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Lonileness, Internet Addiction, and Mental Health Among Adolescents: A Mediation Model

Aliaa Ragab Mohammed, Assist. Prof. Dr, University of Sadat City, aliaaelsehamie@gmail.com
0009-0000-0779-6564

Abstract

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. This cross-sectional study was conducted with feedback from self-reported questionnaires completed by adolescents. Adolescents are students in secondary school in Sadat City. Convenience sampling, which is a non-random sampling method, was used as the sampling method in the study. Within the scope of the study, the scale forms were applied to 440 adolescents. 20 forms were excluded from the study as a result of irregularly filled and extreme values that emerged as a result of the calculation. In total, analyzes were made on 420 data. As indicated by the findings, there are positive and significant relationships between loneliness and Internet addiction. While there is a negative significant relationship with Mental Health. This study highlights the Importance of investigating the mediating role of loneliness between internet addiction and mental health among adolescents.

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INTRODUCTION

As a result of the tremendous and rapid technological development that the individual is unable to keep up with, adolescents are suffering from many psychological, social, economic, and professional problems in all societies. One of these psychological problems is the problem of feeling psychological loneliness, as the feeling of loneliness is a state in which a person is unique from other living creatures because of his possession of a social system, which is affected by and influences it, and any defect that may occur in the bonds that connect a person with other members of his species or any change that occurs (Beneito-Montagut et al., 2018).

In the social system, it is reflected on the individual, and results in a disturbance in the acquired social character of individuals, which creates in them a feeling of alienation, isolation, or the suffering of psychological loneliness. It also leaves effects on the individual that affect his overall activities, and it is also considered the nucleus of other problems (Koç & Arslan, 2022).

The teenager experiences a number of continuous and overlapping conflicts in order to achieve balance and stability. If he is unable to achieve his desires, he experiences isolation and loses communication and a sense of belonging with others. He lives in isolation and distance from others, and this is an indicator of the beginning of a psychological problem, which is a feeling of psychological loneliness. Psychological loneliness is a painful feeling, and the result of a subjective experience of intense sensitivity, and the individual's feeling that he is unwanted and separated from others (Cacioppo, Fowler & Christakis,2009).

This feeling results from the perceived absence of fulfilling social relationships, and it is a feeling accompanied by symptoms of psychological stress. Behaviorists explain the feeling of psychological loneliness by linking it to the occurrence of a conflict between the processes leading to activity and the processes leading to desistance as a result of the individual's inability to abandon the old conditional responses that he learned since his childhood as a result of the inappropriate experiences that he went through in his environment (Ditommaso, Brannen & Best, 2004), which leads to the formation of inappropriate habits for him. It does not help him to live an effective and successful life with others, and it also prevents him from learning more appropriate responses or behavioral patterns in his relationship with others (Cacioppo et al., 2009).

The feeling of loneliness can also be viewed as a weakness in personal relationships that leads to dissatisfaction with social relationships. Loneliness is a type of negative feelings that result from communication conflicts, or the lack of personal relationships. Psychological loneliness is also defined as an individual awareness of the weakness of relationships between components. The individual's perceived personality and social personality, which leads to feelings of sadness, a sense of the futility of life, or feelings of remorse. Loneliness also includes a feeling of discomfort in the event that the individual isolates himself, and there are several hypothetical causes of loneliness. Loneliness resulting from the lack of perceptions of relationships between people. Loneliness is a psychological state, not an objective state, and loneliness is an annoying and sad experience (Stoeckli,2010).

The feeling of loneliness differs qualitatively from the individual's voluntary social withdrawal, without being associated with conflicts with others. The feeling of psychological loneliness is linked to the individual's feeling of lack of personal intimacy towards those around him. When the individual isolates, avoids others, and does not get along with them, this condition causes disability and inability to carry out the assigned duties. Like studying and the normal functioning of life, this can lead to negative consequences (emotional, social and physical), and loneliness and isolation in this case become a mental health problem that threatens the mental health and psychosocial functions of the individual (Heinrich & Gullone, 2006).

The feeling of psychological loneliness is a basic fact in life that all people suffer from, but to varying degrees in some periods of their lives. The feeling of psychological loneliness is not limited to age, sexual, racial, economic, or group boundaries. As a result, people who feel psychological loneliness fail to... They enter into conversations with others because of their negative expectations, and because of their lack of necessary communication skills. They also fail to establish and maintain close friendships. These people are sensitive to social relationships, suffer from anxiety, are self-centered, and hesitate to establish friendly relationships with others for fear of rejection. Not to mention that they consider themselves to be negative and lower than others, which has a negative impact on their low self-esteem (Salimi et al., 2009).

Multiple names have emerged for this new emergency problem, such as the problem of using the Internet, misuse of the Internet, compulsive use of the Internet, and finally disorder. The addictive behavior of the student on the Internet is summarized by his inability to refrain from using it, due to his inability to tolerate feelings of pressure and discomfort, and it may affect his compatibility due to spending long hours on the Internet and social networking sites, and browsing the sites to which he has become addicted. Which puts him in social isolation. As a result of the student's presence on Internet communication platforms (which does not require direct contact (face-to-face), some studies found a significant positive correlation between feelings of loneliness and Internet use among university students (Gu et al., 2023).

The correlation coefficients were higher for men than for women, and the more Internet use, the greater the feeling of psychological loneliness, and that excessive use of the Internet is linked, even if slightly, to loneliness compared to those who have a moderate level of use of the Internet, and spending useful hours on the Internet did not affect the feeling of loneliness over time, but this developed in them what is known as Internet addiction or psychological dependence on the Internet, although the Internet in itself is not harmful, but rather may be due to the state of coercion and coercion and the strict requirements associated with the Internet world, has become for the individual who suffers from feelings of loneliness an escape route and self-deception that he is connected with others while his reality is separate and isolated (Whitty & McLaughlin, 2007).

In the case of Internet addiction, when the individual is offline, we cannot predict his specific problems, in addition to the existence of social interaction on the Internet. A study found that the individuals who achieved the largest number of views on their sites on the Internet resulted from their extensive use of the Internet to entertain their suffering, and by accessing the Internet and virtual communication, the individual feels that he is not alone and that there are other individuals present on the Internet (Al-Khawaja, 2017).

Excessive use of the Internet leads to people being distanced from society and real social communication, and causes the elimination of real social interactions. It also affects people's lives. Excessive use of the Internet can lead to feelings of loneliness and depression in the end. Feeling lonely is one of the outcomes of the increasing use of the Internet because users often evaluate real-life relationships through their evaluation of inauthentic and weak online relationships, and excessive Internet use results in reduced social activity, preferring virtual rather than physical communication (Gu et al.,2023).

A technical report issued by Chassiakos, Redsky, and Christakis identified the benefits and concerns about adolescent mental health and their association with the use of social networking sites. The report showed that the amount of time people spends using social networking sites is not the important factor, but rather how they spend this time is more important. It was found that Older teens who use social media sites unconsciously have lower levels of well-being and life satisfaction, unlike those who actively participate in social media sites (Gunay et al.,2018).

The report also showed that there is a U-shaped relationship between the time we spend using digital media and the risk of depression. At both the high and low ends of Internet use, a person can observe the amount of time he spends using social networking sites to know whether he is suffering from an addiction or not. Addictions are an impulse control disorder, which can lead a person to lose his or her sense of humor (Bakioğlu, 2020).

With time during their use of social networking sites, for example, a person's psychological clock can run slower than usual and their self-awareness may be lost. Therefore, people can use social media platforms unconsciously and for long periods of time. It is also common for teenagers in the digital age to use... They use their smartphones for entertainment, educational, news, and managing their daily lives, so teens are more likely to engage in addictive behaviors and habits (Kaur, 2018).

Since adolescents are, as the other human beings, sociable by nature, they are obliged by their nature to socialize with others and thus they are not able to make use of their spare time. This will lead them to become more addicted to internet (Bakioğlu,2020). Therefore, it is important to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents.

Despite the importance of the Internet as a means of communication, obtaining information, training in skills, marketing products, etc., the matter does not stop there, but may develop to an extent that leads to Internet addiction in a sick way that affects the individual and society. Given the modernity of the Internet, the process of studying, monitoring and following up on its impact is still a complex and thorny process, and scientific research and experimental studies are still in their infancy.

HYPOTHESES

H1: Internet addiction has a negative effect in Mental Health.

H2: Internet addiction has a negative effect in loneliness.

H3: Loneliness has a mediating role in the relationship between Internet addiction and Mental Health.

METHOD

RESEARCH MODEL

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. The hypotheses model of this research is presented in Figure 1.

Figure 1. *The Hypothesized Structural Model.*
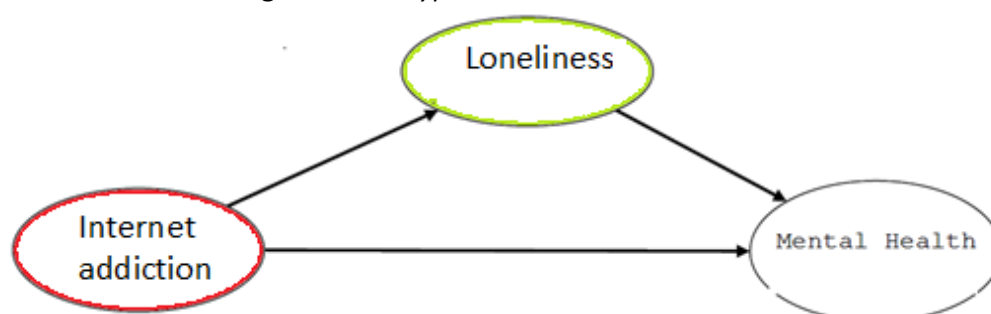
POPULATION AND SAMPLE OF THE RESEARCH

This cross-sectional study was conducted with feedback from self-reported questionnaires completed by adolescents from 6th April 2023 to 1st June 2023. Adolescents are students in secondary school in Sadat City. Convenience sampling, which is a non-random sampling method, was used as the sampling method in the study. Appropriate sampling is applied when the individuals who want to

participate in the study consist of easily accessible volunteers. Within the scope of the study, the scale forms were applied to 440 adolescents. 20 forms were excluded from the study as a result of irregularly filled and extreme values that emerged as a result of the calculation. In total, analyzes were made on 420 data.

MEASUREMENTS

INTERNET ADDICTION TEST

IAT-7: The IAT-7 developed by Valenti et al. (2023). It is a 7-item version with an ESEM structure and two domain-specific factors (F1: Interpersonal, Emotional and Obsessive Conflict; F2: Online Time Management). The IAT-7 showed excellent fit-indices [χ^2 = 13.373; *df* = 8; CFI = .994; TLI = .983; RMSEA = .030 (.000–.073); SRMR = .016; AIC = 9,276.944; BIC = 9,388.662; aBIC = 9,302.971] and an adequate level of internal consistency (alpha and omega > .752). The Arabic adaptation of the scale was created by the author. According to this adaptation, the internal consistency coefficients in the " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management " subscales were determined as .88 and .90, respectively. The two-factor structure of this scale was examined with confirmatory factor analysis. Goodness of fit indices were determined as AGFI = 0.91, GFI = 0.94, CFI = 0.97, NFI = 0.95 and RMSEA = 0.49. Regarding criterion-related validity, it was stated that the correlation between " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management " and The Six-item Version of the Internet Addiction Test (Ali et al.,2021) was .79 (p<.001) and .75 (p<.001). In this study, Cronbach's alpha internal consistency coefficients associated with the " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management "subscales were found to be .88 and .90, respectively.

UCLA LONELINESS SCALE (VERSION 3)

This scale was developed by Russell (1996). A 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. Participants rate each item as either O ("I often feel this way"), S ("I sometimes feel this way"), R ("I rarely feel this way"), N ("I never feel this way"). The measure has been revised two times since its first publication; once to create reverse scored items, and once to simplify the wording. The total score of the UCLA-20 is the sum of the 20 items ranging from 20 to 80 with higher scores indicating a higher loneliness level. UCLA-20 was translated into Arabic by the author. In this study, Cronbach's alpha internal consistency coefficient associated with the scale was found to be .91

STUDENTS' LIFE SATISFACTION SCALE (SLSS; Huebner, 1991)

It is a 7-items scale, targeting the global life satisfaction of children in grades 3-12. Particpants rate the extent to which they agree with statements about the quality of their life on a scale ranging from 1 (strongly disagree) to 6 (strongly agree). After reverse scoring two items, a mean score is calculated to represent the participant's overall life satisfaction, with higher scores indicating greater satisfaction with life. In this study, Cronbach's alpha internal consistency coefficient associated with the scale was found to be .89

DATA COLLECTION

The questionnaires were delivered and distributed through a pen-and-paper form.

STATISTICAL APPROACH

IBM SPSS Statistics 26.0 was used to analyze the data obtained from this study. The normality of the three main variables was tested with the SPSS program. Descriptive statistics for all study variables and correlations were calculated. Pearson's bivariate correlation analysis was conducted to analyze the associations between measures. After that, a series of structural equation models (SEMs) to investigate the relationships among study variables were applied. The bootstrap method was applied

to estimate the indirect effects. A good model fit with the following criteria: CFI > 0.93, RMSEA < 0.05, and SRMR < 0.07 was defined.

RESULTS

CORRELATION ANALYSIS

Table 1 presents the mean, standard deviations (SD), and Pearson correlation coefficients between the major variables. According to Table 1, there are positive and significant relationships between loneliness and Internet addiction (r .29; p<0.01). While there is a negative significant relationship with Mental Health (r= -.34; p<0.01).

Table 1. *Mean, Standard Deviation (SD), and Correlations for Study Variables (N = 420).*

Variables	Mean ± SD	Range	1	2	3
1. loneliness	60.29± 0.93	0-4	-	.29**	-.34**
2. Internet addiction	30.20 ± 0.91	1-5		-	-.35**
3. Mental Health	33.10 ± 0.89	1-6			-

THE MEDIATION

A 95% confidence interval (CI) of the chain mediation effect of loneliness on Internet addiction and child Mental Health was evaluated, and the chain mediation model was established as shown in Figure 2. The bootstrapping method was used to resample 5,000 times to calculate for a 95% CI. As shown in Table 2, the results showed that loneliness plays an intermediary role between Internet addiction and Mental Health, and the total mediating effect was 0.361 (95% CI = (0.323, 0.489), accounting for 49.39% of the total effect.

Table 2. *The Chain Mediating Effect of Loneliness on Internet Addiction and Child Mental Health*

Model Pathways	Effect	Boot SE	95% CI Lower	Upper	Relative Mediation Effect %
Direct effect	0.522	0.052	0.318	0.551	59.17%
loneliness → Internet addiction → Mental Health	0.433	0.050	0.321	0.479	50.12%
Total mediation effect	0.361	0.045	0.323	0.489	49.39%

Figure 2. *The Chain Mediation Effect of Loneliness on Internet Addiction and Child Mental Health*
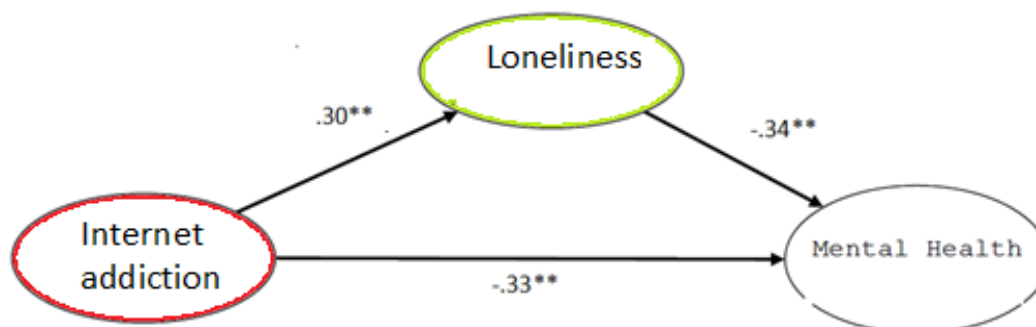
DISCUSSION

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. As indicated by the findings, there are positive and significant relationships between loneliness and Internet addiction (r .29; p<0.01). While there is a negative significant relationship with Mental Health (r= -.34; p<0.01).

This results are in congruent with those of Chen et al. (2007) on the mental health of Internet addiction disorder among university students, on a sample of 360 university students, using measures of depression and social support. The results of the study showed that there are differences between Internet addicts and non-addicts in depression, anxiety, and weak social support in favor of Internet addicts, and that the percentage of males who use the Internet is greater than the percentage of females. The study concluded that Internet addiction seriously affects the mental health of students.

Internet addiction is considered a psychological disorder associated with many psychological problems and disorders, which are: anxiety, depression, psychological loneliness, low self-confidence, and poor social interaction. Internet addiction has symptoms that include: obsessive thoughts about the Internet, decreased impulse control, and inability to stop using the Internet, all of which indicate unhealthy use of the Internet. Some believe that excessive Internet users suffer from social disorders and psychological problems, such as feelings of psychological loneliness, poor social support, social isolation, and depression, especially among young people.

Adolescents need to be healthy and sound in their academic achievement to fulfill society's expectations. Hoyt et al. (2012) opine that adolescent psychological well-being contributes to academic achievement, better teenage behaviours, and physical health during adolescence and adulthood. Another study conducted by Waters (2011) found that psychological well-being is a protective factor against adolescent depression and promotes creativity, social cohesion, and civic citizenship. Hasmujaj (2016) showed that individuals with high use of the Internet had a low level of feelings of psychological loneliness, and this may be because using the Internet satisfies their social need. While Whitty & McLaughlin (2007) indicated that the level High Internet use is associated with an increase in emotional loneliness, perhaps because people who spend a lot of time with friends online will no longer have the time or resources.

The results of Alkhawaja (2020) showed that there was a negative correlation ($\alpha \geq 0.05$) between the level of Internet addiction among students and their level of psychological loneliness, and the presence of statistically significant differences in the study sample's estimates of Internet addiction according to the sex variable (male, female) in favor of males, and the absence of statistically significant differences in the study sample's estimates of psychological loneliness according to the sex variable (male, female), The arithmetic average for the level of Internet addiction among the study sample was (1.55), and the arithmetic average for the level of psychological loneliness was (2.90).

While, Hasmujaj (2016) indicate that here is a moderate negative relationship between loneliness and Internet addiction. On the other hand, there are no differences between genders in terms of Internet addiction and the level of loneliness. They also showed that students who are addicted to the Internet have much lower rates of psychological loneliness.

CONCLUSION

The Internet is the most prominent result of the use of computer and communications technology in the service of humanity. The Internet represents an essential part of the daily life of many. Information technology and the Internet in the current century represent a strong challenge to the individual and society alike, as they are considered one of the most important manifestations of globalization, which requires confronting the challenges of globalization. Among them is Internet addiction.

The feeling of psychological loneliness leads to excessive use of the Internet without objective justification and on an ongoing basis, which helps in increasing indicators of Internet addiction. Students feel distressed and stressed as a result of their feeling of psychological loneliness, which makes them more likely to use the Internet excessively. They also feel bored as a result of a lack of acceptance, friendliness and love, and the presence of a psychological gap separating them from the people in the surrounding environment.

This is what drives them to hate others and then the level of feeling of loneliness increases. Their psychological deterioration, which leads to their addiction to the Internet, especially with the ease of using computers and accessing the Internet, which brings them personal pleasure, a sense of self, escape from social problems, and compensates for their lack of social skills necessary to engage in successful relationships with others. That is, Internet addicts among students feel psychologically lonely and isolated from those around them, and they prefer the Internet to social activities that satisfy their social motives. The reason for their Internet addiction is their feeling of psychological loneliness and the reluctance of others to care about them, which prompts them to withdraw and isolate themselves, using the Internet over other activities and human relations.

Despite the applications and facilities provided by Internet technology, it has also been linked to many problems, including Internet addiction and the many psychological, social, and physical problems and disorders that accompany it. Psychological well-being does not spontaneously grow in the side-work cracks of time between class assignments and teacher meetings. If more attention is not put on teaching and fostering psychological well-being, students will grow up without knowing psychological well-being is within their internal view of control.

LIMITATIONS

Due to the cross-sectional design of the study, it is not possible to establish causality between variables. Although the cross-sectional study cannot be used to determine causal relationships a cross-sectional study can provide clues that will serve as a useful tool to guide further experimental studies.

COMPLIANCE WITH ETHICAL STANDARDS

FUNDING

This study does not contain any external funding sources.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

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Exploring the Relationship Between Preservice Teachers' Professional Identity, Professional Perceptions, and Social Support*

Muhammet Mustafa Alpaslan, Assoc. Prof. Dr., Muğla Sıtkı Koçman University, Türkiye, mustafaalpaslan@mu.edu.tr 🆔 0000-0003-4222-7468

Özgür Ulubey, Assoc. Prof. Dr., Muğla Sıtkı Koçman University, Türkiye, oulubey@mu.edu.tr 🆔 0000-0001-7672-1937

Kasım Yıldırım, Prof. Dr., Muğla Sıtkı Koçman University, Türkiye, kasimyildirim@mu.edu.tr 🆔 0000-0003-1406-709X

Abstract

This research aimed to examine the relationship between teacher identity, their perceptions of teaching, demographic variables, and social support. A relational research model was used in the study. 692 preservice teachers studying at a state university in the Aegean region participated in the study. The data tools were the personal information, Pre-Professional Teacher Identity, Fit-Choice Scale, and Social Support Scale. Data were analyzed using the Structural Equation Model (SEM). Results showed that there was a positive statistical relationship between the perception and social support. It was determined that teacher support was mostly related to social status, while friend support was statistically significantly and positively related to social status, satisfaction, and high demand. Family support was found to be statistically significantly and positively related only to the busy work sub-dimension. Satisfaction with choice was related to all teacher identity dimensions. Salary and expert career were significantly related to only participation as a teacher. The future studies and implications were discussed.

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INTRODUCTION

TEACHING PROFESSIONAL IDENTITY

Identity, which emerges as a result of an individual's social relationships, is expressed as the unchanging character of the individual's ways of expressing himself/herself, thinking and developing (Beijaard et al., 2004; White, 2009). Professional identity is the individual's ability to define himself/herself professionally by having professional knowledge, skills and behaviors, professional philosophy, beliefs and values and to reflect them in his/her behavior, and to be able to fulfill his/her professional roles in harmony with his/her other roles (Atik, 2022; Beijaard et al., 2004). Accordingly, the professional identity of the teacher is defined in relation to who the teacher is, how he/she interacts with his/her environment, and how he/she uses his personal identity when designing and implementing teaching (Zembylas, 2003). Thus, teachers' professional identity affects organizing the learning environment and their tendency to innovation and reform (Canrinus et al., 2012).

The development of teachers' professional identity is a multifaceted and dynamic process (Beijaard et al., 2000). It can be said that cognitive, affective and behavioral factors such as teachers' attitudes, beliefs, socioeconomic levels, pre-service education, professional knowledge, work motivation, self-efficacy, and professional commitment are effective in the process of formation of the teacher's professional identity (Akerson et al., 2014; Beauchamp & Thomas, 2009; Flores & Da, 2006; Hong, 2010).

Pre-service teachers' professional identity has been recently paid a great interest of researchers in the fields since pre-service teacher education plays important role on the development of the teacher professional identity. Research has been evidenced that the professional identities of pre-service teachers are affected by variables including social environment, individual characteristics, pre-higher education life and teaching practice experiences (Aykaç et al., 2017; Ulubey et al., 2018). During the teacher education, the field knowledge and professional experience provided by teacher training institutions enable preservice teachers to get to know the profession and develop their professional identity (Anspal et al., 2012). The courses taken by teacher candidates, school experience, family influence and learning experiences during childhood contribute to the formation of their professional identities (Knowles, 1992).

