. 7-28. Eğitim Yayınevi.
- Aydın, A., Selvitopu, A., & Metin, K. (2018). Eğitime yapılan yatırımlar ve PISA 2015 sonuçları karşılaştırmalı bir

- inceleme [Resources invested in education and PISA 2015 results: A comparative study]. *İlköğretim Online*, 17(3).
- Bereday, G. F. (1964). *Comparative method in education*. Holt, Rinehart and Winston Inc.
- Cahill, A. (2019). The importance of secondary education. <https://borgenproject.org/the-importance-of-secondary-education/>.
- \*\*Child Care Resource and Research Unit. (2021). *Early learning and child care in the 2021 federal budget*. <https://childcarecanada.org/publications/briefing-notes/21/04/early-learning-and-child-care-2021-federal-budget>
- Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., Cai, K., Clifford, R. M., Ebanks, C., Griffin, J. A., Henry, G. T., Howes, C., Iriando-Perez, J., Jeon, H. J., Mashburn, A. J., Peisner-Feinberg, E., Pianta, R. C., Vandergrift, N., & Zill, N. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, 78(2), 558-580.
- Ehrlich, S. B., Gwynne, J. A., Pareja, A. S., Allensworth, E. M., Moore, P., Jagesic, S., & Sorice, E. (2014). *Preschool attendance in Chicago public schools: Relationships with learning outcomes and reasons for absences*. University of Chicago Consortium on Chicago School Research.
- \*\*European Commission/EACEA/Eurydice. (2022a). *Early childhood education and care*. <https://eurydice.eacea.ec.europa.eu/national-education-systems/estonia/early-childhood-education-and-care>
- \*\*European Commission/EACEA/Eurydice. (2022b). *Early childhood education and care*. <https://eurydice.eacea.ec.europa.eu/national-education-systems/finland/early-childhood-education-and-care>
- \*\*European Commission/EACEA/Eurydice. (2022c). *Organization of centre-based ECEC*. <https://eurydice.eacea.ec.europa.eu/national-education-systems/finland/organisation-centre-based-ecec>
- \*\*European Commission/EACEA/Eurydice. (2022d). *Organization of centre-based ECEC*. <https://eurydice.eacea.ec.europa.eu/national-education-systems/estonia/organisation-centre-based-ecec-0>
- European Commission/EACEA/Eurydice. (2023). *Structural indicators for monitoring education and training systems in Europe 2023: Early childhood education and care*, Publications Office of the European Union, <https://data.europa.eu/doi/10.2797/670097>.
- \*\*Finnish National Agency for Education (EDUFI). (2018). *Key figures on early childhood and basic education in Finland*. <https://www.oph.fi/en/statistics-and-publications/publications/key-figures-early-childhood-and-basic-education-finland>
- \*\*Finnish National Agency for Education (EDUFI). (2020). *Funding in pre-primary and basic education supports equity and equality*. <https://www.oph.fi/en/statistics-and-publications/publications/funding-pre-primary-and-basic-education-supports-equity>
- \*\*Friendly, M., Feltham, L., Mohamed, S. S., Nguyen, N. T., Vickerson, R., & Forer, B. (2021). *Early childhood*

- education and care in Canada 2019*. Childcare Resource and Research Unit.  
<https://childcarecanada.org/sites/default/files/ECEC-Canada-2019-full-publication-REV-12-2-21.pdf>
- \*Friendly, M., Larsen, E., Feltham, L., Grady, B., Forer, B., & Jones, M. (2018a). *Early childhood education and care in Canada 2016*. Childcare Resource and Research Unit.  
<https://www.childcarecanada.org/sites/default/files/ECEC-in-Canada-2016.pdf>
- \*Friendly, M., Larsen, E., Feltham, L., Grady, B., Forer, B., & Jones, M. (2018b). *Key findings: Early childhood education and care in Canada 2016*. Childcare Resource and Research Unit.  
<https://www.childcarecanada.org/sites/default/files/ECEC2016-KeyFindings-EN.pdf>
- Herreras, E. B. (2017). Risk low math performance PISA 2012: Impact of assistance to early childhood education and other possible cognitive variables. *Acta de Investigación Psicológica*, 7(1), 2606-2617.
- \*Hu, B. Y., & Szente, J. (2009). Exploring the quality of early childhood education in China: Implications for early childhood teacher education. *Journal of Early Childhood Teacher Education*, 30(3), 247-262.