PERCEPTION OF TEACHING PROFESSION

One of the important variables that effect teachers' ability to fulfill the requirements of their profession is motivation. Motivation is expressed as the internal and external driving force that provides energy for individuals to meet their expectations and needs while performing a task. Many theories have been developed to investigate the motivations of students and teachers in the learning-teaching process. One of these is the expectation value theory. According to this theory, a person's motivation to accomplish a task depends on the possibility of achieving that task and how valuable he/she sees that task (Duy, 2017). Expectancy value theory has been adapted to investigate teachers' professional motivations and factors affecting teacher selection (Watt and Richardson, 2007). Teaching professional motivation has two sub-dimensions: perception and motivation. The perception dimension used in this study has seven dimensions: salary, busy work, social dissuasion, social status, choice satisfaction and specialty training (Kılınç et al. 2012). It is seen that there are studies in the literature examining teachers' professional perceptions and emphasizing their importance (Cerit & Özdemir, 2015; De Wet, 2016; Jones et al., 2007; Kılınç et al. 2012; Korucuk & Havadar, 2023; Lui & Onwuegbuzie, 2012; Maslach & Leiter, 1997).

SOCIAL SUPPORT

Social support is the social opportunities provided to the individual by his social environment (Cohen et al., 2000). The concept of support is effective in many areas and also has an important place

in teacher education. It is stated that the support from teachers' colleagues, school administrators and families is important for the teaching profession (Skaalvik & Skaalvik, 2011). Teachers stated that when they had problems while fulfilling the requirements of their profession, they solved the problems with the support they received from other colleagues (Soini et al., 2010) and that they enjoyed working (Pogodzinski, 2013). It has been determined that teachers who receive support from their colleagues in the learning-teaching process make teaching more successful (Gersten et al., 2001). On the other hand, it has been observed that teachers who cannot receive professional support have difficulty in continuing their profession (Goddard & Goddard, 2006). In this regard, Le Cornu (2005) thinks that support in teacher training will contribute to professional development. Teachers may experience difficulties and stress in the first years of their career (Chan, 2002; Hagger et al., 2011). Support at the beginning of a teaching career strengthens teachers professionally (Hobson, 2009; Pogodzinski, 2013). Providing the support given to preservice teachers during the teacher education process while performing the teaching profession may contribute to their preparation for the profession. In teacher education, instructors' feedback on the learning-teaching process can make preservice teachers feel more comfortable. Additionally, receiving support from friends in the face of difficulties for preservice teachers may make their job easier professionally (Ferguson, 2011; Soini et al., 2010). The financial and moral support that preservice teachers receive from their families to continue their education process will enable them to be better prepared for the profession. As a result, the support that preservice teachers can receive from their instructors, classmates and families during the pre-service period can help them solve their professional problems.

RELATIONSHIP WITH TEACHERS' PROFESSIONAL IDENTITY, PERCEPTION OF TEACHING AND SOCIAL SUPPORT

It is thought that there is a relationship between teachers' professional identities, the social support they receive and their perception of teaching. The results of studies in the literature also support this relationship. For example, Akerson et al. (2014) stated that being accepted and supported by the school administration and colleagues has an impact on the formation of teachers' professional identities. Aykaç et al. (2017) emphasized the importance of the social environment in the formation of the teacher's professional identity. Bacakoğlu (2018) found that family and close environment are effective in the formation of teacher identity. Soydaş (2020) concluded that teachers' professional stakeholders are effective in the formation of teacher identity. Canrinus et al. (2012) stated that teachers' professional commitment, job satisfaction and motivation are important in the formation of teachers' professional identity. Kelchtermans (1993) found that work motivation is effective in choosing the teaching profession, continuing the profession, or leaving the profession. Živković (2013) concluded that motivation is important in the formation of teacher identity. He emphasized that the change in teachers' job satisfaction, salary satisfaction, emotional professional commitment and motivation levels is important. Pedretti et al. (2008) concluded in their study that perceptions of social support, belonging and independence have an impact on teachers' motivation and identity perception. Based on the results of this research, it can be said that teachers' professional identity is related to their perception of teaching and social support.

The purpose of this study was to examine the relationship between teachers' professional identities, their perceptions of teaching, and social support by utilizing structural equation modeling. Based on the previous research and theoretical approaches, it was hypothesized that demographic variables predicted social supports. Then, social support contributed to the perceptions of preservice teachers. Lastly, it was hypothesized that perception of pre-service teachers estimated their professional identity. The hypothesized structural equation model was displayed in Figure 1.

Figure 1. *The Hypothesized Model*
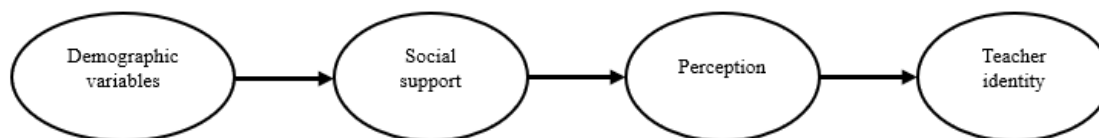
METHOD

RESEARCH DESIGN

The relational research method was used as the purpose of the study was to examine the contribution of the demographic variables, perception towards the profession and social support to preservice teachers' professional identity. Relational research model is a research model in which the researcher examines the relationship between two or more variables without interfering with the variables. In the relational research model, quantitative data generally obtained through measurement tools are analyzed using statistical techniques.

PARTICIPANTS

In studies where quantitative data is used, in order for the statistical findings to be reliable, it is important that the selected sample is selected randomly from the generalized sample, without bias. In this study, in order to make data collection economical and time- saving, preservice teachers studying at a state university in the Aegean region were selected as the accessible population. It was assumed that this accessible population reflects the entire population of preservice teachers studying at the faculty because it is at an intermediate level among the education faculties that train preservice teachers, the same curricula is implemented in all education faculties in Turkey, preservice teachers come from all regions in Turkey and includes most teaching branches. 692 preservice teachers studying in 11 teaching branches at the faculty of education participated in the study. The distribution of participants according to demographic and socio -economic variables is given in Table 1.

Table 1: *Distribution of Participants According to Demographic and Socio -Economic Variables*

Variable	Variable Type	f	%
Gender			
	Female	327	47.3
	Male	365	52.7
Class			
	First year	201	29.0
	Second year	139	20.1
	Third year	213	30.8
	Fourth year	139	20.1
Father's education level			
	None	18	2.6
	Primary school	241	34.8
	Middle school	157	22.7
	High school	181	26.2
	University	95	13.7
Mother's education level			
	None	57	8.2
	Primary school	374	54.0
	Middle school	108	15.6
	High school	119	17.2
	University	34	4.9

Table 1. Continued	Variable Type	ƒ	%
family settlement			
	Rural	164	23.7
	Urban	528	76.3
Number of siblings			
	None	30	4.3
	1	132	19.1
	2	182	26.3
	3	155	22.4
	4 and above	193	27.9

DATA COLLECTION

To measure the variables mentioned in the study, the literature was examined and measurement tools that were previously adapted to Turkish culture and whose validity and reliability were tested on preservice teachers were used.

PERSONAL INFORMATION FORM

It was developed by researchers to determine the demographic and socio -economic characteristics of the participants. The form includes information on gender, branch, grade level, parents' education level, number of siblings and family residence.

PRE-PROFESSIONAL TEACHER IDENTITY SCALE

The Pre-Professional Teacher Identity Scale, developed by Friesen and Besley (2013) and adapted to Turkish culture by Arpacı and Bardakçı (2015), was used to determine preservice teachers' teacher identity perceptions. As a five-point Likert type scale, the scale consists of 17 items in three sub-dimensions as self-categorization as a teacher, confidence in becoming a teacher, and participation as a teacher. Self-categorization as a teacher consists of five items and measures the individual's level of self-definition as a teacher. Confidence in becoming a teacher consists of six items and is about to what extent the individual's self-confidence in having the necessary skills to become a teacher. Participation as a teacher consists of six items and includes the individual's recognition as a teacher by his/her environment. Arpacı and Bardakçı (2015) reported the internal consistency coefficient Cronbach's alpha as .91 for the entire scale. In this study, it was found to be .82 for confidence in becoming a teacher, .86 for self-categorization as a teacher, and .84 for participation as a teacher. Confirmatory factor analysis conducted for validity of the scale yield in acceptable fit values as (χ^2(115)= 363.4, RMSEA= .061, CFI= .931, TFI= .929, SRMR= .047). As a result of the test for reliability and validity, the scale was accepted as reliable and valid.

TEACHING PROFESSIONAL PERCEPTION SCALE

The perception sub-dimensions of the FIT- Choice Scale, which has been highly used to measure pre-service teachers' professional perception and motivation was used to determine the perception of preservice teacher towards the teaching profession. Fit- Choice Scale, as a seven-point scale, was developed by Watt and Richardson (2007) and adapted into Turkish by Kılınç et al. (2012) to measure teachers' motivation towards their profession. The perception sub-dimension consisting of 20 items in six dimensions. The salary dimension measures teachers' perceptions of whether they are well paid in the teaching profession. High demand measures individuals' perceptions of whether the teaching profession requires hard work. Social dissuasion measures the effects of social disincentives on choosing a profession other than teaching. Social status measures whether the teaching profession is valued by others. Satisfaction with choice measures an individual's level of satisfaction with choosing the teaching profession. Expert career consists of three items and measures to what extent an individual believes teaching is a profession that requires expertise. Kilinç et al. (2012) reported the internal consistency coefficient Cronbach alpha value for reliability between .61 and .89. In the confirmatory factor analysis conducted for validity, it was stated that the data had good fit values with

the model (RMSEA= .066 and CFI = .977). In this study, Cronbach's Alpha internal consistency coefficients were .88 for salary, .86 for satisfaction with choice, .81 for social status, .84 for expert career, .75 for social dissuasion, and .77 for high demand. In the confirmatory factor analysis conducted for validity, the fit values showed good fit values ($\chi2$(155) = 338.8, RMSEA= .042, CFI= .961, TFI= .953, SRMR= .041). As a result of the test for reliability and validity, the scale was accepted as reliable and valid.

SOCIAL SUPPORT SCALE

The scale was developed by Skaalvik and Skaalvik (2011) and adapted to Turkish culture by Alpaslan et al. (2018). As a five-point Likert type, the scale consists of nine items in three dimensions. Support from teachers determines the support people receive from their teachers. Support from family measures the support people receive from their families. Support from friends is about the support people receive from their friends. Skaalvik and Skaalvik (2011) reported Cronbach's alpha internal consistency coefficient between .86 and .89. Alpaslan et al. (2018) reported the fit values of the scale as RMSEA= .058 and CFI= .97, which considered as in good fit. Reliability values in this study were .87 for support from family, .79 for support from friends and .81 for support from teachers. The result of the confirmatory factor analysis conducted for validity were found χ^2(24) = 76.8, RMSEA = .062, CFI = .976, TFI = .963, and SRMR = .040, which were in good fit range. These initial tests indicated that the scale was reliable and valid.

ANALYSIS OF DATA

In this study, data were analyzed using Structural Equation Model (SEM) in accordance with the research purpose. SEM is a multivariate analysis to test and determine structural relationships between observed and/or latent variables. Because the variables in the study were determined by more than one variable, they were considered as latent variables. In the SEM analysis, as the estimation method, the maximum likelihood method was used since the variables was a continuous and normal distribution. Different fit indices and critical values are used in the literature to evaluate the model in SEM analysis. In this study, RMSEA values lower than .08 and CFI values greater than .90 determined by Hu and Bentler (1999) were accepted as acceptable fit values.

FINDINGS

Descriptive findings for each variable were given in Table 2.

Table 2: *Descriptive Statistics of Variables*

Variable		M.	SD	Skewness	Kurtosis
Teacher Identity		3.89	0.56	-0.86	1.49
	Confidence in becoming a teacher	4.01	0.70	-0.78	0.90
	Participation as a teacher	4.09	0.64	-0.98	1.84
	Self-categorization as a teacher	3.58	0.54	-0.60	0.89
Perception		4.57	0.57	-0.15	0.15
	Satisfaction with choice	5.05	1.38	-0.54	-0.11
	Salary	3.24	1.14	-0.11	-0.17
	High demand	5.42	0.97	-0.56	0.54
	Social dissuasion	4.16	1:50	0.17	0.60
	Expert career	5.42	1.08	-0.49	0.06
	Social status	4.17	1.09	-0.19	-0.02
Social support		3.98	0.57	-0.74	1.48
	Friend support	3.58	0.84	-0.79	0.79
	Teacher support	3.99	0.73	-0.98	1.94
	Family support	4.39	0.78	-1.38	3.59

In the evaluation of descriptive data, 1.00-2.33 was considered as low, 2.34-3.66 as medium, and 3.67-5.00 as high in the five-point Likert scale. For the seven-point Likert scale, 1.00-2.99 was determined as low, 3.00-4.99 as medium and 5.00-7.00 as high. The mean value for teacher identity was determined as 3.89 (.56) and was considered high. Among the sub-dimensions, the highest mean was measured in participation as a teacher (M= 4.09, SD= 0.64), while the lowest mean was obtained from the sub-dimension of self-categorization as a teacher (M= 3.58, SD= 0.54). For the perception variable, the mean value was 4.57 (SD = 0.57) and considered in medium level. Among the sub-dimensions, the highest mean was found in the expert career and high demand sub-dimensions (M = 5.42), while the lowest mean was found in the salary (3.24). The mean value for social support was found to be 3.98 (0.57) and was considered high. The participants stated that they received the most support from their families (M = 4.39, SD = 78) and the least support from their friends (M = 3.58, SD = 3.58).

RESULTS OF SEM ANALYSIS

Before interpreting the findings regarding the relationships between variables in SEM analysis, the compatibility of the hypothesized model and the data must be evaluated through fit indices. The fit indices of the SEM analysis were as follows, χ^2 (1208) = 2837.40), RMSEA = .044, CFI = .89, TLI = .89. Although the RMSEA value is acceptable, CFI and TLI values were found to be lower than .90. In this case, modification indices were examined, and changes allowed by the theory were made in the model. As a result of this analysis, a relationship was added between item 4 and item 6 in the confidence in becoming a teacher. Since these two items belonged to the same sub-dimension, it was theoretically appropriate to add a link between them. The SEM analysis rerun and fit values of χ^2 (1207) = 2714.02), RMSEA = .043, CFI = .90, TLI = .90 were obtained. Since the χ^2/ df ratio was less than 3.00, it can be said that the model has an acceptable fit value. In addition, the RMSEA value was less than .08, which is the critical value for acceptable fit. Moreover, CFI and TLI values being greater than .90 and other fit indices show that the hypothesized model and the data had an acceptable fit.

The result of SEM analysis, standardized path coefficients and the amount of variance explained by the model was given in the Figure 2. Accordingly, the hypothesized model explained a significant variance of the teacher identity sub-dimensions. 53.1% of the variance of participation as a teacher was explained by the model. The model also explained 44.1% of the variance of the self- categorization as a teacher sub-dimension and 41.3% of the variance of the confidence in becoming a teacher sub-dimension. In the perception sub-dimensions, the largest variance explained by the hypothesized model was of high demand. The smallest variance explained by the model was of social dissuasion sub-dimension. As for social support dimensions, the largest variance was explained in the family support, while the smallest was of the teacher support sub-dimension.

Path coefficients was to show the direction and strength of the relationship between latent variables. For simplicity purposes, only statistically significant relationships were shown in Figure 2. Accordingly, the number of siblings contributed negatively to family support and peer support (β=-.17 and β=-.09, respectively). Additionally, grade level was negatively related to all types of support (β=-.14 for teacher support, β=-.12 for friend support, and β=-.10 for family support). Gender negatively predicted family support (β=-.13). Since female = 1 and male = 0 were coded here, being a female had a negative relationship with family support. In other words, female students stated that they received less family support than male students did.

Figure 2. *Path Coefficients and Explained Variances.*
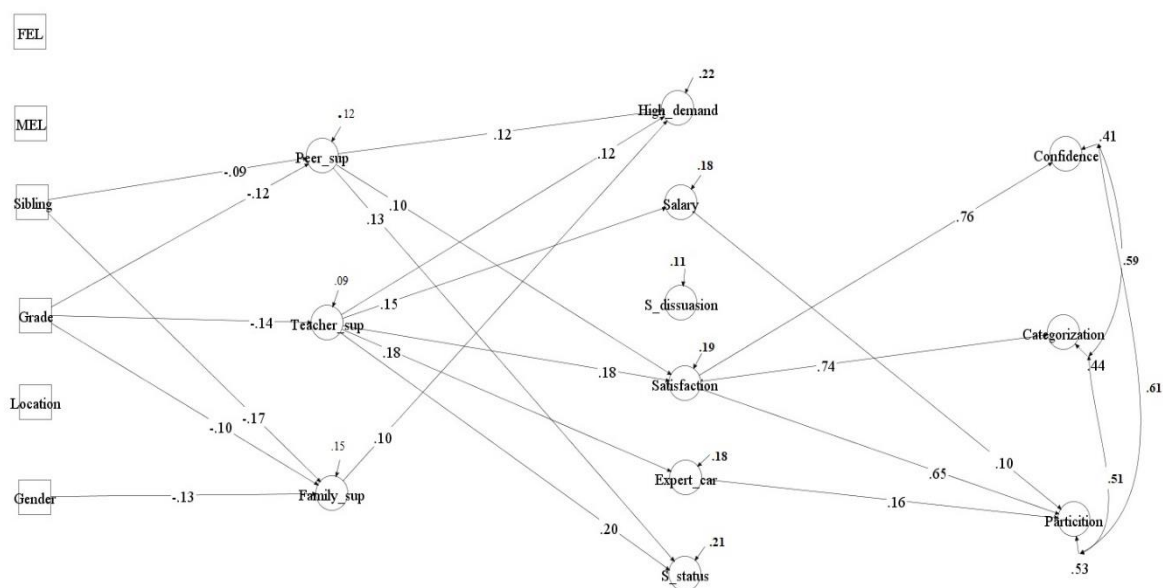
Path coefficients showed that there was a statistically statistical relationship between the perception sub-dimension and support dimensions. Among the types of support, teacher support was found to be positively and significantly related to other perception sub-dimensions except social dissuasion. Accordingly, teacher support was mostly related to social status (β=.20). Peer support was statistically significantly and positively related to social status, satisfaction with choice and high demand. Family support had a statistically significant and positive relationship only with the high demand sub-dimension.

Among the perception sub-dimensions, the satisfaction with choice was found to have a positive and strong relationship with all identity sub-dimensions. The strongest relationship was between satisfaction with choice and confidence in becoming a teacher (β=.76). Salary and expert career were related to the participation as a teacher sub-dimension. The relationship between other perception sub-dimensions and identity sub-dimensions was not statistically significant.

DISCUSSION, CONCLUSION AND IMPLICATIONS

In recent years, teacher identity is among the frequently studied topics in teacher education because teachers' identity perceptions significantly affect their teaching practices, their efforts towards professional development, and their attitudes towards educational changes (Lamote & Engels, 2010). Moreover, it has been emphasized that examining pre-service teachers' professional identity is useful to determine their views on the learning and teaching process, how they perceive themselves as teacher, and thus, important updates can be made in teacher education (Bullough and Gitlin, 2001). The results of previous research have revealed that recognizing and experiencing professional identity concerns and the factors affecting this process are significantly related to the process of becoming a teacher. These processes enable preservice teachers to rethink the teaching profession about changing roles and help them focus on questions including "who I am" and "what are my professional roles?" (Hanna et al., 2019). Failure to determine the factors affecting their professional identity will negatively affect the learning and self-improvement processes of new preservice teachers' who will start the teaching profession, as well as their satisfaction level with the profession (Smagorinsky et al., 2004). It is because teachers' perceptions about their teaching profession influence their well-being, self-efficacy, professional development, and also their

adaptation to educational changes and innovations related to their teaching practices (Lentillon-Kaestner et al., 2018).

In this study, the relationships between preservice teachers' teacher identity, perception of profession, demographic variables and social support were examined. Analyzes revealed that there was a statistical relationship between the perception sub-dimension and support dimensions. Among the types of support, a positive relationship was found with other perception sub-dimensions except teacher support and social dissuasion. Accordingly, teacher support was most related to social status. Peer support was statistically significantly and positively related to social status, satisfaction with choice and high demand. Family support was statistically significantly and positively related only to the busy work sub-dimension.

Among the perception sub-dimensions, the satisfaction with choice was found to have a positive and strong relationship with all identity sub-dimensions. The strongest relationship was between satisfaction with choice and confidence becoming a teacher. Also, the salary and expert career were related to the participation as a teacher. The relationships between other perception sub-dimensions and identity sub-dimensions were not statistically significant.

Consistent with previous studies (Chen et al., 2020), this research has shown that there is a significant positive relationship between the perception of social support and teacher identity. Zhao and Zhang (2017) stated that insufficient social support negatively affects preservice teachers' desire to learn and causes them not to enjoy learning. Social support is the physical and psychological help an individual receives from the people around him. Social support reduces psychological stress and anxiety and helps individuals adapt to society more easily. Adequate social support helps individuals rethink difficult situations, increases their self-confidence, and helps them develop problem-solving skills that will help them live less reactively (Sippel et al., 2015). Social support from family and peers are important factors that positively affect teacher identity (Shen, 2009; Nabavi etc., 2017).

In this study, statistically significant relationships were found between perceptions towards the teaching profession and social support. In addition, positive significant statistical relationships emerged between perception towards the profession and teacher identity. According to Lamote and Engels (2010), when preservice teachers begin their education process, they adopt student-centered approaches and exhibit positive behaviors towards cooperation and positive change. They may show low self-confidence in their professional skills, especially before their field and teaching experiences in the educational process. Therefore, it is argued that this process creates a vulnerable situation for their professional identities. It is stated that the support provided especially during this period will contribute more to consistent and positive changes in both teaching perceptions and identity perceptions towards the profession (Lindqvist et al., 2017). Martínez -de-la- Hidalga and Villardón-Gallego (2016) stated that when this support is provided, preservice teachers can develop a more accurate teacher identity during their education processes, especially during school experience and teaching practices. It is stated that preservice teachers who receive this support will be at a high level of satisfaction in terms of their perception of their profession, they will develop more awareness about the profile of their profession and the roles expected from them, they will understand that teachers are important factors that ensure the sustainability of social change, and they will make significant changes in their paradigms regarding the teacher roles and learning and teaching methodologies they use. (Beijaard et al., 2004; Richardson & Watt, 2006; Rodrigues & Mogarro, 2019).

LIMITATIONS OF THE RESEARCH AND SUGGESTIONS FOR FUTURE RESEARCH

In the literature, it has been underscored that teacher identity is one of the most important variables affecting their development processes throughout their professional lives. In this study, the relationships between teacher identity, social support, demographic variables and perception of teaching profession were examined. Results of this study should be approached with caution because the sample was from only in a university context. Considering the educational policies that can be

developed in this context, it can be stated that this is a limitation. Future studies with a sample from different universities can provide stronger results.

CONCLUSION

In this study, we examined the relationships between social support, demographic variables, perception of teaching profession and teacher identity. Although the research process is limited to preservice teachers studying at one university, the results are important especially in terms of understanding how important teacher education processes are. Research to be conducted in this context, especially with preservice teachers who are new to education faculties, will help reveal the existing problems and help preservice teachers develop a qualified professional identity perception before starting their professional lives. It is thought that this research will contribute to studies and planning in this context.

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AUTHOR CONTRIBUTION

All authors contributed equally to this paper.

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An Investigation of the Professional Values of Elementary Teachers Based on Parents Views[*]

Nermin Karabacak, Assoc. Prof. Dr., Recep Tayyip Erdoğan University, Türkiye,
nermin.karabacak@erdogan.edu.tr (ID) 0000-0001-5231-1730

Abstract

The basic key to achieving success in education is the teacher. When studies and the literature about effective teacher qualities are investigated, it appears that personality traits, academic educational history and experiences of teachers are important. Current research revealed that teachers provide qualified education with their professional values and this elevates the quality of education. Class teachers, especially, have a duty in socialization of the child. The professional values of teachers in the primary school period appear to have a significant effect on the academic success and future of students. In this research, the professional values of primary school teachers were investigated according to the opinions of parents of primary school students. This research used qualitative methods and techniques for data collection and analysis. The results of the research revealed the importance of being a researcher teacher in the context of class teaching as a profession requiring continuity in primary school, parents of students had very high levels of awareness about the professional values of class teachers and had high expectations from class teachers. These results show the need to invest in class teacher education to cultivate versatile class teachers who are equipped with professional values to be able to cope with changing problems in the 21st century and to achieve success in education.

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INTRODUCTION

The basic key to achieving success in education is the teacher. Teachers have strong and permanent effects on students. Teachers display these effects both within school and in areas outside of school. Teachers are leaders in society cultivating the qualified labor and professional staff desired by society through school channels. In this context, teachers appear to be triggers for social development in every society. M. Kemal Atatürk saw teachers as equivalent to a strong future with the statement "teachers alone are those who save nations" (Sönmez, 2018, p. 151). Teachers are members of a profession which constructs a cultural heritage coming from the past in a country, and plan the future. While making these plans, teachers must fulfil their social duty. In this context, teachers can be said to have the most significant power in ensuring cultivation of individuals beneficial to the nation and humanity through the formal educational process.

In the teaching profession, the largest share within all teaching areas comprises class teachers in Türkiye. Class teachers have a duty for socialization of the child, different to all other teaching areas. The profession of class teaching carries great importance in terms of comprising the basis of qualified education for future generations who will be cultivated in accordance with the rapidly-changing features of the current age. In this context, the quality of teachers with professional values is displayed through education-teaching practice and they do not just develop knowledge in children, but also have direct effects on shaping their personalities, especially in the first years of education (European Parliament, 2008).

Research by Sanders and Rivers (1996) and Shukla (2014) revealed that teachers who worked to become more qualified, followed changes occurring in science and society and reflected these in class, were models for students in terms of undertaking responsibility, effectively use modern teaching methods, techniques and tools, who are more beneficial to students, and work to gain skills required in the 21st century were more committed to the teaching profession and this elevated the quality of education. In this context, the identity of class teachers and which professional values they should have should be an important focus. Class teaching is defined as being different and more difficult compared to other teaching areas, while also being a profession requiring diverse qualities (Richardson & Watt, 2006; Thornton, Bricheno & Reid, 2002). Class teachers employed in primary schools appear to be very important for qualified education. To cultivate children who will be able to cope with the changing problems of the 21st century, the information age has revealed in all dimensions that class teachers must be equipped with professional values and be versatile. Considering society leaders will demand very different skills in future generations, it is necessary that class teachers be equipped with this knowledge and these skills as they provide basic education to and direct this generation. As a result, the quality of education is equivalent to the quality of training of class teachers working in these institutions during preservice education. In the literature, the qualities of class teachers are collected under the headings of professional knowledge, professional skills and professional qualities (Bubb & Mortimore, 2013; Darling-Hammond & Baratz-Snowden, 2007).

In Türkiye, the general framework for teacher qualities was determined by the National Education Basic Law number 1739 in 1973 and separate independent areas were set within the conceptual framework of general culture, education in special areas and pedagogic formation, and in practice. The Ministry of National Education (MEB) in Türkiye collected the values and standards for the teaching profession under the name "teacher competencies" (2008). Teacher competencies were defined as the knowledge, skills and attitudes required by teachers to be able to effectively and efficiently perform the teaching profession (MEB, 2008). Contrary to the use of the teaching competency concept in Türkiye, the term teacher professional standards is used instead of teacher competencies in the international literature (NBPTS, 2003; TED, 2009). Teacher standards determine the general framework of knowledge, skills and attitudes required by teachers, while teacher competencies generally define the level of behavior required by teachers (TED, 2009). The general

competencies for the teaching profession determined by MEB (2008) comprise 6 competencies and 31 sub-competencies. Each of the sub-competencies comprise performance markers, with a total of 233 performance indicators defined.

The researcher reached notable results by analyzing the MEB (2008) teacher competencies. Some of the performance markers included in the teacher competencies used knowledge, skills, values and competencies interchangeably, while some performance markers included repetitions and excessive level of detail, while markers representing sub-competencies appeared to be repeated and encompass each other. As a result, when structuring teacher competencies, it is necessary to ensure separation and expansion of performance indicators into knowledge, skills and values. In this context, teacher competencies may be divided into (1) competencies, (2) knowledge, (3) professional values and (4) performance indicators. Rather than the MEB (2008) teacher competencies displaying equivalence to practices in the international field, competencies were in the form of lists of areas of use for professional skills. The lack of definition of professional values of teachers under the performance indicators may be assessed as an important deficiency in terms of implementation. In the field, policy makers and researchers who will benefit from professional values of teachers require a framework that will ensure that the basic principles on which the values are based are known by the relevant stakeholders in order to ensure that the groups benefiting from education services, especially teachers, in teacher education, selection, evaluation and education services, perceive and understand the values of teachers as a whole.

Professional values include all guiding rules, standards and principles directing behavior when an employed individual carries out their profession. Determining professional values and abiding by these professional values is a reflection of the importance given to the profession. In the literature, the professional values of the teaching profession are collected under the headings of general culture, content knowledge, development and learning of the student, differences between students, teaching strategies, learning environments, communication knowledge and skills, planning of teaching, assessment knowledge and skills, development by learning from experience, social relationships, cooperation with those around them and professional ethics, hard work and dedication, democracy culture and human rights, critical thinking, and environmental awareness and values (Association of American Educators [AAE], 2015; Interstate New Teacher Assessment and Support Consortium [INTASC], 1992; National Board for Professional Teaching Standart [NBPTS], 2003; National Council for Accreditation of Teacher Education [NCATE], 2006). The professional values of the teaching profession are the values that need to be abided by with students, colleagues, parents and society while members carry out the teaching profession (Palmer, 2015; Strike & Soltis, 2009; Vidovic & Velkovski, 2013).

In some countries, teacher training institutions have defined professional values for teachers (America, Australia, Canada, Germany, Great Britain, Finland, Hungary, Japan, Korea, Mexico, the Netherlands, Israel, Spain, Switzerland, etc.). However, these professional values are not yet valid in all countries. Yet the related literature reveals that professional values are vital in working life. In this regard, since values education in schools is provided by teachers, the professional values possessed by teachers are of great importance. Since the professional values of the teaching profession have not been defined in Turkey, personal values may hold sway over the values of the profession in institutional activities. For this reason, in a context in which personal values are reflected in the working environment, serious problems may be experienced by which behaviors occur that can harm the education institution and the students (Çelik & Saban, 2020; Erdoğan, & Sezgin, 2020; Gözütok, 1999; Tekel & Karadağ, 2017; Tezcan & Güvenç, 2020; Yücel & Kasapoğlu-Tankutay, 2023). In this context, it is seen that in institutional activities in Turkey, personal values can dominate over the values of the profession. In the USA and European countries, however, the standards and values of the teaching profession are set forth and updated. On the other hand, although a limited number of studies have been made on the standards and values of the teaching profession in Turkey, it cannot be said that these have been clearly revealed (Karabacak, Korkmaz & Küçük; 2015; MEB, 2002, 2008; Tunca, 2012).

Classroom teachers make up the biggest group in the teaching profession in Turkey. In contrast to all other teachers, classroom teachers have responsibility for the child's socialization. Execution of this duty is realized with the professional values of the teaching profession at all stages of teaching. Teachers acting in accordance with professional values when communicating and sharing information with parents of students is a requirement of the profession. Education has three tripod legs of the teacher, student and parent. In Türkiye, the greatest denominator comprises parents of students, one of the stakeholders in education and pillars of education. The understanding of parents that teachers are members of a profession involved in social development may be facilitated by teachers reflecting the professional values they hold. When teachers display behavior abiding by professional values, it may ensure that parents also pay attention to professional values when communicating with teachers. Parents may have awareness and expectations about the professional values of class teachers, who will cultivate and direct children in the information age, and contribute to teachers performing their profession in accordance with these professional values. In this context, investigation of the professional values of class teachers according to parent opinions carries separate importance. For this reason, the aim of the study was to contribute to the literature by investigating the professional values of class teachers based on the opinions of parents.

METHOD

RESEARCH MODEL

The research was designed as a case study with the qualitative paradigm. It was implemented using the semi-structured interview technique. In the research, the integrated single case pattern was used for analysis to reveal the professional values of class teachers in depth according to parents of students (Creswell, 2015; Merriam, 2013). In this research, based on a single problem case, the single analysis unit of professional values of class teachers was investigated (Yin, 2014).

STUDY GROUP

For the selection of the parents of students, the National Education Directorates of Rize was contacted, and information was given about the aim of the research. In the process of determining parents of students, school administrators and classroom teachers were asked to recommend parents who comply with the "registration for parents" to the researchers. This method a list of elementary teachers who met the determined criteria was created. The elementary teachers determined in the list were contacted by the researcher and given information about the aim of the research. The elementary teachers who agreed to take part in the study were included as participants in the research. The research was conducted on a voluntary basis.

The study group comprised 10 parents of students. In the process of identifying participants, criterion sampling was used from the purposeful sampling methods with the criteria of having at least one child attending primary school, being a university graduate, being in different professional groups, and being a member of the school-parent association or included in social responsibility work in the school (Neuman, 2013). Parents of students included 6 women and 4 men. Parents had 2 and 3 children. Ages varied from 37 to 50 years. Participants had several professions including agricultural engineer, doctor, private business owner, police officer, textile industry, chemist, lawyer, academic and mine engineer. One of the participants had a master's degree, one had a doctorate and the others had completed undergraduate education.

DATA COLLECTION TOOL

Collection of data in the research was completed with a semi-structured interview form. Literature screening was performed to create the conceptual basis related to professional values of class teachers.

The professional values of class teachers in the Turkish education system and acquirements related to values in the primary school program were synthesized by investigating the Turkish Ministry

of National Education (2008) literature about teacher competencies in depth. Linked to this synthesis, opinions were obtained from academics who were experts in the fields of values and class teaching to determine the professional values required by class teachers. These professional values comprised the basis of 7 questions on the semi-structured interview form. Opinions about the interview questions prepared as a pilot form were obtained from three experts about the topic and the number of questions was reduced to 6. The pilot interview form was applied in a pilot interview with the parent of a student. After the pilot application, the final form of the semi-structured interview form was prepared by clarifying the understandability of questions on the interview form.

COLLECTION OF DATA

Through official communications, research permission was obtained from the relevant institutions. Participants were reached linked to the research permission. Selection of the study group from Rize province was supported by class teachers working in different classes in primary school and employed in different schools. Individuals in the participant group were reached by telephone and given information about the aim and content of the study. Preliminary interviews were held with parents identified as participants and consent was obtained. In this way 12 participants were selected. In the context of participation in the research being based on volunteering, one person refused the interview and one person refused the voice recording. Appointments were made with participants, allowing one hour for the interview, by determining the most appropriate time and day for the interview. Semi-structured interviews were completed face-to-face with participants in a study rooms. Interviews with participants were completed from September-October. At the start of the interview, participants were reminded of information about the interview and provided written and verbal consent for voice recording. Participants were asked the six semi-structured interview questions. These questions were:

1) What are the professional values related to "student and learning" of class teachers?

2) What are the professional values related to "learning and teaching environment" of class teachers?

3) What are the professional values related to "teaching assessment and monitoring" of class teachers?

4) What are the professional values related to "professional development and responsibility" of class teachers?

5) What are the professional values related to "school, family and social cooperation" of class teachers?

6) What are the professional values related to "school development, the school system and its development" of class teachers?

Participants saw and read the study questions one time, They were given one-two minutes duration and the interview began. Interviews lasted nearly 40-50 minutes. The data collection process was supported by note-taking in addition to voice recordings.

ANALYSIS OF DATA

Analysis of data used the NVivo 12 program for computer-supported qualitative data preparation. Interview data were transcribed to written format. To confirm the accuracy and validity of the transcription, the researcher listened to the recordings twice. Data underwent content analysis. Coding was made by the researcher according to the concepts extracted from the data obtained with the content analysis. In order to extract the concepts underlying the data and relationships between these concepts, inductive content analysis was used. The steps involved in the content analysis process were 1) coding of data, 2) finding themes, 3) organization of codes and themes, and 4) defining and interpreting findings (Corbin & Strauss, 2015; Moustakas, 1994). The codes of the study were generated directly from the data. The themes/categories were created by bringing together related codes having common characteristics. The framework of the themes was defined based on the related

literature, the aim of the research, the interview questions and the statements appearing in the interviews. In the creation of the themes, inductive content analysis was taken as the basis. The coding for the data was made separately by the coders of the research (the researcher and thesis supervisors). Content analysis was performed by coding data after organizing the collected data. To reveal the relationships between the themes obtained from the data, data were organized and defined according to codes and themes. Following this coding procedure, the researcher and supervisors convened and the fit between the codes of the data analysis was tested. Expert opinion was obtained about the obtained codes and themes. After expert opinion, compatibility of the coding in data analysis was tested. Accordingly, the codes were created in line with the common views of the researcher and supervisors. The data obtained were classified according to these themes and analyses were performed in the "Nodes" section of the NVivo 12 software program. In the creation of the themes, subthemes were created based on the main themes. The themes and the subthemes based on these themes that emerged as a result of the analyses were visualized by association with the "Maps" section of the program.

VALIDITY AND RELIABILITY OF THE RESEARCH

Internal validity of the research was provided for the conceptual framework of the study by performing broad-scope literature screening related to the topic. The information related to the qualitative pattern used in the research, how the data collection tool was developed, selection of the participant group comprising the research sample, number of participants and information about participants are explained in detail. In this research, care was taken during selection of the participant group. To increase the credibility of the research, deep-focus data collection and participant confirmation were implemented (Lincoln & Guba, 1995). The methods of making comparison and correlation among the findings resulting from the data analysis were applied. In this regard, the findings were revealed to be internally consistent and to be consistent with the theoretical framework. In this case, it can be said that the internal validity of the research was achieved.

External validity of the research in the method section, the analysis of the data based on the model of the research, the selection process of the study group, the data collection tool, interviews made are explained in depth. External validity of the research was provided by the direct opinions of the participants. Themes are supported by direct quotations from data in necessary places. If the selected quotation was long, the most important dimensions representing the quotation were communicated by preserving the participant's own words and expressions. Personal information about the participant who made the quotation given in the research is provided immediately after the quotation. Due to the principle of confidentiality, participants were not coded with their real names. Data obtained in the research and codings were stored in the electronic environment to allow later investigation. In the study, the research process, the analysis and interpretation of the data, are given simply and clearly. So readers could understand them easily. In case studies, it is very important that the research results be readable (Yin, 2014).

Internal reliability of the research was ensured by the researcher repeatedly reading the research questions and interview transcripts and coding according to the concepts emerging from the data (Cohen, Manion & Morrison, 2011). Codes were tabulated and codes obtained in the research were brought together. Repeated studies of the codes were performed by carefully reading the dataset. After the data coding process was completed, the process of creating themes began. In this stage, the codes were brought together and common aspects were determined. Thus, the initial themes forming the main lines of the research findings were obtained. The theme procedure in the research tabulated the initial themes and subthemes. In the context of ensuring reliability of the content analysis, data were coded by three specialists in the field for intercoder consistency. The experts investigated the initial theme, subthemes and codes and coded the data. After intercoder consensus, data were finalized by reduction to codes and themes for the dataset. To determine the reliability of the study, the formula *Reliability = Number of agreements / (Total number of agreements*

plus Disagreements) X 100 was applied (Miles & Huberman, 1994). Intercoder reliability was calculated as 88 / (88 + 8) X 100 = 92.00. In the reliability study carried out for this research, a reliability rate of 92% was obtained. Codes obtained from content analysis were inserted under the relevant themes and the process of presenting the findings began (Corbin & Strauss, 2015; Lincon & Guba, 1995).

External reliability of the research was provided by storing all notes, data and coding for the research in the electronic environment to allow later investigation to ensure confirmability (Miles & Huberman, 1994; Silverman, 2005).

FINDINGS/RESULTS

In this research, data obtained from the responses to questions directed to the education stakeholders of parents of primary school students about what the professional values should be for class teachers in the current information age was analyzed. The parents described thoughts and experiences with a holistic interpretation about their perspectives and experiences of professional values of teachers, which were collected under four themes. The findings are given in depth thematically according to the procedure steps.

PROFESSIONAL VALUES OF CLASS TEACHERS RELATED TO STUDENTS

Details of the theme is presented in Figure 1.

Figure 1. *Professional Values of Class Teachers Related to Students*
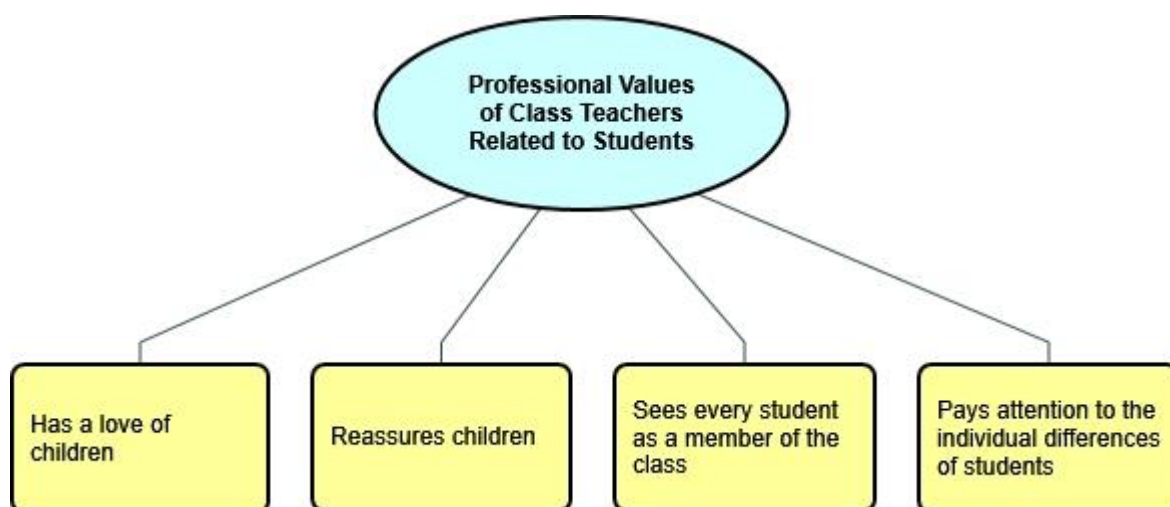
According to parents, the professional values related to the student of class teachers include accepting every student as a member of the class, ensuring the students love the teacher by reassuring the children with their love and paying attention to individual differences by knowing the development areas of students. According to parents, the first condition to be a class teacher is to love children. Teachers loving children is a value. In this context, it may be emphasized that when teachers love children, the teacher is loved by the student along with the family. *"We are faced with a very wonderful educator. We love our teacher very much…"* (K₂). Parents drew attention to the fact that class teachers who approach students with love provide a feeling of reassurance to the child. *"My daughter wanted to tell her teacher about an event at home. When I said to my daughter why do you want to explain everything to the teacher, some things should stay in the family, she stated that I see her like my mother. She trusts her teacher a lot…"* (K₃). A class teacher who loves children was concluded to see every student as a member of the class. *"The child should say I'm here, I exist, I am an individual.*

Children should be raised this way. Lessons are not important; first it is important to raise individuals..." (K$_5$).

Parents emphasized the need for class teachers to accept each child as their own child, not to discriminate between children and to see them as members of the class. The values of reassuring the child and seeing each student as a member of the class with individual differences is linked to the class teachers' love of children. For this reason, class teachers should give each student the feeling that they are valued individuals from the first years of education. This is because every individual is a person and every individual is valued because they are a person. A class teacher who values students will support learning according to individual differences and include students in class by noting their individual differences. For this reason, teachers should focus on knowing all the development areas of students. According to Durkheim, class teachers have a duty to socialize children. A child may be included in society and acquire a feeling of belonging by developing that feeling of belonging in class and in school. In this context, a class teacher must believe that every student can learn to the best of their own potential, and convert this belief into behavior. *"Every child is different; the teacher should approach them accordingly. There is an inclusion (special needs) student in our class. Our teacher has even taught them to read. The teacher helps them during lunch break."* (K$_4$).

PROFESSIONAL VALUES OF CLASS TEACHERS RELATED TO LEARNING

Details of the theme is presented in Figure 2.

Figure 2. *Professional Values of Class Teachers Related to Learning*
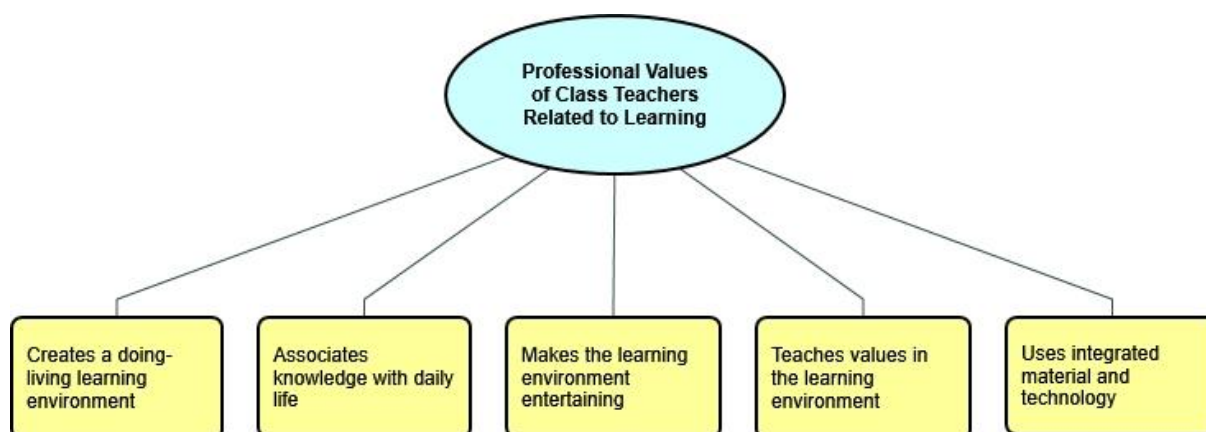
According to parents, the professional values of class teachers related to learning include creating a doing-living learning environment, associating knowledge with daily life, using integrated materials and technology to make learning a need, making the learning environment entertaining and teaching values in this environment. Consensus between parents emphasized the need for class teachers to teach children by doing and experiencing at young ages. For children to be able to take their place in society as productive individuals, it is notable that class teachers need to adopt doing-experiencing learning values as a learning philosophy. For doing-experiencing learning, learning within class should be supported by learning in education outside the program and is reflected by associating knowledge with daily life. *"Our teacher brings the learning environment outside the classroom. Last year, every 15 days, at weekends, they would meet the students in the public library. With the library meetings, children felt the need to go to the library and became members. We continuously exchanged books; they loved the library a lot. This year, as a class, they became a member of the TEMA foundation..."* (K$_7$). The teacher combined the learning environment with activities outside the program in education and emphasized the development of the researcher identity of students based on experiential learning.

If a class teacher can associate information with daily life to create experiential learning, it may make the learning environment more entertaining. Currently, children can access information everywhere. As a result, teachers raising children in the information age need to be able to provide education according to the abilities and passions of the children. In this context, for students in basic education, the learning environment should be designed according to children with tablets and smartphones in their hands. The important thing is to be able to transform this information into an entertaining practice in a free environment which meets the learning needs of students. For teachers to be able to prepare such a learning environment, it is mandatory that they know the use of materials along with integration with technology very well. The importance of teachers making good plans to develop themselves and their lesson materials by integrating with technology based on the developing and changing learning environments was emphasized to be a professional value by parents. *"For students, it is necessary to make good plans firstly to ensure learning. Children should be made to use technology as much as possible. Children have great interest in investigating with tablets, computers, microscopes, binoculars. As a result, teachers should be able to change the materials developed according to the facilities in the class or be able to develop themselves…"* (K$_1$).

It was stated that it was a necessity that while a class teacher integrates information communication technologies with student learning, they should simultaneously ensure students acquire personal and social values and instill a love of humans, nature and animals among students. *"A class teacher is the next parent after us. They should especially teach respect and love; in other words, they should see personal values as important. They should first teach how we should behave when socializing with each other, how we should behave toward street animals. Firstly, this value culture should be created in the sense of school"* (K$_6$).

PROFESSIONAL VALUES OF CLASS TEACHERS ABOUT SUPPORTING STUDENTS

Details of the theme is presented in Figure 3.