- Ishimine, K., Tayler, C., & Bennett, J. (2010). Quality and early childhood education and care: A policy initiative for the 21st century. *International Journal of Child Care and Education Policy*, 4(2), 67-80.
- Kim, E., Moon, S. H., Lee, J. R., Choi, Y. K., Do, N., & Lee, D. (2017). The impact of expected child-rearing expenses on childbirth based on the matching of two Korean panel data. *International Journal of Child Care and Education Policy*, 11(4).
- Kılıç Depren, S., & Depren, Ö. (2022). Cross-cultural comparisons of the factors influencing the high reading achievement in Turkey and China: Evidence from PISA 2018. *Asia-Pacific Education Researcher*, 31, 427-437.  
<https://doi.org/10.1007/s40299-021-00584-8>
- \*Li, H., & Wang, X.C. (2017). International perspectives on early childhood education in the mainland China, Hong Kong, Macao and Taiwan. In: Rao N., Zhou J., Sun J. (eds) *Early childhood education in Chinese societies*. International Perspectives on Early Childhood Education and Development, vol 19. Springer, Dordrecht.
- \*Liu, Y., & Pan, Y. J. (2013). A review and analysis of the current policy on early childhood education in mainland China. *International Journal of Early Years Education*, 21 (2-3), 141-151.
- Makarova, Y. (2016). *Assessing the focus of national education financing policies on equity*. United Nations Educational, Scientific and Cultural Organization.  
<https://unesdoc.unesco.org/ark:/48223/pf0000245619>.
- \*Manning, M., Wong, G. T. W., Fleming, C. M., & Garvis, S. (2019). Is teacher qualification associated with the quality of the early childhood education and care environment? A meta-analytic review. *Review of Educational Research*, 89(3), 370-415.
- Manu, M., Torppa, M., Eklund, K., Poikkeus, A. M., Lerkkanen, M. K., & Niemi, P. (2021). Kindergarten pre-reading skills predict grade 9 reading comprehension (PISA reading) but fail to explain gender difference. *Reading and Writing*, 34(3), 753-771.
- Ministry of Family, Labor and Social Services, (2016). Özel kreş ve gündüz bakimevleri ile özel çocuk kulüplerinin kuruluş ve işleyiş esasları hakkında yönetmelik [Regulation on the principles of establishment and operation of private nurseries and day care centers and private children's clubs]. *Resmî Gazete Tarihi: 8/9/2016 Resmî Gazete Sayısı: 29825*.  
<https://www.aile.gov.tr/media/119162/ozel-kres-ve-gunduz-bakimevleri-ile-ozel-cocuk-kuluplerinin-kurulus-ve-isleyis-esaslari-hakkinda-yonetmeligi.pdf>
- Ministry of National Education (MONE), (2014). Millî eğitim bakanlığı okul öncesi eğitim ve ilköğretim kurumları yönetmeliği [Ministry of national education regulation of preschool education and primary education institutions]. *Resmî Gazete Tarihi: 26.07.2014 Resmî Gazete Sayısı: 29072*.  
<https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=19942&MevzuatTur=7&MevzuatTertip=5>.
- Ministry of National Education (MONE), (2019). PISA 2018 Türkiye ön raporu [PISA 2018 Türkiye preliminary report]. *Eğitim Analiz ve Değerlendirme Raporları Serisi*, 10.  
[https://pisa.meb.gov.tr/eski%20dosyalar/wp-content/uploads/2020/01/PISA\\_2018\\_Turkiye\\_On\\_Raporu.pdf](https://pisa.meb.gov.tr/eski%20dosyalar/wp-content/uploads/2020/01/PISA_2018_Turkiye_On_Raporu.pdf)
- Ministry of National Education (MONE), (2023). National education statistics formal education 2022-23. *A Publication of Official Statistics Programme*  
[https://sgb.meb.gov.tr/meb\\_iys\\_dosyalar/2023\\_09/2915110\\_6\\_meb\\_istatistikleri\\_orgun\\_egitim\\_2022\\_2023.pdf](https://sgb.meb.gov.tr/meb_iys_dosyalar/2023_09/2915110_6_meb_istatistikleri_orgun_egitim_2022_2023.pdf)
- \*Ministry of Education and Research. (2015). *OECD review of policies to improve the effectiveness of resource use in schools: Country background report Estonia*.  
[https://www.oecd.org/education/school/EST\\_Country\\_background\\_report\\_final\\_30.11.15\\_Version2.pdf](https://www.oecd.org/education/school/EST_Country_background_report_final_30.11.15_Version2.pdf)
- \*Ministry of Education and Research. (2022). *Preschool education*.  
<https://www.hm.ee/en/activities/children-and-youth-ukraine-estonia/pre-school-education>
- \*Ministry of education the People's Republic of China (MOE P.R.C). (2019, April 19). *Central government funding for preschool education rises to 16.85 billion yuan in 2019* [Press release].  
[http://en.moe.gov.cn/features/PressAndInterview/Pressreleases/202001/t20200117\\_415853.html#:~:text=Central%20government%20funding%20for%20preschool%20education%20rises%20to%2016.85%20billion%20yuan%20in%202019,-Source%3A%20China%20Education&text=A%20press%20conference%20held%20by,16.85%20billion%20yuan%20in%202019](http://en.moe.gov.cn/features/PressAndInterview/Pressreleases/202001/t20200117_415853.html#:~:text=Central%20government%20funding%20for%20preschool%20education%20rises%20to%2016.85%20billion%20yuan%20in%202019,-Source%3A%20China%20Education&text=A%20press%20conference%20held%20by,16.85%20billion%20yuan%20in%202019).
- \*Ministry of education the People's Republic of China (MOE P.R.C). (2020). *Overview of educational achievements in China in 2019*.  
[http://en.moe.gov.cn/documents/reports/202102/t20210209\\_513095.html](http://en.moe.gov.cn/documents/reports/202102/t20210209_513095.html)
- \*Ministry of education the People's Republic of China (MOE P.R.C). (2021, May 7). *MOE releases 2020 statistical bulletin on educational spending* [Press release].

- [http://en.moe.gov.cn/news/press\\_releases/202105/t20210512\\_531041.html](http://en.moe.gov.cn/news/press_releases/202105/t20210512_531041.html)
- \*\*Ministry of education the People's Republic of China (MOE P.R.C). (2023a, December 6). *MOE releases 2022 statistical bulletin on educational spending* [Press release]. [http://en.moe.gov.cn/news/press\\_releases/202312/t20231206\\_1093414.html](http://en.moe.gov.cn/news/press_releases/202312/t20231206_1093414.html)
- \*\*Ministry of education the People's Republic of China (MOE P.R.C). (2023b, June 30). *Breakdown of total public spending on education in China in 2022, by level of education (in billion yuan)* [Graph]. In *Statista*. Retrieved February 29, 2024, from <https://www.statista.com/statistics/1098661/china-public-education-spending-by-level-of-education/>
- \*\*Ministry of Education the People's Republic of China (MOE P.R.C)., & Xinhua. (2021). *China's preschool enrollment rate reaches 85.2 pct* [Press release]. [http://en.moe.gov.cn/news/media\\_highlights/202103/t20210304\\_517504.html](http://en.moe.gov.cn/news/media_highlights/202103/t20210304_517504.html)
- \*\*Ministry of Education. (2021a). *Education statistics digest 2021*. <https://www.moe.gov.sg/-/media/files/about-us/education-statistics-digest-2021.ashx?la=en&hash=9E7EFD9B8088817C207F8AE797037AAA2A49F167>
- \*\*Ministry of Education. (2021b). *Overview of compulsory education*. <https://www.moe.gov.sg/primary/compulsory-education/overview>
- \*\*Ministry of Social and Family Development (MSF). (2019, October 7). *Preschool fee hikes and affordability* [Press release]. <https://www.msf.gov.sg/media-room/Pages/Preschool-fee-hikes-and-affordability.aspx>
- \*\*Ministry of Social and Family Development (MSF). (2021, August 2). *Plans to ensure sufficient numbers of infant care centres, child care centres and kindergarten places in each constituency* [Press release]. <https://www.msf.gov.sg/media-room/Pages/Plans-to-Ensure-Sufficient-Numbers-of-Infant-Care-Centres,-Child-Care-Centres-and-Kindergarten-Places-in-Each-Constituency.aspx>
- \*\*Ministry of Social and Family Development (MSF). (2022, October 29). *Government announces key preschool moves to better support families and boost early childhood careers* [Press release]. <https://www.msf.gov.sg/media-room/article/Government-Announces-Key-Preschool-Moves-To-Better-Support-Families-And-Boost-Early-Childhood-Careers>
- \*\*National Center on Education and The Economy. (2021). *Top-performing countries: Shanghai-China*. <https://ncee.org/country/shanghai-china/>
- \*\*Neuman, M. (2019). *Singapore: Developing career pathways for early childhood care and education workers*. Early Childhood Workforce Initiative. [https://www.earlychildhoodworkforce.org/sites/default/files/resources/Brief-Singapore\\_1.pdf](https://www.earlychildhoodworkforce.org/sites/default/files/resources/Brief-Singapore_1.pdf)
- OECD. (2001). *Starting strong: Early childhood education and care*. Paris: OECD Publishing.