Figure 3. *Professional Values of Class Teachers About Supporting Students*
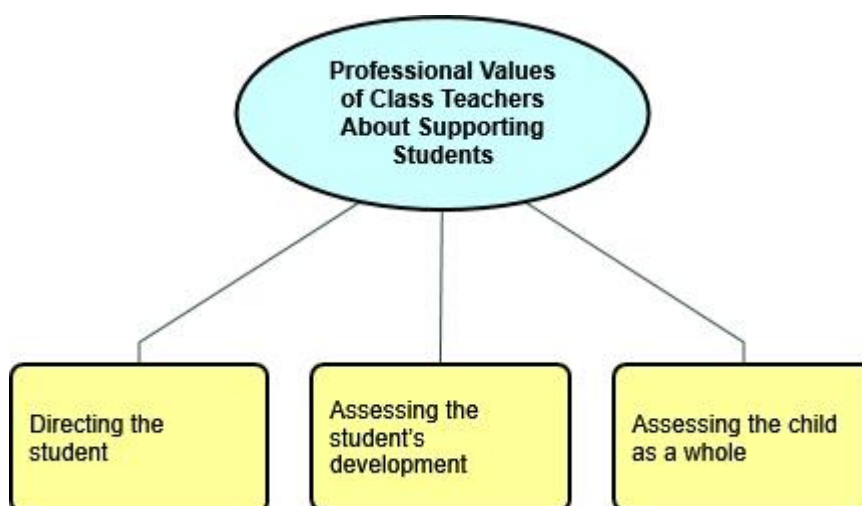
According to parents, the professional values of class teachers related to supporting the student include directing the student, assessing the student's development and assessing the child as a whole. Parents emphasized by consensus that a class teacher should direct students due to being able to see the behavior, abilities and interests of the students as a good observer who is in long-term interaction with the child. *"The class teacher spends more time with the child than we do. A parent many not understand a child's ability but an observant teacher will. Successful people are always discovered by teachers. A good teacher may be able to better analyze where children will obtain professional and*

personal success" (K$_8$). Parents appeared to have very high awareness of professional values and expectations about assessment, support and direction of students by class teachers.

The participating parents noted the need for teachers to know the student to be able to assess the student and to be able to come to their level. *"Our teacher really is an adequate teacher in terms of assessment. In class they know each student differently, the approach to each student is different, they can come to the level of each student"* (K$_3$). The need for assessment according to the child as a whole and at the level of the individual was notably emphasized by parents. *"A bird cannot fly on one wing. The social aspect is needed. Development of every aspect is needed for the child, but every child may not be the same. Here the teacher's duty is to be a little more helpful to those who cannot fly…"* (K$_6$). In order to develop all aspects of the student, participants reflected that a professional value of classroom teachers was to be able to implement and evaluate learning plans according to the environment and the level of the student.

VALUES OF CLASS TEACHERS ABOUT PROFESSIONAL DEVELOPMENT

Details of the theme is presented in Figure 4.

Figure 4. *Values of Class Teachers About Professional Development*
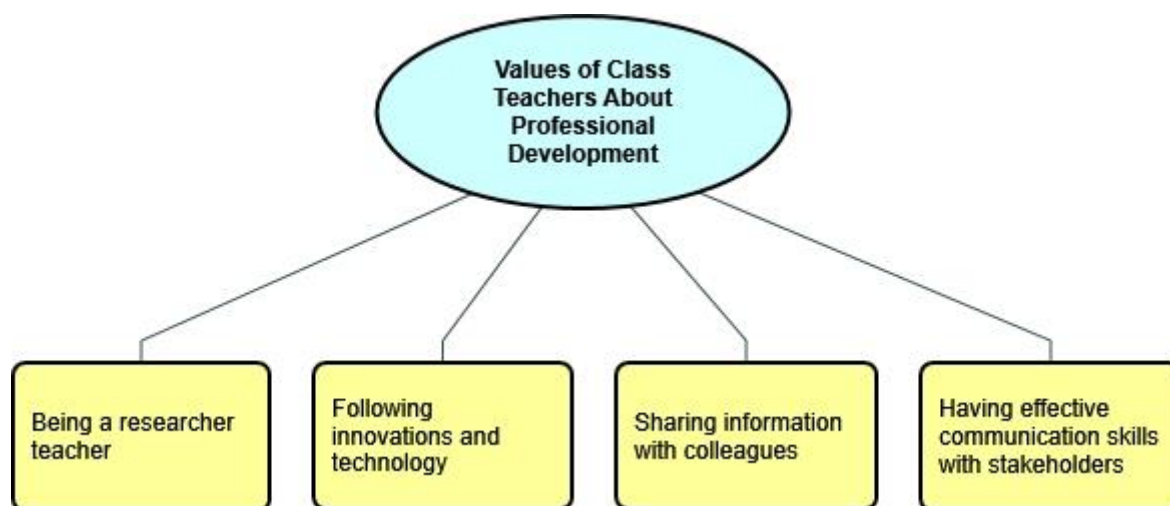
According to parents, values related to professional development of class teachers included following innovations and technology linked to being a researcher teacher, sharing information with colleagues linked to effective communication skills and communicating with stakeholders. The expectations of families from teachers have changed linked to technological developments in the information age. Parents appear to have expectations at very high levels that class teachers will continuously follow publications and innovations and be open to changes linked to the reading and interrogation skills of teachers. *"Teachers should be able to continuously follow innovations, should be open to change, be teachers who read a lot and question things. I think they should follow continuous publications and publications in the field"* (K$_8$). Class teachers cultivating the 21st century generations were determined to require development of technological pedagogic content knowledge in a notable way by participating parents. Due to the interdisciplinary approach of class teaching, there is a need to acquire values to increase teacher qualifications during teacher training so teachers are able to develop and produce material integrated with technology, to find very different and creative responses to questions asked suddenly by children and to expand the horizons of these topics. Supporting and strengthening the professional development of one of the most important stakeholders in education of class teachers may occur if teachers follow innovations and technology through technology integration. Through guidance provided by technology integration, the role of teachers should be to direct students. When 21st century skills are mentioned, the skills may be listed; however, can these

skills be used by the teacher within the class? As a result, it will be beneficial to design teacher training with the aim of gaining skills about producing content suitable for digital education and developing technological skills.

Following innovations and technology is also a necessity of being a researcher teacher. Teachers should be role models for cultivating productive individuals in the information age. As their imagination is very broad, for children in this age group the role of teachers in directing research in out-of-school learning environments is more important than the physical environment and technological infrastructure of schools for success in learning experiences. This is because teachers have a key place for children to be researchers and produce information. Teachers with researcher values may convert the class to a social cultural space involving socialization in this context. For teachers to be researchers, participants reflected the values of having master's degrees in their professional career, the need for research of new developments, and being able to direct parents and students in relation to this topic. *"For professional development, teachers should have a master's degree. They should research all new developments; from games to toys to electronics. I see young people newly graduated from university are more productive. Innovations found by teachers should be communicated to children, they should be able to direct us. How should I behave to be more beneficial to my child? The teacher should be able to direct me about this topic"* (K_4).

The teaching profession should also ensure the sustainability of gains from valuable experiences by sharing knowledge and skills with colleagues and other stakeholders. In this context, sharing of information and experiences may ensure the emergence of more qualified studies in the name of education. The value of sharing information with colleagues is also a necessity of being a researcher teacher. Teachers who share the results of their research with colleagues, school administrations, families and other stakeholders may reach a larger target audience. In this context, teachers cooperatively sharing with colleagues and experts in different institutions will contribute to the school being a cultural and learning center. *"Our teacher cooperates with colleagues and experts in different institutions. They do activities with this group. This brings success. Expanding the surrounding circle brings success to the school"* (K_9).

Parents focused on one of the most important values of class teachers being effective communication skills with stakeholders. Parents expected that class teachers will positively create communication with families, just as much as they do with students. Parents reflected the effective communication aspect between teachers and stakeholders as sharing the learning environment with families by voluntary participation in procedures organized with the aim of parents supporting work by school administrations and teachers, being able to reach teachers and receiving feedback about any special situation related to their child, and the use of technology when undertaking the role of class parent (WhatsApp group). As a reflection of communication with stakeholders, the positive aspects of sharing the learning environment with parents on a rotating basis was also emphasized. *"For children to learn professions, I came as a police officer to class. My child was very happy to see me in class. Parents perform activities for one lesson per week with children according to their area of expertise. I find it very good that parents enter the class in this way. Children see the difficulty and the good sides of a profession"* (K_7).

Participating parents revealed that teachers share their professional experience and values with families during home visits. *"Information is communicated by our teacher to us during meetings and home visits. Our teacher pays attention the birthdays of all students and celebrates them in class"* (K_{10}). Parents noted that for communication by the teacher to be functional, this communication should be supported by families and that there should be studies about children's futures by sharing this responsibility. *"There was a tripod in the chemistry laboratory. As one foot was missing, any time we placed a beaker on it, it spilled. I think the teacher's communication is like a tripod. For this reason, the teacher, school and parent all need to be in continuous communication. It doesn't happen with just the*

teacher's effort or the parent's efforts. Parent and teacher should be in continuous communication" (K₉).

DISCUSSION, CONCLUSION and IMPLICATIONS

Although there is no direct research on the Professional Values of Elementary Teachers based on Parents Views in Turkey, it has been possible to reach a limited number of research results on the Professional Values of Elementary Teachers. For this reason, these research results in the literature were used to contribute to the discussion part of the research. It is aimed to provide a new contribution to the field by examining and discussing the results obtained from the research in terms of Turkey.

In this research attempting to determine the professional values of class teachers according to parents, parents of students had very high awareness levels of the professional values of class teachers and appeared to have great expectations from class teachers. The high expectations from professional values of class teachers held by parents of students, the greatest stakeholder in education, is important for this group of teachers in terms of trying to elevate themselves to these professional standards by knowing what parents expect from them and enabling self-improvement. Hayes (2010) stated that society had great expectations from teachers. Research about class teachers in the literature revealed that families had very high expectations from class teachers and the qualities expected were higher than branch teachers (Karabacak, Küçük & Korkmaz, 2015; Uygur & Kanadlı, 2020). Research by Bozca (2015) identified that attitudes of class teachers about their profession were more positive compared to branch teachers. Mustan (2002) revealed the need for teacher training programs and individuals preparing for the profession to be trained with professional values in order for the teaching profession not to lag behind the needs of the age in the 21st century and to continuously develop and renew the understanding and approaches related to the profession. Based on the understanding that the quality of an education system cannot surpass the quality of the teachers, there is a need for class teachers equipped with professional values within the system (TED, 2015). The high impact of teachers having these professional values on learning of students was revealed in research by Sanders and Rivers (1996). In this context, the importance of teachers having the professional values required by the profession can be stated.

Research results revealed that the profession of class teaching is a selfless profession involving a love of children (Babayiğit, 2018; Hayes, 2010). The most emphasized value in the research of the value of loving children is a notable result. Downing, Ryndak and Clark (2000) stated that loving children was a professional value for teachers. Ergün and Özdaş (1999) emphasized that loving children was the first precondition for the teaching profession. Research by Çelik and Hotaman (2018), Uygur ve Kanadlı (2020) and Yıldırım and Öner (2016) identified that students, teachers and parents expected that high levels of loving children was required by class teachers. Research revealed that if teachers love children, the emotional closeness between teacher and student will positively affect the student's learning and students learn more easily and effectively from teachers they love, which cultivates active and successful students (Gordon, 2001; Veenman, 1984). In this context, the warmth and love of a class teacher toward children with young ages can be said to play an important role in students trusting the teacher.

Teachers who love children and value them as individuals see every student as a member of the class. Batelaan (2001) stated that when teachers believe students are not judged linked to physical features, the group they are a member of and their beliefs, and that every person has equal rights, they see the student as an individual. Research by Klis and Kossewska (1996) found that professional values of teachers were being able to understand students by closely recognizing their emotions and feelings and being able to act sensitively toward the student. The teacher should believe that every student is worth respecting. Research by Lehr (2003) and Vidovic & Velkovski (2013) included teachers respecting the differences between students, paying attention to individual differences and accepting

them as they are as professional values. In this context, good communication between teacher and student is important. In the study by Sezer (2016), communication skills led the list of ideal teacher qualities.

Seeing the teacher only as a communicator of information may cause the illusion of learning being a monopoly. Research by Uygur and Kanadlı (2020) identified that parents expected that class teachers need to be equipped with teaching knowledge and skills. As class teaching is an interdisciplinary profession, they must be versatile. As a result, the profession of class teaching differs from other teaching groups and the difficulty of the profession emerges in this respect. With the changing technology and scientific developments in the information age, the duties and values of teachers have begun to change. The research results revealed that creating a doing-experiencing learning environment, associating information with daily life, making the learning environment entertaining by integrating non-school learning into the class environment, instilling values in the learning environment and being able to use material and technology integration were professional values of class teachers. There results of the research support studies in the literature directly (MEB, 2008; NBPTS, 2003; NCES, 2005; Uygur & Kanadlı, 2020; Vidovic & Velkovski, 2013). Research by Karabacak et al. (2015) stated that preparing individuals for life, and assisting problem-solving in daily life were professional values of class teachers.

When the learning and teaching environment is well managed by the teacher according to the basic skills of students, it may be said that students will be educated through experiential learning. Research by Palmer (2015) and Vidovic & Velkovski (2013) determined that creating an attractive learning environment, creating a happy class environment, making the learning environment entertaining by centering the student, and creating a multi-learning environment using technologies that can rapidly access and disperse information for development of students were professional values of teachers. A class teacher should be able to prepare the learning environment according to the determined qualities for participation of students in the learning process (Lehr, 2003). In this environment, class teachers make plans to instill values to students with formal and informal planning. In this context, programs prepared by teachers about experiential learning for students to acquire values are important. The correlation between teachers having professional values with quality education and students acquiring values was revealed in research by Brown (2006), Boyd and Arnold (2010) and Lovat and Toomey (2009). Research by Çelik and Hotaman (2018) identified that for students to develop positive character, class teachers had the expected values at high levels. Gündoğdu, Bay and Mert (2022) identified that class teachers implemented character acquirement and character education for students in most schools and that character education required integration with an interdisciplinary approach according to the opinions of American, German and Turkish class teachers.

The research results revealed that directing students, and assessing the development of students and the student as a whole were professional values of class teachers. Research by Hayes (2010), Örenel (2005) and Vidovic and Velkovski (2013) revealed that assessing the student's progression by monitoring their physical, mental and affective development as a whole and developing their potential were professional values of class teachers. According to Covey (2005), an educational understanding focusing on mind, body and emotions ensures holistic development of the individual. In this context, performing the process of defining, instilling and directing the development areas for the child holistically can be said to be a professional value of class teachers. Aspy and Roebuck (1975) emphasized the importance of encouraging learning in cooperation to develop the social and affective aspects of students, providing opportunities for discussion, being sensitive to the emotions of the students and paying attention to their opinions. According to the results of this research in the literature, class teachers should include work about the cognitive and affective aspects of students.

The research results revealed that being a researcher teacher, following innovations and technology, being able to integrate information communication technologies, sharing information with

colleagues and having effective communication skills with stakeholders were professional values of class teachers in the information age. Research by Palmer (2015) included active use of technologies rapidly accessing and dispersing information and being innovative among the professional values of teachers in the 21st century. The research results include having a master's degree to be able to follow professional developments and innovations for class teachers. One of the notable results of the research is that parents reached this conclusion. Research in the literature revealed the need for teachers to follow publications in the field to be able to follow professional developments and innovations, benefiting from the experience of more senior colleagues, doing postgraduate education, and participating in in-service training, seminars, symposiums and congresses (Gökmenoğlu, Beyazova & Kılıçoğlu, 2015; Uştu, Taş-Mentiş & Sever, 2016). Bozan (2012) emphasized that the identity of researcher teachers obtained through postgraduate education was necessary to ensure qualified human resources that could produce original ideas by accessing information and raise creative individuals for society. Research by Knudsen et al. (2013) revealed that in situations where the professional development of teachers was supported, it contributed to development of the educational system and increased student success.

The research results revealed that class teachers shared the class environment with families for values related to cooperating with stakeholders. This result is one of the notable results of the research. NEA (2018) includes the statement that the efficacy of the teaching methods implemented by teachers is linked to cooperation with families. The school, family and society cooperation value in the literature, with the statement that teachers encourage families to participate more in the education process, is reflected as a teaching professional value. Research by Çubukçu et al. (2012) determined that teachers are seen by parents as assurance for future generations. In this context, teachers having the expected professional values and the process of teachers transferring culture carries value in the eyes of parents. Cooperating with colleagues to support and contribute to professional development and sharing developments in the field with colleagues were included as professional values in research by NEA (2018) and Vidovic and Velkovski (2013). AAE (2015) stated that teachers ensuring active and positive contributions to school, family and social relationships was a professional value.

CONCLUSION/ LIMITATIONS and RECOMMENDATIONS

In the context of the results revealed by the research, future studies are required to comprehensively investigate and assess the professional values of class teachers in particular and teachers in general in line with the opinions of parents and other stakeholders in education. In the 21st century, the importance of professional values for class teachers, who have a special place among all teaching areas, has come to the fore. Due to the duty of socializing children, if class teachers especially in the 21st century have the values required by the profession they will be able to fulfill their duties in cultivating generations for the information age and the future. Due to cultivating students at all school stages during education, class teachers are the basic key to achieving success. In this context, it is important to assess which professional values are required by class teachers, who direct the cultivation of individuals who will shape society in the eyes of parents. Among educational stakeholders from housewives to doctors, engineers to academics, parents with professions throughout society were able assess teachers from the outside and can contribute positively to the professional development of teachers. As a result, this research may be seen as a tool assisting the restructuring of professional values of class teachers, in the context of being the first research performed in Türkiye about determining the professional values of class teachers through the eyes of parents. In the context of the results revealed by the research, preservice and in-service training should be strengthened and supported in the name of science and serving society in order for class teachers to be able to acquire professional values.

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Prospective Music Teachers' Attitudes, Self-Efficacy, and Study Habits Towards Piano Course in Terms of Different Variables

Ceren Saygı Gerçeker, Assoc. Prof., Aydın Adnan Menderes University, ceren.saygi@adu.edu.tr
0000-0002-0477-2177

Abstract

The main objective of this study is to investigate the attitudes, self-efficacy, and study habits of prospective music teachers in terms of various variables. The sample of this study, designed as a relational survey model, consists of a total 349 prospective music teachers studying at 5 state universities in the Aegean Region. Three measurement tools were used to collect data in the study. Participants' attitudes towards the piano course differed significantly by their gender, grade, perception of success, daily practice time, and piano ownership status. Prospective music teachers' self-efficacy towards piano courses differed significantly according to their gender, type of high school graduated, perception of success, daily practice time, and piano ownership status. Participants' self-efficacy also significantly differed by gender, type of high school graduated, perception of success, daily practice time, and piano ownership status. Participants' study habits significantly differed by type of high school graduated, perception of success, and daily practice time. Furthermore, there was a statistically significant relationship between students' attitude scores and their study habits scores, as well as a significant relationship between self-efficacy scores and study habits scores, and a moderately significant relationship between self-efficacy scores and attitude scores. Lastly, the correlation coefficient between the study's predictive variable (piano study habits) and the predicted variable (attitude) was found to be 0.574, indicating a moderate relationship. In a similar vein, the coefficient of correlation between the predictor variable (piano study habits) and the predicted variable (self-efficacy) was calculated as 0.773, implying a moderate relationship.

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INTRODUCTION

It is crucial to achieve affective as well as academic goals to reach the intended goals in education, to create qualified learning environments, and to raise well-equipped and self-realized individuals. As the speed of accessing information increases in the changing and evolving world, it also influences the goals, methods, and approaches in education. This is because the descriptions of the desired type of individuals to be cultivated have changed. While academic success criteria were previously sufficient, new criteria have now begun to be added. Examples of these criteria include a propensity for teamwork, strong communication and information technology skills, and advanced language proficiency, among others. Additionally, it is observed that certain affective characteristics positively impact academic achievement. One of these is attitude. Attitude is considered one of the most important affective characteristics in education. Therefore, it is worth providing the definition of attitude to clarify the situation. "Attitudes are positive or negative expressions of evaluation of objects, people, or events". An attitude involves a person's feelings towards something" (Robbins, 1994; as cited in Üstüner, 2006, p. 111). Another affective characteristic that influences success in education, as much as attitude, is self-efficacy. This is because self-efficacy is the belief system that determines students' confidence in successfully completing an academic task or assignment, or thinking in a way that would hinder their progress (Bandura & Locke, 2003; as cited in Spicer, 2012). With its nature, self-efficacy is closely related to beliefs about success, forming a significant connection between self-efficacy and achievement. Self-efficacy is an emotion that influences a student's learning behavior. Students who feel competent in their learning are more inclined to demonstrate self-regulation skills such as goal setting, effective learning strategies, and goal review. Further, students attempt to create effective learning environments for themselves (Bandura, 1986, 1997; as cited in Schunk and Pajares, 2009). Alongside attitude and self-efficacy, study habits constitute another influential variable for achieving educational goals. Well-established and high-quality study habits lead students to success and enable them to benefit from learning environments. To achieve effective learning, it is essential to have well-structured study habits in place (Gettinger & Seibert, 2002, cited in Çetin, 2009). Students' study habits and attitudes have an impact on their feelings and behaviors during school activities as well as their overall reactions to school life (Küçükahmet, 2005, as cited in Küçükosmanoğlu, et al., 2017).

The responsibility and emotional state of the learner in the triangle of education system, teacher, and student are of high importance to achieving the intended goals in every step of education. If the learner lacks interest in the subject, feels inadequate or unprepared, and demonstrates low academic effort, achieving a permanent and qualified learning outcome becomes challenging. It is critical, especially in the fields of art and sports, that the targeted efficiency is completed in a timely and complete manner that must be repeated daily. In Turkey, music education, which is relevant to the subject of the research, is provided in music teaching departments of fine arts education departments of universities. In the field of music, the development of various skills requires the simultaneous engagement of cognitive and psychomotor achievements. Proficiency in playing instruments, singing, and auditory skills necessitates the regular and accurate execution of prescribed exercises. For this to occur, individuals must have a deep passion for their craft, a sense of possessing the necessary skills, and a commitment to consistent practice. In light of the above mentioned, the present study attempts to examine the attitudes, self-efficacy, and study habits of prospective music teachers towards the piano course in terms of various variables. In this sense, the "Scale of Attitudes towards Piano Course" developed by Tufan and Güdek (2008), the "Scale of Self-Efficacy towards Piano Course" developed by Kurtuldu and Bulut (2017), and the "Scale of the Piano Study Habits" developed by Bağcı and Toy (2020), and the personal information form developed by the researcher were used to seek answers to the following questions.

1) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons according to gender?
2) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons according to their grades?
3) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons according to the high schools they graduated from?
4) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons according to their perception of success in piano?
5) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons according to their daily study hours?
6) Is there a significant difference between prospective music teachers' attitude scores, self-efficacy scores, and study habits scores regarding piano lessons based on their piano ownership status?
7) Do the scores of the Scale of Piano Study Habits and its sub-dimensions of prospective music teachers predict students' attitudes toward the piano?
8) Do the scores of the Scale of Piano Study Habits and its sub-dimensions of prospective music teachers predict students' self-efficacy toward the piano?

METHODOLOGY

RESEARCH MODEL

In this study, the relationship between prospective music teachers' attitudes toward piano lessons, their self-efficacy, and study habits was examined. The study employed the relational survey model, one of the quantitative research methods. "Relational survey models are research models that aim to determine the existence and/or degree of change between two or more variables" (Karasar, 2004, p. 81).

STUDY GROUP

The study group included 349 prospective music teachers studying at a state university in the Aegean Region in the spring semester of the 2021-2022 academic year. The research utilized a sample of 349 volunteers from all grades across five state universities, using an easily accessible sampling method. Demographic statistics for the individuals are presented in Table 1.

As shown in Table 1, 59.8% of participants were female and 40.2% were male. 18.7% attended her first grade, 18.7% sophomore, 32.7% third grade and 30.4% her senior year. 50.6% were graduated from fine arts, 32.4% were graduated from Anatolian high schools, and 17% were graduated from other high schools; 22.9% attended Adnan Menderes University, 22.6% attended Dokuz Eylül University, 18.4% attended Muğla Sıtkı Koçman University, 23.5% attended Pamukkale University, and 12.6% of the participants attended Balıkesir University; 22.6% found themselves successful at a low level, 57.5% found themselves successful at a moderate level, and 19.8% found themselves successful at a high level; 49.2% of the participants practiced for 30 minutes or less per day, 29.1% practiced for 30-60 minutes, and 21.8% practiced for 61 minutes or more. 56.1% of the participants owned a piano, while 43.9% did not.

Table 1. *Study Group*

Variable	Category	Study Group	
		f	*%*
Gender	Female	212	60.7
	Male	137	39.3
	Total	349	100.0
Grade	1st grade	65	18.6
	2nd grade	63	18.1
	3rd grade	114	32.7
	4th grade	107	30.6
	Total	349	100.0
Type of High School Graduated	Fine Arts High School	176	50.4
	Anatolian High School	112	32.1
	Other	61	17.5
	Total	349	100.0
The Sampled Universities	Adnan Menderes University	82	23.5
	Dokuz Eylül University	80	22.9
	Muğla Sıtkı Koçman University	64	18.4
	Pamukkale University	80	22.9
	Balıkesir University	43	12.2
	Total	349	100.0
Perception of Success	Low	79	22.6
	Moderate	202	58.0
	High	68	19.4
	Total	349	100.0
Daily Practice Time	30 minutes and less	172	49.2
	31-60 minutes	100	28.6
	61 minutes and more	77	22.2
	Total	349	100.0
Piano Ownership Status	Yes	196	56.1
	No	153	43.9
	Total	349	100.0

DATA COLLECTION TOOLS

The scores, which were previously found valid and reliable, as well as a *Personal Information Form*, were utilized in the study. 'Attitudes towards Piano Course Scale' (APCS) developed by Tufan and Güdek (2008), 'Self-Efficacy towards the Piano Course Scale' (SEPCS), developed by Kurtuldu and Bulut (2017), and the 'Piano Study Habits Scale' (PSHC) developed by Bağcı and Toy (2020) were employed as data collection tools. Permission was granted from the authors who developed the measurement tools.

ATTITUDES TOWARDS PIANO COURSE SCALE

APCS is a 30-item scale. The internal consistency reliability coefficient of the scale is .97 for the overall. The Cronbach's alpha coefficient of the first factor named *contentment*, consisting of eighteen items, is .97; the Cronbach's alpha coefficient of the second factor, called *value*, consisting of twelve items, is .91. The factor loading values of the items were in the range of 0.60 to 0.79. The KMO value of the scale was 0.97. The rating of the scale is between 1 and 5.

SELF-EFFICACY TOWARDS PIANO COURSE SCALE

SEPCS is a 32-item scale. The internal consistency reliability coefficient of the scale is .95 for the overall. The Cronbach's alpha coefficient of the first factor named *The self-efficacy towards the level of skill achieved in the piano course*, consisting of eighteen items, is .94; the Cronbach's alpha

coefficient of the second factor, called *The self-efficacy towards the level of knowledge and consciousness achieved in the piano course*, consisting of fourteen items, is .94. The factor loading values of the items ranged between 0.40 and 0.72. The KMO value was 0.95, and the rating of the scale is between 1 and 5.

PIANO STUDY HABITS SCALE

PSHC is a 32-item scale. The internal consistency reliability coefficient of the scale is .94 for the total scale. The Cronbach's alpha coefficient of the first factor named *instrument technique* consisting of seven items is .83; the second factor named *preparation and warm-up* consisting of seven items is .86; the third factor named *posture and technique* consisting of four items is .83; the fourth factor named *interpretation and expression* is .80; the fifth factor named *rhythmic practice and fingering* is .65; the sixth factor named *post-performance activity* is .66 and the seventh factor named *deciphering technique* is .68. Loadings of items ranged between 0.39 to 0.85. The KMO value of the scale was 0.89. A 5-point Likert-type, scoring from one to five, was utilized in the study.

EVIDENCE OF VALIDITY AND RELIABILTY FOR THE SCALES

EVIDENCE OF VALIDITY FOR THE SCALES

Confirmatory factor analysis was executed to measure the construct validity of the PSHS, SEPCS, and APCS employed in the work. As a result of the confirmatory factor analysis conducted, the fit indices of the scales are tabulated in Table 2.

Table 2. *Fit Indices of the Scale*

Fit Indices	Accepted Values	PSHC	SEPCS	APCS
χ2/sd	χ2/sd<5 (Sümer, 2000)	1488.79/442 3.368	1959.88/461 4.251	1558.26/403 3.867
RMSEA	RMSEA<0.10 (Kline, 2005)	0.082	0.092	0.091
SRMR	SRMR<0.08 (Brown, 2006)	0.070	0.074	0.069
NFI	NFI>0.90 (Brown, 2015)	0.96	0.94	0.95
IFI	IFI>0.90 (Brown, 2015)	0.97	0.95	0.96
CFI	CFI>0.90 (Brown, 2015)	0.97	0.95	0.96

Table 2, which shows the fit indices of PSHS, SEPCS and APCS scales, shows that the scales are valid and most of the fit indices are within the range of acceptance criteria.

EVIDENCE OF RELIABILITY FOR THE SCALES

The Cronbach's alpha internal consistency coefficients for the reliability of the PSHS, SEPCS, and APCS were calculated, and the results are detailed in Table 3.

Table 3. *Cronbach's Alpha Internal Consistency Coefficients for the Scales*

Scale		Scale	F1	F2	F3	F4	F5	F6	F7
PSHS	Cronbach's Alpha	0.963	0.905	0.912	0.911	0.908	0.766	0.764	0.7910.
	The Number of Items	32	7	7	5	4	3	3	3
SEPCS	Cronbach's Alpha	0.960	0.939	0.911					
	The Number of Items	32	18	14					
APCS	Cronbach's Alpha	0.805	0.955	0.827					
	The Number of Items	30	18	12					

Based on Table 3, it can be implied that the scores acquired from the scales and their sub-dimensions are highly reliable (Özdamar, 2004).

DATA COLLECTION PROCESS

Before conducting the study, the research content was throughly written and submitted in the format specified by the Adnan Menderes University Faculty of Education Ethics Committee. Following the close review and approval by the Ethics Committee, the research was launched simultaneously at the five public universities.

DATA ANALYSIS

The SPSS 24 and LISREL programs were used to analyze the data. Aforementioned scales were computerized through the SPSS 24 software program and the subject number was given to participants. Necessary changes were made to the data that was marked incorrectly and incompletely. An outlier analysis was conducted and 9 subjects were removed from the data set according to their standardized Z scores (+3, -3 range was taken). After removing the extreme values, the study was performed with 349 people.

Construct validity was examined to assess the validity of the scales. While examining the construct validity, confirmatory factor analysis was performed. The Cronbach's Alpha internal consistency coefficients were recorded and interpreted for the reliability of the scales. The skewness and kurtosis coefficients of the scores obtained in terms of both general and each demographic variable were analyzed to see if the data was normally distributed. The skewness and kurtosis between -2 and +2 are considered acceptable range for being normally distributed (Kim, 2013).

Following the normality tests of the scores obtained from the scales, the independent samples t-test was employed to evaluate differences by gender and piano ownership status; ANOVA was used to reveal differences according to grade, type of high school graduated, daily practice time, and perception of success; the Pearson correlation coefficient was employed to examine the relationships; and regression analysis was performed to investigate the effects. The results were presented in tables.

FINDINGS AND INTERPRETATION

In this section, the attitudes, self-efficacy, and study habits of the prospective music teachers participating in the research toward piano lessons were examined in accordance with the research's sub-problems and are presented in tables.

THE DIFFERENTATIATION ANALYSIS RESULTS BY DEMOGRAPHIC VARIABLES

THE DIFFERENTIATION ANALYSIS RESULTS BY GENDER VARIABLE

The outcomes of the Independent Samples t-test, which were performed to figure out if the scores acquired from the PSHS, SEPCS and APCS used in the study differed by gender, are reported in Table 4.

Based on Table 4, it can be concluded that gender is not a significant precursor of students' study habits (t=1.091, p>0.05), instrument technique (t=1.937, p>0.05), preliminary preparation and warm-up (t=0.071, p>0.05), posture and technique (t=1.136, p>0.05), interpretation and phrasing (t=1.790, p>0.05), rhythmic work and fingering (t=0.713, p>0.05), post-performance activity (t=0.654, p>0.05), deciphering technique (t=0.406, p>0.05) and attitude (t=0.746, p>0.05). The total self-efficacy scores (t=2.321, p<0.05), the sub-dimension scores, namely, self-efficacy towards the level of skill achieved in the piano course (t=2.398, p<0.05), Self-efficacy towards the level of knowledge and consciousness achieved in the piano course (t=2.047, p<0.05) 0.05), and contentment (t=1.984, p<0.05) and value (t=2.756, p<0.05) scores produced statistically significant differences based on gender variable. Besides that, females' total self-efficacy scores, the sub-dimension scores with respect to the self-efficacy towards the level of skill achieved in the piano course and the self-efficacy towards the level of knowledge and consciousness achieved in the piano course, and contentment mean scores are higher than males, whereas their value mean scores are lower than males.

Table 4. *The Differentiation Analysis Results by Gender*

	Gender	n	X̄	Std. Deviation	t	sd	P
Study Habits	Female	212	108.5943	23.46452	1.091	347	0.276
	Male	137	105.7007	25.30501			
	Total	349					
Instrument Technique	Female	212	23.4009	6.05227	1.937	347	0.054
	Male	137	22.0876	6.38297			
	Total	349					
Preliminary Preparation and Warm-up	Female	212	22.2406	6.17622	0.071	347	0.943
	Male	137	22.2920	7.12510			
	Total	349					
Posture and Technique	Female	212	18.4764	4.62984	1.136	347	0.257
	Male	137	17.9051	4.51938			
	Total	349					
Interpretation and Phrasing	Female	212	14.4481	3.69477	1.790	347	0.074
	Male	137	13.6934	4.07207			
	Total	349					
Rhythmic Work and Fingering	Female	212	11.1038	2.50092	0.713	347	476
	Male	137	10.8978	2.83176			
	Total	349					
Post-performance Activity	Female	212	9.1085	2.97741	0.654	347	0.514
	Male	137	8.8832	3.38480			
	Total	349					
Deciphering Technique	Female	212	9.8160	2.76730	0.406	347	0.685
	Male	137	9.9416	2.90478			
	Total	349					
Self-efficacy	Female	212	111.6462	21.84526	2.321	347	0.021
	Male	137	105.8248	24.39741			
	Total	349					
Self-efficacy towards the level of skill achieved in the piano course	Female	212	62.6981	12.60081	2.398	347	0.017
	Male	137	59.2190	14.16121			
	Total	349					
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Female	212	48.9481	10.01668	2.047	347	0.041
	Male	137	46.6058	11.06289			
	Total	349					
Attitude	Female	212	85.2170	11.71300	0746	347	0.456
	Male	137	84.2263	12.72445			
	Total	349					
Contentment	Female	212	62.1321	14.86086	1.984	347	0.048
	Male	137	58.8248	15.72320			
	Total	349					
Value	Female	212	23.0849	7.72037	2.756	347	0.006
	Male	137	25.4015	7.58720			
	Total	349					

THE DIFFERENTIATION ANALYSIS RESULTS BY GRADE VARIABLE

The results of ANOVA performed to determine whether the scores obtained from the scales differed by the grade variable are demonstrated in Table 5.

Table 5. *The Differentiation Analysis Results by Grade*

		Sum of Squares	sd	Mean Square	F	p	Differentiation
Study Habits	Between Groups	746.276	3	248.759	.422	.737	-
	Within Groups	203210.372	345	589.016			
	Total	203956.648	348				
Instrument Technique	Between Groups	10.116	3	3.372	.087	.967	-
	Within Groups	13403.299	345	38.850			
	Total	13413.415	348				
Preliminary Preparation and Warm-up	Between Groups	90.556	3	30.185	.701	.552	-
	Within Groups	14862.716	345	43.080			
	Total	14953.272	348				
Posture and Technique	Between Groups	123.678	3	41.226	1.974	.118	-
	Within Groups	7204.133	345	20.882			
	Total	7327.811	348				
Interpretation and Phrasing	Between Groups	29.588	3	9.863	.660	.577	-
	Within Groups	5153.364	345	14.937			
	Total	5182.951	348				
Rhythmic Work and Fingering	Between Groups	3.291	3	1.097	.157	.925	-
	Within Groups	2410.526	345	6.987			
	Total	2413.817	348				
Post-performance Activity	Between Groups	8.179	3	2.726	.275	.844	-
	Within Groups	3424.680	345	9.927			
	Total	3432.860	348				
Deciphering Technique	Between Groups	9.892	3	3.297	.413	.744	-
	Within Groups	2754.779	345	7.985			
	Total	2764.670	348				
Self-efficacy	Between Groups	501.838	3	167.279	.314	.815	-
	Within Groups	183962.672	345	533.225			
	Total	184464.510	348				
Self-efficacy towards the level of skill achieved in the piano course	Between Groups	261.801	3	87.267	.489	.690	-
	Within Groups	61521.643	345	178.324			
	Total	61783.444	348				
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Between Groups	60.730	3	20.243	.183	.908	-
	Within Groups	38210.983	345	110.756			
	Total	38271.713	348				
Attitude	Between Groups	470.223	3	156.741	1.069	.362	-
	Within Groups	50579.462	345	146.607			
	Total	51049.685	348				
Contentment	Between Groups	482.882	3	160.961	.689	.560	-
	Within Groups	80647.479	345	233.761			
	Total	81130.361	348				
Value	Between Groups	484.861	3	161.620	2.738	.043	1-2
	Within Groups	20367.128	345	59.035			
	Total	20851.989	348				

1st grade; 2nd grade
3rd grade; 4th grade

According to Table 5, students' study habits ($F_{(3.345)}= 0.422$, $p>0.05$), instrument technique, ($F_{(3.345)}= 0.087$, $p>0.05$), preliminary preparation and warm-up($F_{(3.345)}= 0.701$, $p>0.05$), posture and technique ($F_{(3.345)}= 1.974$, $p>0.05$), interpretation and phrasing ($F_{(3.345)}= 0.660$, $p>0.05$), rhythmic work and fingering ($F_{(3.345)}= 0.157$, $p>0.05$), post-performance activity($F_{(3.345)}= 0.275$, $p>0.05$), deciphering technique and attitude ($F_{(3.345)}= 0.413$, $p>0.05$), self-efficacy ($F_{(3.345)}= 0.314$,

p>0.05),Self-efficacy towards the level of skill level achieved in the piano course, (F(3.345)= 0.489, p>0.05) and Self-efficacy towards the level of knowledge and consciousness achieved in the piano course (F(3.345)= 0.183, p>0.05), which are the sub-dimensions of self-efficacy, contentment (F(3.345)= 0.689, p>0.05) and value (F(3.345)= 2.738, p<0.05) scores produce statistically significant discrepancies in terms of grade variable. Also, the value scores of the participants indicated a statistically discernible difference contingent on the grade variable. The value mean scores of the students in the first grade were observed to be lower than those in the second grade.

THE DIFFERENTIATION ANALYSIS RESULTS BY TYPE OF HIGH SCHOOL GRADUATED

ANOVA was performed to determine whether the scores obtained from the scales differed by the type of high school graduated, and the outcomes are shown in Table 6.

Table 6. *The Differentiation Analysis Results by the Type of High School Graduated*

		Sum of Squares	Sd	Mean Square	F	P	Differentiation
Study Habits	Between Groups	2962.532	2	1481.266	2.550	.080	-
	Within Groups	200994.116	346	580.908			
	Total	203956.648	348				
Instrument Technique	Between Groups	389.228	2	194.614	5.170	.006	1-3
	Within Groups	13024.188	346	37.642			
	Total	13413.415	348				
Preliminary Preparation and Warm-up	Between Groups	104.974	2	52.487	1.223	.296	-
	Within Groups	14848.298	346	42.914			
	Total	14953.272	348				
Posture and Technique	Between Groups	48.401	2	24.200	1.150	.318	-
	Within Groups	7279.410	346	21.039			
	Total	7327.811	348				
Interpretation and Phrasing	Between Groups	67.979	2	33.990	2.299	.102	-
	Within Groups	5114.972	346	14.783			
	Total	5182.951	348				
Rhythmic Work and Fingering	Between Groups	20.253	2	10.126	1.464	.233	-
	Within Groups	2393.564	346	6.918			
	Total	2413.817	348				
Post-Performance Activity	Between Groups	26.253	2	13.126	1.333	.265	-
	Within Groups	3406.607	346	9.846			
	Total	3432.860	348				
Deciphering Technique	Between Groups	10.365	2	5.183	.651	.522	-
	Within Groups	2754.305	346	7.960			
	Total	2764.670	348				
Self-efficacy	Between Groups	8282.738	2	4141.369	8.133	.000	1-2
	Within Groups	176181.772	346	509.196			1-3
	Total	184464.510	348				
Self-efficacy towards the level of skill achieved in the piano course	Between Groups	2854.589	2	1427.294	8.380	.000	1-2
	Within Groups	58928.855	346	170.315			1-3
	Total	61783.444	348				
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Between Groups	1415.313	2	707.657	6.643	.001	1-2
	Within Groups	36856.400	346	106.521			
	Total	38271.713	348				
Attitude	Between Groups	585.843	2	292.922	2.008	.136	-
	Within Groups	50463.841	346	145.849			
	Total	51049.685	348				

Table 6 *(continued)*

Contentment	Between Groups	523.691	2	261.846	1.124	.326	-
	Within Groups	80606.670	346	232.967			
	Total	81130.361	348				
Value	Between Groups	1.962	2	.981	.016	.984	-
	Within Groups	20850.027	346	60.260			
	Total	20851.989	348				

1. Fine Arts High School
2. Anatolian High School
3. Other

As detailed in Table 6, students' study habits (F(2.346)= 2.550, p>0.05), preliminary preparation and warm-up (F(2.346)= 1.223, p>0.05), posture and technique (F(2.346)= 1.150, p> 0.05), interpretation and phrasing (F(2.346)= 2.299, p>0.05), rhythmic work and fingering (F(2.346)= 1.464, p>0.05), post-performance activity (F(2.346)= 1.333, p>0.05), deciphering technique (F(2.346)= 0.651, p>0.05), attitude (F(2.346)= 2.008, p>0.05), contentment (F(2.346)= 1.124, p>0.05) and value (F(2.346))= 0.016, p>0.05) scores did not indicate a statistically discernible difference based on the type of high school graduated. The sampled students' instrument technique (F(2.346)= 5.170, p<0.05), total self-efficacy (F(2.346)= 8.133, p<0.05), the sub-dimension scores, namely, self-efficacy towards the level of skill achieved in the piano course (F(2.346)= 8.380, p<0.05) and Self-efficacy towards the level of knowledge and awareness achieved in the piano course (F(2.346)= 6.643, p<0.05) yielded a statistically discernible difference in terms of the type of high school graduated. The instrument technique mean scores of high school of the Arts graduates were found to be higher than the instrument technique mean scores of the students graduating from other high schools. It was also observed that the mean scores of high school of the Arts graduates in self-efficacy and its sub-dimensions, namely, the self-efficacy towards the level of skill achieved in the piano course and the self-efficacy towards the level of knowledge and consciousness achieved in the piano course, were higher than those of the students studying at Anatolian high schools and other high schools.

THE DIFFERENTIATION ANALYSIS FINDINGS BY PERCEPTION OF SUCCESS

The results of ANOVA performed to determine whether the scores obtained from the scales differed by perception of success are outlined in Table 7.

Table 7. *The Differentiation Analysis Results by Perception of Success*

		Sum of Squares	sd	Mean Square	F	p	Differentiation
Study Habits	Between Groups	34552.506	2	17276.253	35.286	.000	1-2 1-3 2-3
	Within Groups	169404.142	346	489.607			
	Total	203956.648	348				
Instrument Technique	Between Groups	2628.642	2	1314.321	42.166	.000	1-2 1-3 2-3
	Within Groups	10784.774	346	31.170			
	Total	13413.415	348				
Preliminary Preparation and Warm-up	Between Groups	1518.360	2	759.180	19.552	.000	1-2 1-3 2-3
	Within Groups	13434.912	346	38.829			
	Total	14953.272	348				
Posture and Technique	Between Groups	793.085	2	396.542	20.996	.000	1-2 1-3 2-3
	Within Groups	6534.726	346	18.886			
	Total	7327.811	348				

Table 7 *(continued)*

Interpretation and Phrasing	Between Groups	723.179	2	361.590	28.053	.000	1-2 1-3 2-3
	Within Groups	4459.772	346	12.890			
	Total	5182.951	348				
Rhythmic Work and Fingering	Between Groups	255.073	2	127.537	20.441	.000	1-2 1-3 2-3
	Within Groups	2158.743	346	6.239			
	Total	2413.817	348				
Post-performance Activity	Between Groups	143.861	2	71.931	7.567	.001	1-2 1-3
	Within Groups	3288.998	346	9.506			
	Total	3432.860	348				
Deciphering Technique	Between Groups	193.444	2	96.722	13.016	.000	1-2 1-3
	Within Groups	2571.226	346	7.431			
	Total	2764.670	348				
Self-efficacy	Between Groups	58482.631	2	29241.315	80.309	.000	1-2 1-3 2-3
	Within Groups	125981.879	346	364.109			
	Total	184464.510	348				
Self-efficacy towards the level of skill achieved in the piano course	Between Groups	18468.587	2	9234.294	73.764	.000	1-2 1-3 2-3
	Within Groups	43314.857	346	125.187			
	Total	61783.444	348				
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Between Groups	11222.937	2	5611.468	71.780	.000	1-2 1-3 2-3
	Within Groups	27048.777	346	78.176			
	Total	38271.713	348				
Attitude	Between Groups	6791.046	2	3395.523	26.545	.000	1-2 1-3 2-3
	Within Groups	44258.639	346	127.915			
	Total	51049.685	348				
Contentment	Between Groups	15169.847	2	7584.924	39.787	.000	1-2 1-3 2-3
	Within Groups	65960.514	346	190.637			
	Total	81130.361	348				
Value	Between Groups	1782.268	2	891.134	16.169	.000	1-2 1-3 2-3
	Within Groups	19069.721	346	55.115			
	Total	20851.989	348				

1. Low; 2. Moderate; 3. High

From Table 7, study habits $(F_{(2.346)}= 35.286, p<0.05)$, instrument technique $(F_{(2.346)}= 42.166, p<0.05)$, preliminary preparation and warm-up $(F_{(2.346)}= 19.552, p<0.05)$, posture and technique $(F_{(2.346)}= 20.996, p<0.05)$, interpretation and phrasing $(F_{(2.346)}= 28.053, p<0.05)$, rhythmic work and fingering $(F_{(2.346)}= 20.441, p<0.05)$, post-performance activity $(F_{(2.346)}= 7.567, p<0.05)$, deciphering Technique $(F_{(2.346)}= 13.016, p<0.05)$, total self-efficacy $(F_{(2.346)}= 80.309, p<0.05)$, the sub-dimension of self-efficacy towards the level of skill achieved in the piano course $(F_{(2.346)}= 73.764, p<0.05)$ and the sub-dimension of Self-efficacy towards the level of knowledge and consciousness achieved in the piano course $(F_{(2.346)}= 71.780, p<0.05)$, attitude $(F_{(2.346)}= 26.545, p<0.05)$, contentment $(F_{(2.346)}= 39.787, p<0.05)$ and value $(F_{(2.346)}= 16.169, p<0.05)$ scores

indicated statistically discernible discrepancies with regard to the variable of the perception of success.

The study habits, instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, and rhythmic work and fingering mean scores of the students who found themselves to be low-level successful were higher than the average scores of the students who perceived themselves as moderately and highly successful. Further, the study habits, instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, and rhythmic work and fingering average scores of the students who perceived themselves as moderately successful were higher than the average scores of the students who perceived themselves as highly successful. Further, the rhythmic work and fingering and post-performance activity average scores of the students who perceived themselves as low-level successful were reported to be higher than the average scores of the students who perceived themselves as moderately and highly successful.