- OECD. (2006). *Starting strong II: Early childhood education and care*. OECD Publishing.
- OECD. (2012). *Starting strong III: A quality toolbox for early childhood education and care*. Paris: OECD Publishing.
- \*OECD. (2015a). "Canada", in *education policy outlook 2015: Making reforms happen*. OECD Publishing.
- OECD. (2015b). *Starting strong IV: Monitoring quality in early childhood education and care*. Paris: OECD Publishing.
- \*OECD. (2016a). *Education in China: A snapshot*. OECD Publishing.
- OECD. (2016b). *PISA 2015 results (volume II): Policies and practices for successful schools*. OECD Publishing.
- OECD. (2017a). *What do we know about teachers' selection and professional development in high-performing countries? PISA in focus*. OECD Publishing.
- OECD. (2017b). *Starting strong 2017: Key OECD indicators on early childhood education and care*. Paris: OECD Publishing.
- \*OECD. (2019a). "Canada", in *education at a glance 2019: OECD indicators*. OECD Publishing.
- \*OECD. (2019b). "Finland", in *education at a glance 2019: OECD indicators*. OECD Publishing.
- \*\*OECD. (2019c). *OECD family database* [Dataset]. <https://www.oecd.org/els/family/database.htm>
- OECD. (2019d). *PISA 2018 assessment and analytical framework*. OECD Publishing.
- OECD. (2019e). *PISA 2018 results volume I: What students know and can do*. OECD Publishing.
- OECD. (2021a). *Education at a glance 2021: OECD indicators*. OECD Publishing.
- \*OECD. (2021b). "China", in *education at a glance 2021: OECD indicators*. OECD Publishing.
- OECD. (2020). *PISA 2018 results (volume V): Effective policies, successful schools, PISA*. OECD Publishing.
- OECD. (2023). *Türkiye: Overview of the education system (EAG 2023)*. <https://gpseducation.oecd.org/CountryProfile?primaryCountry=TUR&treshold=5&topic=EO>
- \*\*Official Statistics of Finland. (2019). *Pre-primary and comprehensive school education*. Statistics Finland. [http://www.stat.fi/til/pop/2019/pop\\_2019\\_2019-11-14\\_tie\\_001\\_en.html](http://www.stat.fi/til/pop/2019/pop_2019_2019-11-14_tie_001_en.html)
- Pholphirul, P. (2017). Pre-primary education and long-term education performance: Evidence from Programme for International Student Assessment (PISA) Thailand. *Journal of Early Childhood Research*, 15 (4), 410-432.
- Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, 10(2), 49–88.
- \*Qi, X., & Melhuish, E. C. (2017). Early childhood education and care in China: History, current trends and challenges. *Early Years*, 37(3), 268-284.
- \*Salminen, J. (2017). Early childhood education and care system in Finland. *Nauki O Wychowaniu. Studia Interdyscyplinarne*, 5(2), 135-154.
- \*Santiago, P., Levitas, A., Rado, P., & Shewbridge, C. (2016). *OECD reviews of school resources: Estonia 2016*. OECD Publishing.



- Shafiq, M. N. (2010). The effect of an economic crisis on educational outcomes: An economic framework and review of the evidence. *Current Issues in Comparative Education*, 12(2), 5-13.
- \*\*Singapore Department of Statistics (DOS). (2022). *Number, capacity and enrolment in child care centres* (M890701) [Data set].  
<https://tablebuilder.singstat.gov.sg/table/TSM890701>
- \*\*Singapore Department of Statistics (DOS). (2023). *Government expenditure on education* [Data set].  
<https://tablebuilder.singstat.gov.sg/table/TSM850011>
- \*\*Statistics Canada. (2017, December 12). *Education indicators in Canada: An international perspective, 2017* [Press release].  