The total self-efficacy, the sub-dimension of self-efficacy towards the level of skill achieved in the piano course, the sub-dimension of self-efficacy towards the level of knowledge and consciousness achieved in the piano course, and the attitude and contentment mean scores of the students who perceived themselves as successful at a low level were higher than the average scores of the students who perceived themselves as moderately or highly successful. The total self-efficacy, the sub-dimension of self-efficacy towards the level of skill achieved in the piano course, the sub-dimension of self-efficacy towards the level of knowledge and consciousness achieved in the piano course, attitude and contentment average scores of the students who perceived themselves as moderately successful were found to be higher than the average scores of the students who perceived themselves as highly successful.

The value mean scores of the students who perceived themselves as successful at a low level were lower than the mean scores of the students who perceived themselves as moderately and highly successful. In addition to that, the value mean scores of the students who perceived themselves as moderately successful were lower than the mean scores of the students who perceived themselves as highly successful.

THE DIFFERENTIATION ANALYSIS RESULTS BY DAILY PRACTICE TIME

The results of ANOVA performed to determine whether the scores derived from the scales differed by daily practice time are illustrated in Table 8.

Table 8. *The Differentiation Analysis Results by Daily Practice Time*

		Sum of Squares	sd	Mean Square	F	p	Differentiation
Study Habits	Between Groups	25604.485	2	12802.243	24.836	.000	1-2 1-3 2-3
	Within Groups	178352.162	346	515.469			
	Total	203956.648	348				
Instrument Technique	Between Groups	1376.661	2	688.330	19.786	.000	1-2 1-3
	Within Groups	12036.755	346	34.788			
	Total	13413.415	348				
Preliminary Preparation and Warm-up	Between Groups	1343.120	2	671.560	17.073	.000	1-2 1-3 2-3
	Within Groups	13610.152	346	39.336			
	Total	14953.272	348				
Posture and Technique	Between Groups	560.368	2	280.184	14.325	.000	1-2 1-3 2-3
	Within Groups	6767.443	346	19.559			
	Total	7327.811	348				

Table 8 *(continued)*

Interpretation and Phrasing	Between Groups	676.809	2	338.405	25.984	.000	1-2 1-3 2-3
	Within Groups	4506.142	346	13.024			
	Total	5182.951	348				
Rhythmic Work and Fingering	Between Groups	156.827	2	78.414	12.021	.000	1-2 1-3
	Within Groups	2256.990	346	6.523			
	Total	2413.817	348				
Post-performance Activity	Between Groups	142.071	2	71.036	7.469	.001	1-2 1-3
	Within Groups	3290.788	346	9.511			
	Total	3432.860	348				
Deciphering Technique	Between Groups	162.754	2	81.377	10.821	.000	1-2 1-3
	Within Groups	2601.917	346	7.520			
	Total	2764.670	348				
Self-efficacy	Between Groups	25844.232	2	12922.116	28.187	.000	1-2 1-3 2-3
	Within Groups	158620.278	346	458.440			
	Total	184464.510	348				
Self-efficacy towards the level of skill achieved in the piano course	Between Groups	7953.558	2	3976.779	25.561	.000	1-2 1-3 2-3
	Within Groups	53829.887	346	155.578			
	Total	61783.444	348				
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Between Groups	5148.551	2	2574.275	26.891	.000	1-2 1-3 2-3
	Within Groups	33123.163	346	95.732			
	Total	38271.713	348				
Attitude	Between Groups	5348.943	2	2674.471	20.248	.000	1-2 1-3 2-3
	Within Groups	45700.742	346	132.083			
	Total	51049.685	348				
Contentment	Between Groups	10744.636	2	5372.318	26.409	.000	1-2 1-3 2-3
	Within Groups	70385.725	346	203.427			
	Total	81130.361	348				
Value	Between Groups	1015.014	2	507.507	8.852	.000	1-3 2-3
	Within Groups	19836.974	346	57.332			
	Total	20851.989	348				

1.30 minutes and less
2.31-60 minutes
3. 61minutes and more

As can be seen in Table 8, students' study habits (F(2.346)= 24.836, p<0.05), instrument technique, (F(2.346)= 19.786, p<0.05), preliminary preparation and warm-up (F(2.346)= 17.073, p<0.05), posture and technique (F(2.346)= 14.325, p<0.05), interpretation and phrasing (F(2.346)= 25.984, p<0.05), rhythmic work and fingering(F(2.346)= 12.021, p<0.05), post-performance activity(F(2.346)= 7.469, p<0.05), deciphering technique F(2.346)= 10.821, p<0.05) , total self-efficacy (F(2.346)= 28.187, p<0.05), the sub-dimension of Self-efficacy towards the level of skill level achieved in the piano course (F(2.346)= 25.561, p<0.05), the sub-dimension of Self-efficacy towards the level of knowledge and consciousness achieved in the piano course (F(2.346)= 26.891, p<0.05), attitude

(F(2.346)= 20.248, p<0.05), contentment (F(2.346)= 26.409, p<0.05) and value scores (F(2.346)= 8.852, p<0.05) produced statistically discernible discrepancies in terms of perception of success.

Additionally, study habits, instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, performance and post-performance, deciphering technique, total self-efficacy, the sub-dimension of Self-efficacy towards the level of skill achieved in the piano course, attitude and contentment mean scores of students whose daily practice time was 30 minutes or less were lower than the mean scores of students whose daily practice time was 31-60 minutes and 61 minutes or more. The study habits, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, total self-efficacy, and the sub-dimension of the self-efficacy towards the level of knowledge and consciousness achieved in the piano course, attitude and contentment average scores of the students whose daily practice time was 31-60 minutes were lower than the average scores of students who practice daily for 61 minutes or more.

Further, the mean value scores of the students whose daily practice time was 30 minutes or less were higher than those with a daily practice time of 31-60 minutes and 61 minutes or more.

THE DIFFERENTIATION ANALYSIS RESULTS BY HAVING A PIANO

The outcome of the Independent Samples t-test, which were performed to see if the scores obtained from the PSHS, SEPCS and APCS used in the study differed by having a piano, are provided in Table 9.

Table 9. *The Differentiation Analysis Results by Having a Piano*

	Having a Piano	n	$\bar{X}$	Standard Deviation	t	Sd	p
Study Habits	Yes	196	110.8010	23.46424	2.952	347	0.003
	No	153	103.1765	24.54859			
	Total	349					
Instrument Technique	Yes	196	23.8520	6.16138	3.340	347	0.001
	No	153	21.6471	6.06594			
	Total	349					
Preliminary Preparation and Warm-up	Yes	196	22.6786	6.48815	1.349	347	0.178
	No	153	21.7255	6.62256			
	Total	349					
Posture and Technique	Yes	196	18.9439	4.46662	3.230	347	0.001
	No	153	17.3660	4.60513			
	Total	349					
Interpretation and Phrasing	Yes	196	14.7755	3.85781	3.471	347	0.001
	No	153	13.3529	3.72310			
	Total	349					
Rhythmic Work and Fingering	Yes	196	11.3673	2.50901	2.792	347	0.006
	No	153	10.5817	2.73047			
	Total	349					
Post-performance activity	Yes	196	9.0918	3.09039	0.483	347	0.630
	No	153	8.9281	3.21203			
	Total	349					
Deciphering Technique	Yes	196	10.0918	2.87371	1.704	347	0.089
	No	153	9.5752	2.72825			
	Total	349					
Self-efficacy	Yes	196	114.0153	22.42583	4.385	347	0.000
	No	153	103.3987	22.46498			
	Total	349					

Table 9 *(continued)*

Self-efficacy towards the level of skill achieved in the piano course	Yes	196	64.0612	13.02488	4.446	347	0.000
	No	153	57.8366	12.92003			
	Total	349					
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Yes	196	49.9541	10.19819	3.963	347	0.000
	No	153	45.5621	10.36621			
	Total	349					
Attitude	Yes	196	85.5816	11.75077	1.317	347	0.189
	No	153	83.8627	12.53157			
	Total	349					
Contentment	Yes	196	62.3724	15.19511	2.142	347	0.033
	No	153	58.8627	15.18485			
	Total	349					
Value	Yes	196	23.2092	7.94869	2.156	347	0.032
	No	153	25.0000	7.36992			
	Total	349					

As reported in Table 9, students' preliminary preparation and warm-up (t=1.349, p>0.05), post-performance activity (t=0.483, p>0.05), deciphering technique (t=1.704, p>0.05) and attitude (t=1.317, p>0.05) scores did not present a statistically significant discrepancy with respect to the variable of having a piano. Students' study habits (t=2.952, p<0.05), instrument technique (t=3.340, p<0.05), posture and technique (t=3.230, p<0.05), interpretation and phrasing (t=3.471, p<0.05) , rhythmic work and fingering (t=2.792, p<0.05), total self-efficacy (t=4.385, p<0.05), self-efficacy towards the level of skill achieved in the piano course (t=4.446, p<0.05), the sub-dimension of Self-efficacy towards the level of knowledge and consciousness achieved in the piano course (t=3.963, p<0.05), contentment (t=2.142, p<0.05) and value (t=2.156, p<0.05) scores yielded significant differences with respect to the variable of having a piano.

Study habits, instrument technique, posture and technique, interpretation and phrasing, rhythmic work and fingering, total self-efficacy, the sub-dimension of Self-efficacy towards the level of skill achieved in the piano course, the sub-dimension of Self-efficacy towards the level of knowledge and consciousness achieved in the piano course and contentment scores of students who have piano are higher than the average scores of students who do not have a piano. The average score of the students who have a piano is lower than the average score of the students who do not have a piano.

RESULTS OF RELATIONSHIP TEST

In this section, the relationship test results regarding the research sub-problems are presented. The associations between the scores are outlined in Table 10.

Table 10. *The Relationship between Study Habits and the Attitude towards Piano Course*

		Attitude	Contentment	Value
Study Habits	Pearson Correlation Coefficient	.550**	.634**	-.389**
	P	.000	.000	.000
	N	349	349	349
Instrument Technique	Pearson Correlation Coefficient	.524**	.548**	-.262**
	P	.000	.000	.000
	N	349	349	349
Preliminary Preparation and Warm-Up	Pearson Correlation Coefficient	.428**	.491**	-.298**
	P	.000	.000	.000
	N	349	349	349
Posture and Technique	Pearson Correlation Coefficient	.443**	.562**	-.417**
	P	.000	.000	.000
	N	349	349	349

Table 10 *(continued)*

Interpretation and Phrasing	Pearson Correlation Coefficient	.498**	.567**	-.338**
	P	.000	.000	.000
	N	349	349	349
Rhythmic Work and Fingering	Pearson Correlation Coefficient	.384**	.496**	-.378**
	P	.000	.000	.000
	N	349	349	349
Post-Performance Activity	Pearson Correlation Coefficient	.397**	.434**	-.235**
	P	.000	.000	.000
	N	349	349	349
Deciphering Technique	Pearson Correlation Coefficient	.374**	.459**	-.319**
	P	.000	.000	.000
	N	349	349	349

As detailed above, there is a statistically significant and positive relationship between students' attitude scores and study habits (r=0.550, p<0.05), instrument technique (r=0.524, p<0.05), preliminary preparation and warm-up (r=0.428, p<0.05), posture and technique (r=0.524, p<0.05) =0.443, p<0.05), interpretation and phrasing (r=0.498, p<0.05), rhythmic work and fingering (r=0.384, p<0.05), post-performance activity (r=0.397, p<0.05) and deciphering Technique (r=0.374, p<0.05) scores. In addition to that, a statistically significant and positive relationship was found between students' contentment scores and study habits (r=0.634, p<0.05), instrument technique (r=0.548, p<0.05), preliminary preparation and warm-up (r=0.491, p<0.05), posture and technique (r=0.562, p<0.05), interpretation and phrasing (r=0.567, p<0.05), rhythmic work and fingering (r=0.496, p<0.05), post-performance activity (r=0.434, p<0.05) and Deciphering Technique (r= 0.459, p<0.05) scores. Further, a statistically significant negative relationship was recorded between students' value scores and study habits (r=-0.389, p<0.05), instrument technique (r=-0.262, p<0.05), preliminary preparation and warm-up (r) =-0.298, p<0.05), posture and technique (r=-0.417, p<0.05), interpretation and phrasing (r=-0.338, p<0.05), rhythmic work and fingering (r=-0.378, p<0.05), post-performance activity (r=-0.235, p<0.05) and deciphering technique (r=-0.319, p<0.05) scores. The relationships between the scales are shown in Table 11.

Table 11. *The Relationship between Study Habits and Self-Efficacy towards the Piano Course*

		Self-Efficacy	Self-efficacy towards the level of skill achieved in the piano course	Self-efficacy towards the level of knowledge and consciousness achieved in the piano course
Study Habits	Pearson Correlation Coefficient	.753**	.725**	.732**
	P	.000	.000	.000
	N	349	349	349
Instrument Technique	Pearson Correlation Coefficient	.706**	.670**	.700**
	P	.000	.000	.000
	N	349	349	349
Preliminary Preparation and Warm-Up	Pearson Correlation Coefficient	.562**	.549**	.537**
	P	.000	.000	.000
	N	349	349	349
Posture and Technique	Pearson Correlation Coefficient	.620**	.592**	.608**
	P	.000	.000	.000
	N	349	349	349

Table 11 *(continued)*

Interpretation and Phrasing	Pearson Correlation Coefficient	.673**	.644**	.659**
	P	.000	.000	.000
	N	349	349	349
Rhythmic Work and Fingering	Pearson Correlation Coefficient	.620**	.602**	.596**
	P	.000	.000	.000
	N	349	349	349
Post-Performance Activity	Pearson Correlation Coefficient	.502**	.489**	.480**
	P	.000	.000	.000
	N	349	349	349
Deciphering Technique	Pearson Correlation Coefficient	.537**	.523**	.514**
	P	.000	.000	.000
	N	349	349	349

Referring to Table 11, there is a statistically significant and positive relation between students' self-efficacy scores and study habits (r=0.753, p<0.05), instrument technique (r=0.706, p<0.05), preliminary preparation and warm-up (r=0.562, p<0.05), posture and technique (r =0.620, p<0.05), interpretation and phrasing (r=0.673, p<0.05), rhythmic work and fingering (r=0.620, p<0.05), post-performance activity (r=0.502, p<0.05) and Deciphering Technique (r=0.537, p<0.05). Besides that, a statistically significant and positive relationship is found between students' self-efficacy scores for the level of skill achieved in the piano course, which is a sub-dimension of self-efficacy, and study habits (r=0.725, p<0.05), instrument technique (r=0.670, p<0.05), preliminary preparation and warm-up (r=0.549, p<0.05)), posture and technique (r=0.592, p<0.05), interpretation and phrasing (r=0.644, p<0.05), rhythmic work and fingering (r=0.602, p<0.05), post-performance activity (r=0.489, P<0.05) and Deciphering Technique (r=0.523, p<0.05) scores. Further, there is a statistically discernible positive relation between students' self-efficacy scores for the level of knowledge and consciousness achieved in the piano course, which is a sub-dimension of self-efficacy, and study habits (r=0.732, p<0.05)), instrument technique (r=0.700, p<0.05), preliminary preparation and warm-up (r=0.537, p<0.05), posture and technique (r=0.608, p<0.05), interpretation and phrasing (r=0.659, <0.05), rhythmic work and fingering (r=0.596, p<0.05), post-performance activity (r=0.480, p<0.05) and Deciphering Technique (r=0.514, p<0.05) scores. The relationships between the scales are provided in Table 12.

Table 12. *The Relationship between Attitude and Self-Efficacy towards the Piano Course*

		Attitude	Contentment	Value
Self-efficacy	Pearson Correlation Coefficient	.526**	.607**	-.375**
	P	.000	.000	.000
	N	349	349	349
Self-efficacy towards the level of skill achieved in the piano course	Pearson Correlation Coefficient	.505**	.588**	-.371**
	P	.000	.000	.000
	N	349	349	349
Self-efficacy towards the level of knowledge and consciousness achieved in the piano course	Pearson Correlation Coefficient	.514**	.586**	-.352**
	P	.000	.000	.000
	N	349	349	349

As can be seen from Table 12, is a moderate positive relationship between the students' self-efficacy scores and their attitude (r=0.526, p<0.05) and contentment (r=0.607, p<0.05) scores, and a moderate negative relation between the students' self-efficacy scores and value (r=-0.375, p<0.05) scores. Besides that, there is a moderate positive relation between the students' self-efficacy scores for the level of skill achieved in the piano course, which is a sub-dimension of self-efficacy, and the scores of attitude (r=0.505, p<0.05) and contentment (r=0.588, p<0.05), while there is a moderate negative relationship between the students' self-efficacy scores for the level of skill achieved in the piano course and value scores (r=-0.371, p<0.05). Likewise, a moderate positive relationship exists between the students' scores with respect to the sub-dimension of Self-efficacy towards the level of knowledge and consciousness achieved in the piano course, attitude (r=0.514, p<0.05) and contentment (r=0.586, p<0.05) while a moderate negative relationship exists between the students' sub-dimension score, namely, the self-efficacy towards the level of knowledge and consciousness achieved in the piano course, and value scores (r=-0.352, p<0.05)

REGRESSION ANALYSIS RESULTS

This section presents the regression results for the research sub-problems. The outcomes of the regression analysis are summarized in Tables 13 and 14.

Table 13. *Model Summary and ANOVA Results*

	Sum of Squares	*sd*	*R*	*R2*	*F*	*p*
Regression	16803.208	7	.574	.329	23.902	.000
Remainder	34246.477	341				
Total	51049.685	348				

As reported in Table 13, the relation between the precursor variables and the predicted variable was 0.574, indicating a moderate relationship. Students' instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores explained 32.9% of the variance in the scores of the APCS. The analysis of the results indicates that the scores of students in the instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique, and the model developed to predict their attitude scores towards the Piano Course are statistically significant (F (7.341) = 23.902, p<0.05).

Table 14. *Regression Model*

Variable	*Coefficient*	*Standard Deviation*	*β*	*t*	*p*	*rpairwise*	*rpartial*
Fixed	56.564	2.557		22.122	.000		
Instrument Technique	.583	.127	.299	4.591	.000	.524	.241
Preliminary Preparation and Warm-up	.137	.120	.074	1.137	.256	.428	.061
Posture and Technique	.285	.188	.108	1.521	.129	.443	.082
Interpretation and Phrasing	.530	.257	.169	2.060	.040	.498	.111
Rhythmic Work and Fingering	-.361	.323	-.078	-1.116	.265	.384	-.060
Post-performance Activity	.482	.236	.125	2.039	.042	.397	.110
Deciphering Technique	-.123	.280	-.029	-.439	.661	.374	-.024

Referring to the standardized regression coefficient (β) in Table 14, the comparative importance of the precursor variables on the Attitude towards the Piano Course is as follows: Instrument Technique, Interpretation and Phrasing, and Post-Performance Activity.

Given the regression analysis results, the regression equivalence for the prediction of Attitude towards the Piano Course is as follows:

Attitude towards the Piano Course = 56.564 + 0.583 Instrument Technique +0.530 Interpretation and Phrasing + 0.482 Post-Performance Activity.

The outcomes of the regression analysis are provided in Table 15 and Table 16.

Table 15. *Model Summary and ANOVA Results*

	Sum of Squares	sd	R	R2	F	p
Regression	110156.201	7	.773	.597	72.215	.000
Remainder	74308.309	341				
Total	184464.510	348				

As can be seen in Table 15, the relation between the predictor variables and the predicted variable was 0.773, indicating a moderate relationship. Students' instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores explained 59.7% of the variance in the scores of Self-Efficacy towards Piano Course. The analysis results demonstrate that the scores of students in the sub-dimensions of the instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores, and the model developed to predict their self-efficacy scores towards the Piano Course are statistically significant ($F_{(7. 341)}=72.215$, $p<0.05$).

Table 16. *Regression Model*

Variable	Coefficient	Standard Deviation	β	t	p	rpairwise	rpartial
Fixed	30.760	3.766		8.167	.000		
Instrument Technique	1.409	.187	.380	7.529	.000	.706	.378
Preliminary Preparation and Warm-up	.178	.177	.051	1.000	.318	.562	.054
Posture and Technique	.584	.276	.116	2.112	.035	.620	.114
Interpretation and Phrasing	.815	.379	.137	2.150	.032	.673	.116
Rhythmic Work and Fingering	1.146	.476	.131	2.407	.017	.620	.129
Post-performance Activity	.534	.348	.073	1.533	.126	.502	.083
Deciphering Technique	.281	.412	.034	.683	.495	.537	.037

Given the standardized regression coefficient (β) in Table 16, the comparative eminence of the predictor variables on the Self-Efficacy towards the Piano Course is as follows: Instrument Technique, Rhythmic Work and Fingering, Interpretation and Phrasing, and Posture and Technique.

The regression equation for the prediction of Self-Efficacy towards the Piano Course is as follows:

Self-Efficacy towards the Piano Course = 30.760 + 1.409 Instrument Technique + 1.146 Rhythmic Work and Fingering + 0.815 Interpretation and Phrasing + 0.584 Posture and Technique

RESULTS, DISCUSSION AND SUGGESTIONS

RESULTS AND DISCUSSION

The results of the attitudes, self-efficacy, and study habits of the prospective music teachers towards the piano course according to the gender variable indicates that the total and sub-dimension scores for attitude and study habits did not vary discernibly. The total scores and sub-dimensions of self-efficacy, as well as the sub-dimensions of attitude, namely, contentment and value scores, on the other hand, differed significantly. The participants' total and sub-dimension scores of self-efficacy, namely, self-efficacy towards the level of skill achieved in the piano course and Self-efficacy towards the level of knowledge and consciousness achieved in the piano course, and contentment scores differed in favor of female students. Given the existing literature on self-efficacy towards

piano, it has been found that there are studies in which self-efficacy is significant according to the gender variable (Ünal & Bulut, 2019) and studies in which gender is not a significant predictor (Özer 2020; Kurtuldu, 2017; Babacan & Babacan, 2017; Jelen, 2017; Küçük, 2015; Otacıoğlu, 2008). Given the sub-dimension of the attitude, the value scores are in favor of female students. It is possible to come across such results in which the gender variable is significant (Çevik & Güven, 2011; Güçlü, 2022; Sağlam, 2008) and the results that gender is not significant (Gün & Köse, 2013; Sözgötürmez, 2019; Tunç & Baydağ, 2020; Ünal, 2017;) with respect to the studies on attitude.

Attitudes, self-efficacy, and study habits of prospective music teachers toward the piano course were examined based on the class variable. The results indicate that there were no significant variations in total attitude and contentment sub-dimension scores, total self-efficacy and sub-dimension scores, and total study habits and sub-dimension scores among the participants. However, there was a significant difference in value scores, favoring second graders. This disparity in high value scores for second graders may be attributed to the knowledge and experience acquired in courses emphasizing the importance of piano education during their academic year. It is plausible that second graders, having undergone individual courses such as instrument courses, technical courses covering the scientific aspect of music education like harmony and hearing education, as well as formation courses related to the dimension of learning and teaching music in music education departments, may have internalized the significance of piano education over the years. Examining the existing literature on attitudes, it is noteworthy that grade level has been identified as a significant variable in some studies (Güçlü, 2022; Sağlam, 2008), whereas other studies suggest that grade has no significant effect on attitude (Çevik & Güven, 2011; Sözgötürmez, 2019; Ünal, 2017).

Given the results of the attitudes, self-efficacy, and study habits of prospective music teachers towards the piano course according to the type of high school graduated, sampled students' total and sub-dimension scores of attitudes and total and sub-dimension scores of study habits, except for the sub-dimension of instrument technique, did not differ significantly. On the other hand, instrument technique, a sub-dimension of study habits, as well as total and sub-dimensions of self-efficacy, differed significantly. This differentiation is between students attending Anatolian Fine Arts High Schools (AFAHS) and other high schools, and it is in favor of students attending Anatolian Fine Arts High Schools (AFAHS). Participants who study at AFAHS might have scored higher on instrument technique and self-efficacy because they began piano courses at least four years earlier than students at other high schools. A critique of related literature shows that there are works in which type of high school is a significant predictor (Ünal & Bulut, 2019; Küçük, 2015) as well as studies revealing no significant results (Babacan & Babacan, 2017; Gün, 2014; Kurtuldu, 2017; Özer, 2020).

Given the findings based upon the perception of success, the future music teachers' total and sub-dimensions scores of attitudes, self-efficacy, and finally, study habits differed significantly according to their own perceptions of success. In this respect, students who found themselves successful at a low level have higher total and sub-dimension scores (instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering) than those who found themselves successful at a moderate level. Similarly, students who consider themselves moderately successful have higher total and sub-dimension scores (instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering) than students who consider themselves highly successful. Students who found themselves low-level successful have higher rhythmic work and fingering and post-performance activity scores than students who found themselves moderately and highly successful. Students who found themselves successful at a low level have higher self-efficacy total and sub-dimension scores, as well as higher total attitude and contentment scores, than students who consider themselves successful at a moderate or high level. The total and sub-dimensions of self-efficacy, as well as the total and sub-dimensions of contentment, are higher in students who find themselves successful at a moderate level than in students who find themselves successful at a high

level. Students who achieve success at a low level have lower value scores than those who achieve success at a moderate or high level. The value scores of students who found themselves moderately successful are lower than those of students who found themselves highly successful. Looking at the existing literature, no previous research that is consistent with the present research's findings can be found. As a result, it may be implied that the current study is unique and may contribute to the literature.

Given the results of the attitudes, self-efficacy, and study habits of the future music teachers towards the piano course according to daily practice time, it is seen that the participants' total and sub-dimensions of attitudes, self-efficacy, and study habits differ significantly. A significant difference was found in terms of both total scores and sub-dimensions. In this context, the total attitude scores and contentment scores, the total and sub-dimensions of self-efficacy, and study habits scores of the participants whose daily practice time is 30 minutes or less, are lower than the scores of the participants whose practice time is 31-60 minutes and 61 or more minutes. The study habits, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, total self-efficacy and its sub-dimension, namely, self-efficacy towards the level of knowledge and consciousness achieved in the piano course, total attitude, and contentment scores of students with 31-60 minutes of daily practice time are lower than those whose daily practice time is 61 minutes or more. Participants with a daily practice time of 30 minutes or less have higher value scores than those with a daily practice time of 31-60 minutes and 61 or more. It is remarkable that the scores of the participants in almost all sub-dimensions of all the scales employed in the study decrease as the daily practice time decreases. Because the amount of time and effort devoted to the piano, the love felt, the determination shown, the sense of self-competence in the field, and creating a planned and systematic working routine may all be linked to qualified time spent with the instrument. The findings on the instrument and individual instrument daily practice time reported in the literature support the current study (Ak et al., 2022; Albayrak & Bulut, 2021; Güçlü, 2022; Gün, 2014; Kaya, 2018; Küçük & Engin, 2021; Özmenteş & Özmenteş, 2009; Pirlibeylioğlu & Bilgin, 2022).

Given the results of the attitudes, self-efficacy, and study habits of the future music teachers towards the piano course, depending on their daily practice time, the total attitude scores and the sub-dimensions of the study habits, namely, preliminary preparation and warm-up, post-performance activity, and deciphering technique, did not differ significantly. On the other hand, contentment and value scores, total self-efficacy and sub-dimension scores, and total and sub-dimension scores of study habits, including instrument technique, posture and technique, interpretation and phrasing, rhythmic work and fingering differed significantly. This differentiation is in favor of students who have a piano. Among the instruments learned during the music teaching process, the piano is the only one that cannot be moved. In this respect, students who own a piano can perform their planned studies more comfortably and freely than students who do not own a piano. The students who have a piano may achieve higher scores on the measuring instruments because they spend more time with the piano. Likewise, the existing literature reveals similar findings (Güçlü, 2022).

Referring to the relation between prospective music teachers' attitude scores towards the piano course, self-efficacy scores, and study habits scores, a positive and discernible relation was found between students' total scores of attitudes and their total and sub-dimension scores of study habits; a positive and significant relation was discovered between their contentment scores and total and sub-dimensions of study habits; and a negative and significant relation was found between the value scores and total and sub-dimensions of study habits. Regarding self-efficacy, a positive and significant relation was reported between the total and sub-dimensions of self-efficacy and the total and sub-dimensions of study habits. Additionally, a moderately positive and significant relation was reported between total self-efficacy and total attitude and contentment scores; and a moderately negative and significant relation was found between students' total self-efficacy scores and value

scores; a moderately positive and significant relation was reported between the self-efficacy towards the level of skill achieved in the piano course and total attitude and contentment scores ; and a moderately negative and significant relation was found between the self-efficacy towards the level of skill achieved in the piano course and value scores. Furthermore, a statistically positive moderately significant relation was reported between students' scores in the sub-dimension of self-efficacy, namely, the self-efficacy towards the level of knowledge and consciousness achieved in the piano course and attitude and contentment scores, and a statistically negative moderately significant relationship was found between the self-efficacy towards the level of knowledge and consciousness achieved in the piano course and value scores. The findings on the relationship can be linked to the fact that attitudes, self-efficacy, and study habits involve similar feelings, and this triggers the sense of collaborative working accompanied by love, interest, and diligence. In fact, if an individual intends to be successful not only in the field of music or any field related to instruments, but also in all other fields, more than one emotion and action must be present together. To take an action, individuals need to demonstrate their love and interest. In other words, they should have a high level of attitude, be disciplined and qualified, have regular study habits, and eventually develop a sense of self-efficacy.

Lastly, the outcome of the regression analysis was provided. In this frame, the relationship between predictive variables (the scores obtained from the PSHS) and predicted variables (the scores obtained from APCS) was calculated as 0.574, indicating a moderate relationship. Prospective music teachers' instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores explain 32.9% of the variance with respect to the scores obtained from the APCS. The analysis of the results demonstrated that the scores of students in the instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, deciphering technique, and the model developed to predict their attitude scores towards the Piano Course were statistically significant. The relative eminence of the predictor variables on the SEPCS were instrument technique, rhythmic work and fingering, interpretation and phrasing, and posture and technique, respectively. Furthermore, the results of the regression analysis highlighted that the relationship between the predictor variables (the scores obtained from the PSHS) and the predicted variable (the scores obtained from the SEPCS) was 0.773, indicating a moderate relationship. Students' instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores explained 59.7% of the variance in the SEPCS. According to the analysis results, it was seen that the scores of students in the sub-dimensions of the instrument technique, preliminary preparation and warm-up, posture and technique, interpretation and phrasing, rhythmic work and fingering, post-performance activity, and deciphering technique scores, as well as the model developed to predict their self-efficacy scores towards the piano course were statistically significant. The relative eminence of the predictor variables on the SEPCS were instrument technique, rhythmic work and fingering, interpretation and phrasing, and posture and technique, respectively. The regression results of the study might be explained by the fact that there are factors affecting academic success such as work, perseverance, and determination both in attitude and in self-efficacy. The term "attitude" is a state of emotion that involves interest, desire, and love. This is closely related to their desire to work. In other words, if the student has an interest in any field, not surprisingly, he/she will be willing to work, research, and learn. Developing a sense of self-efficacy in a field can only be achieved through systematic and qualified studies. In brief, since the predictor variable (study habits) was included in the predicted variables (attitude and self-efficacy), the study concluded such regression results.

SUGGESTIONS

1) To enhance the attitudes of prospective music teachers towards the piano, attention can be drawn to the importance and necessity of piano education.
2) Appropriate organizations can be arranged for prospective music teachers to attend symphonic concerts to keep their attitudes towards the piano alive.
3) Concerts where students can showcase their performances can be organized to enhance the self-efficacy feelings related to the piano.
4) Environments can be created where prospective music teachers can explain and play the pieces they are working on to another friend at their level, creating sample lessons. Sharing what they have learned about the piece they are working on and demonstrating it can increase their self-efficacy feelings.
5) To benefit the study habits of prospective music teachers, academics working as pedagogues in the field of piano education can be invited to meet with students in the department. This approach allows prospective music teachers to interact with diverse educators, offering alternative perspectives on study methodologies, durations, and the formulation of daily study schedules.
6) A weekly study program can be created in collaboration with teachers in one part of the piano lesson. The knowledge of effective study methods is instrumental in nurturing the attitudes, self-efficacy, and study habits of prospective music teachers in relation to the field.

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Examination of Ninth Grade Students' Opinions on Global Warming and Climate Change by Photo Interview Technique

Sevilay Oktay, Aydın Nazilli Science High School, sevilay978@hotmail.com
0000-0001-8629-5126

Serap Oktay, Aydın Ticaret Borsası BİLSEM, serabik99@hotmail.com
0000-0002-6938-5151

Seçil Oktay, PhD., Aydın Adnan Menderes University, dr.seciloktay@gmail.com
0000-0001-6999-8196

Hilal Aktamış, Prof. Dr., Aydın Adnan Menderes University, haktamis@adu.edu.tr
0000-0003-0717-5770

Abstract

The main problem underlying environmental problems is that people do not have sufficient environmental awareness and do not attach importance to such problems. In this context, the aim of this research is to determine the readiness of the 9th grade students towards global warming and climate change. In this research, 2020-2021 academic year, there are 9 students studying in the 9th grade of a public high school in one of the districts of Aydın in Türkiye. The study is a descriptive study and data diversity was made. The interviews with the students were made with the photo interview technique using a semi-structured interview form, and the findings were analyzed using descriptive analysis. The students stated that the reason for global climate change is mostly the use of fossil fuels and the unconscious behaviors of people, they stated that there will be drought in the future and the world is in great danger. The students stated that the use of the photo interview technique in the study made it easier for them to express themselves, they were better adapted to the subject, and they conveyed their ideas about the subject more accurately and better. It has been observed that 9th grade students have limited ideas about global warming and climate change, some students confuse these concepts and most of the students have misconceptions that global warming is caused by the depletion of the ozone layer. It was concluded that the students had an idea about the precautions to be taken on the subject, and interviewing with the photo interview technique made it easier for the students to express their views on the subject.

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INTRODUCTION

Like all living things, human beings are also affected by environmental problems that are increasing day by day. The main problem underlying environmental problems is that people do not have sufficient environmental awareness and do not attach importance to such problems. Since the existence of the universe, people have always benefited from nature and engaged in activities that disrupt its balance. These activities have also caused environmental pollution and environmental pollution has increased day by day and has become a threat to human health (Demirbaş & Pektaş, 2009). Today, rapid development in technology and rapid population growth have consumed natural resources and increased pollution in nature. Factors such as the rapid increase in the world population, the destruction of fertile agricultural lands and the construction of large buildings in their place, and unplanned urbanization have adversely affected nature and increased environmental problems (Akgün, Duruk & Tokur, 2017). In our age, it is seen that the increase in consumption due to population growth has adversely affected nature and accelerated climate change on a global scale (Swim, Clayton & Howard, 2011). As a result of many human-induced activities such as global warming, the use of fossil fuels in our homes, industry, energy production, transportation, destruction of forests and the environment, the increase in methane (CH_4) and carbon dioxide (CO_2) gases and synthetic chemicals (chlorofluorocarbon-CFC) in the atmosphere The greenhouse effect can be defined as the increase in the average temperature of the world (Aydın, 2014). Global climate change is one of the most important environmental problems in our world, which is caused by people's intervention in nature and affects our world badly with its consequences and is talked about a lot (Demircan et al., 2016). Negative and unusual weather activities observed in many different parts of our world today, the change of seasons and their characteristics, the increase in the melting rate of glaciers, are clearly felt as the effects of climate change. Although the world states take many decisions to reduce the emission of greenhouse gases and cooperate against global climate change, they still cannot prevent this trend. In order to prevent this problem, it is necessary to raise a conscious and sensitive society against environmental problems. In order to reach this awareness, it is necessary to give an effective environmental education to the society (Akgün et al., 2017; Ergin, Akbay, Özdemir & Uzun, 2017). Issues that deal with environmental problems such as global warming, climate change and environmental pollution are included in socio-scientific issues (Topçu, 2015). The importance of socio-scientific issues in science education is increasing day by day and students' thoughts and attitudes on these issues are gaining importance (Sadler, 2004). One of the important goals in science education is to teach students about socio-scientific issues, including situations that everyone may encounter in daily life (Albe, 2008). For this reason, it is aimed to include socio-scientific issues in the science curriculum of the world's countries and thus to raise awareness and awareness about these issues in future generations (Oulton, Dillon & Grace, 2004). It is very important for individuals to have a good understanding of these issues as students in the decisions they will take and the attitudes they will show in the events related to socio-scientific issues that they may encounter throughout their lives (Albe, 2008; Kolsto, 2006). In Türkiye, it is seen that socio-scientific issues are included in the secondary school science curriculum published by the Ministry of National Education (MONE, 2018). While expressing their opinions on socio-scientific issues, students should act with the environmental awareness they gained in the science lesson and should show an attitude according to their own personal analysis by comparing their newly learned information with what they have learned before (Wu & Tsai, 2011). Global warming and climate change are one of the socio-scientific issues that students learn in science class and can discuss and express their opinions by using their scientific thinking skills (Topçu, 2015). It is thought that the study will contribute to the field by revealing the impact of the environmental education that high school students have received to date, and accordingly, studies on the importance given to environmental issues at the high school level and to what extent environmental issues should be included in the curriculum.

CONCEPTUAL FRAMEWORK

Looking at the literature, it has been seen that quantitative and qualitative studies have been conducted to investigate the attitudes, opinions and knowledge of students in different age groups towards global warming and climate change. In addition, there are studies showing that students at different grade levels do not have sufficient knowledge about environmental problems, are not sensitive to environmental problems and have little interest (Aksu, Temeloğlu, Özkaya & Gündeğer, 2012; Özdemir, 2010; Akgün & Atmaca, 2015; Bozdoğan, 2011; Bozkurt & Kaya, 2008; Ayvacı & Çoruhlu, 2009). In order to eliminate all environmental problems, it is necessary to give a good environmental education to the society. Environmental education to be given in order to create environmental awareness, the person to gain attitudes and behaviors to live in harmony with nature, conscious consumption of water, reduction of waste production that pollutes the nature, correct energy use, conscious consumption of natural resources is conscious and responsible, willing and active in solving problems. It can be explained as raising individuals who exhibit an attitude (Aydın, 2014). The main purpose of environmental education; to instill environmental awareness to all segments of the society and to bring a permanent positive behavior change to all individuals (Demirkaya, 2008). For example, in Bozdoğan (2011)'s research; analyzed 62 scientific studies on global warming conducted with students, teachers and teacher candidates studying at different levels in the world and in Türkiye between 1992 and 2009. As a result of this research, it has been revealed that most of the participants have insufficient knowledge about the causes and consequences of global warming and have many misconceptions. In the study conducted by Kılınç, Stanisstreet and Boyes (2008), a questionnaire was applied to students aged 15-16 who are studying in secondary education in our country to determine their views on global warming. As a result of this research, most of the participants have misconceptions about global warming, they think that one of the reasons that increase global warming is radioactive leaks from nuclear power plants, and they think that the use of nuclear weapons is related to global warming. It turned out that they had wrong information about the results. Atik and Doğan (2019) examined the views of high school students participating in their study on global climate change and it was observed that about half of the students could not define global climate change, while the other participants made unscientific and superficial definitions, had too many misconceptions and inaccurate information. When the studies on global warming and climate change in the field of education were examined, few studies were found that examined the opinions of high school students (Atik & Doğan, 2019; Aydın, 2014). Within the Special Purposes of the Science Curriculum; The objectives of "raising interest and curiosity about events occurring in nature and its immediate surroundings, developing attitudes" and "Developing reasoning ability, scientific thinking habits and decision-making skills by using socio-scientific issues" were also included (MoNE, 2018). When the secondary school curricula related to climate change and global warming, which are socio-scientific issues and increasing in importance, are examined; It is seen that the subject of "Global Warming and Climate Change" is included in the Science course in the 7th grade and in the "Matter Cycles and Environmental Problems" Unit (MONE, 2018) in the 8th grade science curriculum. In this context, a research was conducted with students in 9th grade in order to determine the readiness about climate change and global warming of students who had studied these subjects last year and started their high school education. This study is also important in terms of making interviews with students about the subject using photographs and making it easier for students to express their thoughts and opinions about the subject verbally. The study is important in that it is an original study, since there is no study on global climate change in which interviews were conducted using the photo interview technique. In this context, the aim of this research is to determine the readiness of the 9th grade students towards global warming and climate change. In accordance with this purpose, an attempt was made to seek an answer to the following question; "What are the opinions of 9th grade students about global warming and climate change?"

METHOD

RESEARCH DESIGN

This research is a descriptive research. In the study, students' views on "Global Warming and Climate Change" were examined in depth. Students learn about global warming in 8th grade science class. In this study, an interview was conducted with the 9th grade students in order to learn the knowledge (readiness) they had from the 8th grade on the subject. Triangulation was performed in the study and photo interview technique, which is one of the techniques that assists the interview, was also used (Arthur, Waring, Coe & Hedges, 2012/2017). It is used for purposes such as the use of photographs in the interview process, the application of the photo interview method, understanding the behavior of people, helping young children remember events. Researchers can direct participants to discuss social issues by asking questions about photographs (Smith & Barker, 2000; Ascherman, Dannenburg, & Schultz, 1998; Entin, 1979). Photo interview is used by the researcher as an "ice breaker" activity to create a comfortable environment for discussion and to enable children to participate in the interview easily (Hazel, 1995). Recently, photo interview method has been used in various fields such as nursing, psychology, education and geography (Rasmussen, 2004; Riley and Manias, 2003; Smith and Barker, 2000; Salmon, 2001). Photographs make it easier to express an opinion on the subject and provide focus on the interview process. It has been seen that interviews with photographs can be used both for instructional and evaluation, thanks to the visuals (Ziller, 1990). In addition, photographs can create a comfortable environment for both the researcher and the interviewees, relieves pressure, improves communication positively, and creates an atmosphere of harmony and trust (Thinkler, 2014).

STUDY GROUP

The study group of the research consists of 9 students studying in the fall semester of the 9th grade of a public high school in Nazilli District of Aydın province of Türkiye in the 2020-2021 academic year. While determining these students, criterion sampling method, one of the purposeful sampling methods, was used. The criterion in the research is the students' science net in the 2020 High School Entrance Examination (LGS exam). High School Entrance Examination; The Central Examination, which is implemented within the scope of the Transition System to High Schools in Türkiye, is applied to select students for Science High Schools, Social Sciences High Schools, Anatolian Imam Hatip High Schools and Secondary Education Institutions Implementing Special Programs and Projects. In the 2020-2021 academic year, 35 of the 112 9th grade students had a science net of 20, a science net of 19 in 40 students, and a science net of 17 in 37 students and 9 students were determined. Maximum variation sampling was used to identify these students. The maximum variation was made by determining three students from among the students with the highest net worth in the 2020 LGS exam, three students from the students with 19 intermediate level science nets, and three students from the students with low net worth 17. In line with the permissions obtained from the parents of the students, the names of the students were determined with student volunteerism, by obtaining permission from the school administration in order to learn the science nets in the 2020 LGS exam.

DATA COLLECTION

In the research, semi-structured face-to-face photo interview technique was used. Four photographs were used in this research. First photo; A photo of Lake Powell in the USA taken from above in 1999 and the second photo is a photo of Lake Powell taken in 2014. While the study was being carried out, the first two photographs were shown to the students in turn and the differences between the two photographs were commented on by the students. The third photo is a satellite photo of the Aral Sea taken from space in 1988, and the fourth photo is a satellite photo of the Aral Sea taken from space in 2008. The third and fourth photographs were shown to the students in turn, and the differences between the two photographs were commented on by the students. Research data were

collected with a structured interview form on global warming and climate change prepared by the researchers. Oral interviews were conducted with the students. One-to-one verbal interviews of 15-20 minutes were held with the participating students who participated in the research voluntarily, and the interviews were audio-recorded with the consent of the participants. The students who were interviewed were coded as S1, S2, S3, S4, S5, S6, S7, S8, S9. Interview questions are given below.

INTERVIEW FORM

1- What do these photos tell you? (will be asked separately for each photo)

A) What happened in this photo?

B) Can you tell me the reason for the change in the photo?

C) Do you think there is anything in the photos that has remained unchanged as before?

2- What comes to mind when you think of global warming, can you define it?

3- What comes to mind when you think of global climate change, can you define it?

4- When you consider the effects of global warming and climate change, can you explain what kind of a world we will face in the future?

5- What are the first three concepts that come to your mind when you think of global warming and climate change?

6- Can you tell me what causes global climate change?

7- What can people do to prevent global warming and climate change?

8- What would you say about this interview we had with the photos?

9- Did your views on global warming and climate change change at the end of this meeting? It is in the form.

VALIDITY AND RELIABILITY

After the interview form was prepared in order to ensure content validity, it was first presented to the expert opinion. The experts are an academician working in the Department of Science Education, a physics teacher and a Turkish teacher to check the conformity of the interview form with Turkish grammar rules. In line with the feedback from the experts, the photographs to be used in the photo interview form were determined and corrections were made in the interview form. Afterwards, a pilot interview was conducted with a 9th grade student through the prepared interview form. The interview was conducted face-to-face in a quiet classroom environment. While collecting the data, the interviews were recorded with a voice recorder with the permission of the participants. At the end of the interviews, the interview recordings recorded on the voice recorder were played by the students and the dialogue that they wanted not to be recorded were removed from the interview recording. This study was based on volunteerism. In addition, a parent permission form was requested from the students to participate in the study and the study was conducted with students who brought a signed permission form from their parents. It was stated that the data will be used only in this study and will not be published anywhere else. Within the scope of validity and reliability studies; in order to determine the consistency in the coding, the students who participated in the study were re-coded within a month and the consistency between the two codings was examined. It was observed that the codings overlapped with each other. To ensure the validity and reliability of the research; It was reported from the students that they should answer the questions in the interview form sincerely and that their names and surnames would not be written on the interview form, and instead they would be coded as student 1 (S1), student 2 (S2).

DATA ANALYSIS

Data analysis was carried out using descriptive analysis in the research. Descriptive analysis is to directly reveal the information in the materials obtained as a result of the interview, such as interview forms and observation records, without changing them. In this way, without changing the participant expressions in the observation records, by associating them with the themes, a description is made by making one-to-one quotations, and when necessary, some themes and relations between the themes can be revealed (Yıldırım & Şimşek, 2016). In the study, the answers given by the students to the questions in the interview form were coded and tables were created. In addition, the validity and reliability of the study, in other words, the credibility and consistency of the study were tried to be increased by giving sample quotations from the opinions of the students who participated in the interview. The qualitative data obtained from the one-to-one oral interviews with the students participating in the study were transcribed, the data were defined, analyzed according to the themes, and then the findings were defined and interpreted.

FINDINGS/RESULTS

In the research, the findings obtained as a result of examining the views of 9 students in the 9th grade of a public school in the Nazilli district of Aydın province, Türkiye, in 2020-2021 about global warming and climate change are as follows.

FINDINGS RELATED TO THE STUDENTS' OPINIONS ON THE PHOTOS RELATED TO THE SUBJECT

All of the students participating in the research mentioned global warming as the reason for the change in the photographs. For example, S2; "The first photo was taken in 1999 and the other in 2014. It is seen that the effects of global warming are less in 1999 and more in 2014". The opinions of the students about the photographs of the places that have been changed due to global warming and climate change are given in Table 1.

Table 1. *The students' Thoughts About the Environmental Changes Seen in the Photographs*

Answers	Students
Earphones	S1, S3, S6, S9
Increase in temperature	S1, S2, S7, S8
Evaporation of water	S1, S2, S3, S5, S7, S9
Decrease in water	S1, S2, S4, S8
The color of the water has changed	S1, S3, S4, S6, S9
The color of the black has changed	S2, S5
The trees have changed color	S2, S5, S6, S9
Global warming has an effect	S1, S2, S3, S4, S5, S6, S7, S8

When asked about the differences in the photographs, the students said the differences they saw and all of the students stated that the reason for this change was global warming. For example, when asked why the change in photographs occurred, S3; "*Nature, the lake, probably due to global warming, the water evaporated too much and there was a drought.*" In the study with photographs, the students expressed the changes they saw and said that there is no photograph that has not undergone any change. For example, S2; "*There is no place in the photograph that does not change, even the color of the air has changed, only the bridge has not changed. It has changed for the worse.*" replied as. S5 to the same question; "*The colors of the mountains and the air have changed, the water has evaporated.*" replied as.