<https://www150.statcan.gc.ca/n1/en/daily-quotidien/171212/dq171212a-eng.pdf?st=b10nG8-m>
- \*\*Statistics Canada. (2019, April 10). *Survey on early learning and child care arrangements, 2019* [Press release].  
<https://www150.statcan.gc.ca/n1/dailyquotidien/190410/dq190410a-eng.htm>
- Suna, H. E., Tanberkan, H. & Özer, M. (2020). Türkiye'de öğrencilerin okuryazarlık becerilerinin yıllara ve okul türlerine göre değişimi: Öğrencilerin PISA uygulamalarındaki performansı. *Journal of Measurement and Evaluation in Education and Psychology*, 11(1), 76-97. doi: 10.21031/epod.702191.
- \*\*Tan, C., Koh, K., & Choy, W. (2016). The education system in Singapore. In Juszczyk, S. (Ed.), *Asian education systems* (pp. 129-148). Adam Marszalek Publishing House.  
<https://www.researchgate.net/publication/311992398>
- \*\*Teichmann, M., Läänemets, U., Rüttemann, T., Neudorf, R. (2014). Education in Estonia. In: Juszczyk, S. (Ed.), *European education (and training) systems* (pp. 151-175). Wydawnictwo Adam Marszalek.  
[https://www.researchgate.net/publication/271703938\\_Education\\_System\\_in\\_Estonia](https://www.researchgate.net/publication/271703938_Education_System_in_Estonia)
- The State Council the People's Republic of China. (2019, October 17). *China's govt spending on education above 4% of GDP for 7 consecutive years* [Press release].  
[http://english.www.gov.cn/statecouncil/ministries/201910/17/content\\_WS5da82aa2c6d0bcf8c4c1549c.html#:~:text=To%20nearly%203.7%20trillion%20yuan,for%204.11%20percent%20of%20GDP](http://english.www.gov.cn/statecouncil/ministries/201910/17/content_WS5da82aa2c6d0bcf8c4c1549c.html#:~:text=To%20nearly%203.7%20trillion%20yuan,for%204.11%20percent%20of%20GDP)
- The World Bank. (2020). *Fertility rate, total (births per woman)* [Data set].  
<https://data.worldbank.org/indicator/SP.DYN.TFRT.IN>
- \*\*The World Bank. (2021a). *Government expenditure on education, total (% of GDP)* [Data set].  
<https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>
- The World Bank. (2021b). *Labor force, female (% of total labor force)* [Data set].  
<https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS>
- \*United Nations Development Programme. (2020). *Human development report 2020-the next frontier: Human development and the anthropocene*.  
<http://hdr.undp.org/en/content/human-development-report-2020>
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2014, October 3). *Quality education needs qualified teachers* [Press release].  
<https://en.unesco.org/news/quality-education-needs-qualified-teachers>
- \*United Nations, Department of Economic and Social Affairs, Population Division. (2019). *World population prospects 2019: Volume I comprehensive tables* (ST/ESA/SER.A/426).  
[https://www.un.org/development/desa/pd/sites/www.un.org/development/desa/pd/files/files/documents/2020/Jan/un\\_2019\\_wpp\\_voll\\_comprehensive-tables.pdf](https://www.un.org/development/desa/pd/sites/www.un.org/development/desa/pd/files/files/documents/2020/Jan/un_2019_wpp_voll_comprehensive-tables.pdf)
- \*\*Veisson, M. (2017). "Estonia – ECEC workforce profile." In Oberhuemer, P., & Schreyer, I. (Ed.), *Workforce profiles in systems of early childhood education and care in 30 countries with key contextual data* (pp. 300-319).  
[http://www.seeepro.eu/English/pdfs/ESTONIA\\_ECEC\\_Workforce.pdf](http://www.seeepro.eu/English/pdfs/ESTONIA_ECEC_Workforce.pdf)
- Xu, D., & Dronkers, J. (2016). Migrant children in Shanghai: A research note on the PISA-Shanghai controversy. *Chinese Sociological Review*, 48(3), 271-295.
- \*Zhang, K. C. (2016). Exploring options in early childhood care in Singapore: Programs and roles. *Childhood Education*, 92(5), 377-382.
- \*Zhu, J. (2009). Early childhood education and relative policies in China. *International Journal of Child Care and Education Policy*, 3(1), 51-60.