When asked about the definition of global warming, it was seen that all of the students mentioned that the temperature of our world is increasing. It was seen that two students stated that global warming is caused by the increase in methane and carbon dioxide gases and the greenhouse effect, but these students also mentioned that warming increases with the thinning or perforation of

the ozone layer as a misconception. It was observed that they could not express the definition of global warming fully and accurately. The students' views on this subject are as follows;

- S1: As a result of the increase in some greenhouse gases (gases such as carbon monoxide, carbon dioxide, nitrogen dioxide, methane), the increases in temperatures with the depletion of the ozone layer.

- S2: The situation in which greenhouse gases and methane gases, heavy metals affect the air to the world. The ozone layer prevents the sun's rays from heating the earth too much. As the ozone layer got thinner, the rays of the sun affected us and the temperature of the world increased.

-S3: Warming of the globe, warming of the world comes to mind. Melting of the poles, decrease in biodiversity, drought.

-S6: Global warming means warming the world. Drought in the world, lack of water necessary for life.

Considering the students' views on global climate change; one student expressed global climate change as a result of global warming. A student has defined global warming as climate change. In short, the students participating in the study could not make a full and correct definition of global climate change. Students' opinions on this subject;

-S1: I think it is something caused by global warming, we are experiencing it even now. It's almost January and it still hasn't rained and it's not cold enough. Climate change seems to be the cause of global warming.

-S2: Each region has its own unique climates. These climates are the same weather types that do not change for a century or two. The change of this climate due to global climate change is called. The products that will be grown due to global climate change cannot be grown due to climate change. For example, if there is no climate necessary for cocoa cultivation, it will not be produced.

-S3: Overheating of the world as a result of the increase in greenhouse gases.

-S8: As a result of greenhouse effect gases, it is called the change of the climate that causes the temperature in the world to increase and affect living things badly.

-S9: The sudden differentiation of the same continuous climate is called climate change.

FINDINGS RELATED TO ON STUDENTS' OPINIONS ON THE POSSIBLE EFFECTS OF GLOBAL WARMING AND CLIMATE CHANGE ON THE WORLD

The opinions of the students participating in the research about the possible effects of global warming and climate change on the world are given in Table 2.

Table 2. *Students' Views on the Possible Effects of Global Warming and Climate Change on the World.*

Answers	Students
Drought is on the rise.	S1, S3, S7, S8, S9
Water resources are running out.	S1, S2, S4, S5, S8
Global diseases will increase.	S1, S6
Food will be harder to find.	S1, S5, S6, S9
Agriculture will be badly affected.	S1, S2, S7
Glaciers are melting very fast.	S2, S3, S5, S6, S9
Population density will increase and habitat will decrease.	S2, S4, S7, S8
Temperature rise, heavy rains, floods, etc. natural disasters will increase.	S2, S3, S7
Animals will be affected.	S3, S7, S8, S9

In the interviews with the students, about what will happen in the world in the future depending on global warming and climate change; It was observed that they used expressions such as drought, decrease in water, difficulty in finding food, natural disasters will increase, agriculture will be badly

affected, glaciers will melt, sea waters will rise, coasts will be flooded and global diseases will increase. The opinions of the students participating in the research on the subject;

-S1: Dry. First of all, the need for water will increase because water resources are running out. Since it is used commercially, trees are also cut down, so I think global diseases will increase as well. Water is everything, Food will be hard to find. Agriculture will be affected. A nightmare in itself. These diseases are lung diseases.

-S7: We will not find food because farmland will be destroyed. There will be no water needed for plants. It will be difficult to find food, there will be hunger, natural disasters, animals will perish.

-S2: The average temperature of the world is increasing every year. This is a very dangerous situation for us. This will affect us negatively in the coming years. The glaciers in Antarctica are melting and the sea level is rising every year. Coastal countries will suffer from this. Since the sea shores will be under water, the people living here will live together above sea level and the population density will increase. Our life will be restricted as living space is reduced. The water will decrease. Water and certain weather conditions are necessary for the cultivation of agricultural products. These products do not grow.

-S3: I read a news recently. The glacier has broken, because there is a lot of biodiversity in the Horde (animals like penguins) in South Corcia, it will affect those animals, I expect very difficult days. Due to global warming, there will be heavy rains, floods, extreme droughts. Already the Middle East and Western Europe are dry.

-S9: Drought occurs, glaciers melt, animals are affected, beginning with polar bears, and living things cannot find food.

FINDINGS RELATED TO THE THREE CONCEPTS THAT COME TO STUDENTS' REMEMBER OF GLOBAL WARMING AND CLIMATE CHANGE

Opinions about the first three concepts that come to mind when it comes to global warming and climate change are given in Table 3.

Table 3. *The students' Thoughts About the Environmental Changes Seen in the Photographs*

Answers	Students
Earphones	S1, S4, S6, S8, S9
Greenhouse gases	S1, S2, S5, S7
Increase in temperature	S1, S4, S6, S9
Glaciers	S2, S3, S7, S8
Ozon layer	S2, S5, S7
Polar bear	S3, S4, S6, S8
Death	S3, S5, S9

When the students were asked about the first three concepts that come to mind when talking about global warming and climate change, some of them gave the following answers;

-S1: Drought, bad gases (greenhouse gases), increase in temperature.

-S3: Polar bear, glacier, death.

-S5: Greenhouse gas, ozone layer, death of living things.

FINDINGS RELATED TO STUDENTS' ANSWERS ABOUT GLOBAL WARMING AND CAUSES OF CLIMATE CHANGE

The opinions of the students participating in the research about the causes of global climate change are given in Table 4.

Table 4. *Students' Views on the Causes of Global Climate Change.*

Answers	Students
Unconscious use of nature by humans.	S2, S3, S5
Fossil fuel use.	S1, S2, S3, S4, S5, S6, S7, S8, S9
Increasing industrialization.	S1, S2, S7, S8
Factories polluting the environment.	S1, S4, S5, S7
Increase of bad gases as a result of heavy traffic.	S1, S6, S8, S9

When the students participating in the research listed the causes of global climate change, they used expressions such as the increase in human-induced traffic density, the lack of attention to the greenhouse effect gas emission to the environment in industries and factories, and the climate changed with the decrease of greenery in nature. His views on this subject;

-S1: With the increase in industrialization, the fact that no filters are installed in the factory chimneys increases a lot, the density of traffic in transportation is the use of fossil fuels; The gases formed as a result of the burning of solid fuels such as coal, the use of fossil fuels for the operation of machines in factories.

-S3: I guess the consequences of global warming. As a result of people unconsciously using nature, greenery is decreasing. The climate is changing in direct proportion to the vegetation. Greenhouse gas and heavy metals increase by using fossil fuels.

-S8: Since there is traffic density and a large number of cars, and fossil fuels are used as a result of industrialization, a lot of bad gas is released and climate change is observed.

FINDINGS RELATED TO STUDENTS' OPINIONS ON WHAT TO DO TO PREVENT GLOBAL WARMING

The opinions of the students participating in the research about what should be done to prevent global warming are given in Table 5.

Table 5. *Students' Opinions About What Should be Done to Prevent Global Warming.*

Answers	Students
Renewable energy should be used.	S1, S3, S5, S8
Forests should be increased, trees should be planted.	S2, S3, S9
Nuclear power plants should be abolished.	S3, S7, S8
Factories should be filtered and controlled.	S1, S3, S6
Use of public transport should be encouraged.	S1, S4, S5, S6
Cars must be electric, not diesel or petrol.	S2, S4, S7, S9

The students participating in the research gave the following answers about the subject;

-S1: Factories should be controlled. Filters can be installed on chimneys in factories. The density of traffic can be reduced, public transport should be free, some countries are working in this direction. Renewable energy should be used. They can also be encouraged. I think that Turkish society is conscious.

-S2: Forests should be increased, renewable energy should be used, fossil fuels should not be used. Cars will not be used with diesel and gasoline in Europe, All vehicles will be electric. It also emits less harmful gas.

-S3: Clean energy is used green energy. Renewable energy should be used. Factories can install filters to prevent water pollution. Nuclear power plants can be removed because they are built near the water to cool, creating massive water pollution. Forests may increase, trees should be planted.

-S5: Public transportation should be used, public transportation fees should be reduced, people should get on public transportation vehicles, renewable energy sources should be used, thus global warming can be prevented.

FINDINGS RELATED TO THE OPINIONS OF STUDENTS ON THE USE OF PHOTO INTERVIEW TECHNIQUE

When the students participating in the research were asked about their thoughts on the photo interview technique, all of the students stated that the visuals were a reminder and helpful for what they were going to tell about the subject. The students participating in the research gave the following answers about the subject;

-S1: *This raised my awareness of the situation. It would remain abstract without photography.*

-S2: *The images helped me with what I was going to tell. It reminded me of the effects of global warming*.

-S3: *The effect of doing it with photos was good because when you see the photos, the effects of global warming come to mind without asking any questions*.

-S4: *I remembered what I was going to say about the subject with the photographs*.

-S5: *The photographs made me think well, I remembered the subject*.

-S9: *The photo was good, I understood better what to say*.

FINDINGS ON STUDENT OPINIONS ON THE EFFECT OF THE RESEARCH ON GLOBAL WARMING AWARENESS

Eight of the students who participated in the research stated that their awareness of global warming and climate change increased, and that they remembered things about global warming. One student stated that there was no change in his views on the subject. Student answers on the subject;

-S1: *Changed. I was aware of it, but I was forgetting in daily life. It increased my awareness*.

-S2: *I remembered the things that affect global warming and became more conscious*.

-S9: *I had awareness, but I realized once again that more importance should be given to this issue*.

-S3: *It didn't...*

DISCUSSION, CONCLUSION AND IMPLICATIONS

In the research, according to the data obtained from the face-to-face interviews made orally using the photo interview technique; It has been observed that 9th grade students have limited ideas about global warming and climate change, some students confuse these concepts and most of the students have the misconception that global warming is caused by the depletion of the ozone layer due to the greenhouse effect. Teachers' misconceptions and their handling of Global Warming and Climate Change may have caused misconceptions in students. Eroğlu and Aydoğdu (2016) reached results that support this view in their study with pre-service science teachers. Arsal (2010), in his study with prospective teachers, determined that the participants had misconceptions about greenhouse gases. In addition, Atik and Doğan (2019) investigated the opinions of high school students on climate change in their study, that nearly half of the participants could not define global climate change, and the remaining students made superficial and unscientific definitions. they state that very few students mention greenhouse gases while describing global climate change. These results support findings of this study. Ayvacı and Çoruhlu (2009), in their study with students, revealed that the participants had misconceptions about the greenhouse effect and global warming, which supports the findings of this study. Kılınç et al. (2008), the conclusion that the participants confuse the causes and consequences of global warming with the depletion of the ozone layer, supports the results of the research. In the study, students stated that global warming is increased by gases that cause greenhouse effect. In the study of Aydın (2014) with secondary school students, the fact that more than half of the students reported that the greenhouse effect and global warming are directly proportional supports this result.

In the study, it is seen that the students have knowledge about the effects of global warming and climate change. All of the students said that there will be a drought in our world in the future, that the world is in great danger, that the need for water will increase with the decrease and disappearance of water resources, global diseases will increase, agriculture will be badly affected, glaciers will melt, sudden floods, abnormal precipitation and climate change will occur. They stated that biodiversity would be adversely affected. News about Global Warming and Climate Change in newspapers in recent year television programs, public spots, may have increased awareness among students by including it among the priority topics in TÜBİTAK projects. Some studies in the literature support this result (Yalçın, 2010; Eroğlu & Aydoğdu, 2016). For example; Aydın (2014) stated in his study with high school students that the air temperature will increase with global warming, clean water resources will be polluted and destroyed, sea, rivers and lakes will be affected and the water level will increase, climates will change, flood disasters, drought and desertification will increase. and animal species will be affected and some species will disappear and their habitats will be affected and changed.

In the research, it was observed that 9th grade students generally have knowledge about the factors that cause global climate change. All of the students said that the use of fossil fuels, most of the students said that people's unconscious use of nature, the decrease in greenery, the cutting of trees, the increase in industrialization, the lack of filters in factory chimneys, and the traffic density cause climate change. According to the results of their study by Atik and Doğan (2019), the most important causes of global climate change are; They stated that people have unconscious behaviors towards the environment and polluting nature. Similarly, participants in Aydın's (2014) study mentioned rapid industrialization as one of the biggest factors in global warming. The results of these studies are supportive.

It has been observed that the students participating in the research generally have knowledge about the behaviors and activities that should be done to prevent global warming. All of the students stated that renewable energy should be used first and that fossil fuels should not be consumed. In addition, most students stated that forests should be increased, trees should be planted, factories should be inspected and filters should be installed in their chimneys. Students; They stated that nuclear power plants should be closed since using nuclear energy pollutes the water and a lot of water is consumed in cooling processes, public transportation vehicles should be encouraged, and electric vehicles should be used instead of diesel and gasoline vehicles. It is thought that the students have knowledge about these subjects since they have covered these subjects in the 8th grade. When the studies in the literature are examined, the results of the study and Atik and Doğan (2019), Aydın (2010), Kılınç et al. (2008), Yalçın (2010) and Khalid (2001) study results overlap. For example; Aydın (2014) stated in his research that most of the students stated that more trees should be planted to reduce the effects of global warming, the use of fossil fuels should be reduced, the use of renewable energy sources that are not harmful to the environment should be increased, and recycling such as paper collection should be given importance. In their study, Eroğlu and Aydoğdu (2016) stated that almost all of the participants stated that in order to reduce the effects of global warming, it is necessary to increase afforestation in the environment, to stop fossil fuel consumption, to use renewable energy sources for energy needs, to give importance to recycling such as paper collection, and to use public transportation vehicles in transportation. In the research conducted by Kılınç et al. (2008), the measures that most of the students think will reduce global warming; reducing the use of vehicles in traffic, using recycled paper, increasing afforestation processes. In his research, Ziller (1990) stated that photographs help participants to remember and focus on the interview process, thus providing a significant benefit in reaching the goal of the interview. The fact that Thinkler (2014) stated that a comfortable environment was created for both the researcher and the interviewees with the photographs he used in his research, it reduced the pressure, improved communication in a positive way, and created an atmosphere of harmony and trust, which supports the result.

When the students participating in the research were asked about their thoughts on the photo interview technique, all of the students stated that the visuals were a reminder and helpful for what they were going to tell about the subject. Some studies in the literature support this result. For example; Ascherman, Dannenburg and Schultz (1998) stated in their study that the photo-interview technique helped young children remember events and explain their ideas.

The recommendations developed based on the data obtained in this study are as follows:

Students' lack of knowledge about global warming and climate change should be eliminated.

It should be tried to eliminate the misconceptions of the students about global warming, greenhouse gases and the depletion of the ozone layer. In order for students to learn these subjects by doing and experiencing, activities (argumentation activities such as concept cartoons, Vee diagrams, expressions tables, evidence cards), projects and researches that they participate in one-to-one can be done.

Visual materials can be used to reveal students' misconceptions about global warming and climate change.

Photo interview technique can be used in appropriate researches so that students can express their views better.

By examining the results of the study, the importance given to environmental education in high school curricula can be rearranged by taking these results into account.

AUTHOR CONTRIBUTION

- First author have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data.
-The second author have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data.
-The third author have been involved in drafting the manuscript or revising it critically for important intellectual content.
-The fourth author have given final approval of the version to be published.

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Adaptation of Digital Addiction Scale for Children (DASC) into Turkish

Eyüp Yılmaz, Assoc. Prof. Dr., Aydın Adnan Menderes University, Türkiye, eyup.yilmaz@adu.edu.tr
iD 0000-0002-0336-1747

Nihal Durmaz, Assoc. Prof. Dr., Gülhane Training and Research Hospital, Türkiye,drmznhl@gmail.com
iD 0000-0002-3079-1769

Mark D. Griffiths, Prof. Dr., Nottingham Trent University, UK, mark.griffiths@ntu.ac.uk
iD 0000-0001-8880-6524

Abstract

Although, digital devices have numerous applications that children can benefit from, they may cause specific problems such as addiction. There are many empirical studies assessing digital addictions among Turkish adolescents and young adults. However, few empirical studies have been carried out among Turkish children probably due to the lack of an assessment tool. Therefore, the present study translated and validated the 25-item Digital Addiction Scale for Children (DASC) for Children into Turkish (DASTC). Data were collected from 694 Turkish schoolchildren aged 9-12 years (M=10.5 years; SD=0.92; 50.8% girls). The internal consistency of DASTC was calculated as α=0.92. The Videogame Addiction Scale for Children (VASC) was used to test for convergent validity and they were significantly correlated (r=0.75). Confirmatory factor analysis (CFA) showed that the established two-factor model had a near-perfect fit. In addition, digital addiction scores of boys and older aged children (11-12 years) were significantly higher than girls and younger aged children (9 years).

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INTRODUCTION

Over the past three decades, the rapid development of digital technology has completely changed individuals' daily lives (Small et al., 2020). Around the world, individuals have started to spend more time on their digital devices (e.g., smartphones, tablets, laptops, game consoles, etc.). In particular, during the COVID-19 epidemic, the use of digital devices increased (Király et al., 2020; Nicola et al., 2020). Indeed, between 2019 and 2021, 800 million individuals went online for the first time (Organization for Economic and Co-operation Development, 2021) and global reports indicate that more than 4.5 billion individuals across the globe now use internet while social media users have passed 3.8 billion (We Are Social & Hootsuite, 2020).

Studies conducted with children either across nations or within them have reported that children's interest in and use of digital devices is also increasing. It was found that the estimated prevalence of 5-11 years old children who use computers outside of school more than one hour per day increased from 43% in 2001 to 56% in 2016 in the USA (Yang et al., 2019). In Turkey, the Turkish Statistical Institute (2021) reported that the frequency of internet use for Turkish children aged 6-15 years increased from 50.8% in 2013 to 82.7% in 2021. Even though the use of digital devices can be mandatory for children in some cases (e.g., doing research via internet or participating in an online course), in many cases they are used purely for entertainment and leisure activity (Christakis, 2019).

Although most digital device use is beneficial, the attachment to them and overuse of related activities on them (e.g., social media use, gaming, online shopping) can be problematic and lead to digital addiction among a small minority of children and adolescents (Cemiloglu et al., 2022; Hawi et al., 2019). The phenomenon of 'digital addiction' (DA) has emerged in the past few years and there is a lack of consensus on defining DA or the characteristic features of it. In general terms, addiction to digital technologies is defined as a type of addiction produced by excessive or problematic use of any type of digital technology (Almourad et al., 2020). However, more specifically, Alrobai et al. (2014) defined digital addiction as *"a significant degree of dependent behaviour that is triggered and facilitated by software products. It can lead to both pleasure and relief of discomfort, but unfortunately, in a way that can harm a person socially, physically and psychologically"* (p.112). There are no diagnostic criteria for digital addiction although internet gaming disorder (IGD) which is arguably related to digital addiction, was included in Section III of Diagnostic and Statistical Manual for Mental Disorders (DSM–5; American Psychiatric Association, 2013). However, internet use is not compulsory for DA because offline activities (i.e., videogame playing) can be problematic using digital devices (Griffiths, 2008; Miezah et al., 2020; van Rooij et al., 2012). However, Griffiths (2005) has argued that although all addictions have particular and idiosyncratic characteristics, they share more commonalities than differences (i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse).

Many studies have been conducted examining reasons for children's use of digital devices and related activities (videogame playing, social networking, internet use, etc.) and the consequences these interactions. While sensation seeking among adolescents was found a positive predictor of smartphone addiction (Wang et al., 2019), fear of missing out (FoMo), maladaptive cognitions and psychiatric distress were found the three strongest predictors of social networking addiction (Pontes et al., 2018). Furthermore, a positive association has been reported between DA and depression and anxiety (Ho et al., 2014), isolation/loneliness (Peper & Harvey, 2018), attention deficit and hyperactivity Disorder (ADHD) symptoms (Ko et al., 2012), inattention, hyperactivity, and impulsivity (Yoo et al., 2004), as well as relationship problems and low academic achievement (Kuss & Griffiths, 2011). Additionally, increased screen time on digital devices has been associated with poorer language development (Duch et al., 2013; Horowitz-Kraus & Hutton, 2018), and poorer cognition development (Tomopoulos et al., 2010).

In relation to Turkish samples, many empirical studies examining digital addiction have been conducted regarding adolescents (Altınok, 2021; Arseven, 2021; Arslan, 2020; Sarıca-Keçeci et al., 2021; Taşlıyan et al., 2021) and adults (e.g., Avcı & Er, 2019; Yıldırım, 2021). However, only one study (Canseven et al., 2021) recruiting younger aged children (10-11 years) has been published. Moreover, computer game addiction was considered a digital addiction in that study, and the lack of a scale for assessing children's digital addiction has limited empirical research (Horzum et al., 2008). As far as the present authors are aware, there is no digital addiction diagnostic tool developed for Turkish children and this may be the main reason for the scarcity of studies investigating digital addiction among Turkish children. The main aim of the present study was to adapt DASC into Turkish. In addition, digital device use and addiction levels among children by gender and age were also investigated.

Many studies regarding children's digital usage or addiction levels by gender and age have been conducted all over the world. Systematic review and meta-analysis studies have reported that internet gaming disorder was more common among boys than among girls and that males (including children and adolescents) had higher risk for internet and game addiction than females (Kim et al., 2022; Paulus et al., 2018; Rehbein et al., 2015). Furthermore, being of older age has been associated with more severe addiction among males but not among females (Ko et al., 2005). However, since the phenomenon of digital addiction has only recently become a concern both in Turkey and elsewhere in the world (Kim et al., 2022), it is not clear whether digital addiction is more common in which gender or age group. Thereby, the present study also sought answers to two research questions (RQs): 'Do the digital addiction scores of the participants significantly differ by gender?' (RQ1) and 'Do the digital addiction scores of the participants significantly differ by age?' (RQ2).

METHOD

PARTICIPANTS

In the present study, 694 schoolchildren aged 9-12 years (M=10.5 years; SD=0.916; 50.8% girls) from Grades 4 to 6 were recruited. All participants were studying at public and private schools in Ankara, Turkey. Almost half of participants (47.9%) were 10 years old followed by those aged 11 years (22.7%), 12 years (19%) and 9 years (10.4%). Three-quarters of the participants were studying in public schools (76.8%). This is because the average number of students in public school classes (28-34 students) is much bigger than the number of students in private school classes (15-16 students).

DATA COLLECTION

DATA COLLECTION TOOLS

Data were collected using the *Digital Addiction Scale for Children (DASC)*, *Videogame Addiction Scale for Children (VASC)*, and *Personal Information Form*. Details of the measurement tools are given below.

DIGITAL ADDICTION SCALE FOR CHILDREN (DASC)

The DASC is a 25-item self-report instrument which was developed by Hawi et al. (2019) based on nine diagnostic DSM-5 IGD criteria (American Psychiatric Association, 2013) and six core addiction components (preoccupation, tolerance, withdrawal, mood modification, conflict and relapse) proposed by Griffiths (2005) as well as three additional criteria (problems, deception, and displacement). It comprises two subscales (interpersonal and intrapersonal). While the interpersonal subscale comprises 13 items, the intrapersonal subscale comprises the remaining 12 items. All items (*i.e., "I am sleeping less because I am using my device"*) are rated on a five-point Likert scale from 1 (*never*) to 5 (*always*). Higher scores indicate greater risk of digital addiction. The Cronbach alpha coefficient for whole scale was very good (α=.93). Furthermore, the correlations between nine criteria (0.38–0.69) presented good evidence for discriminant validity. The two-factor structure was

confirmed by performing confirmatory factor analyses (CFA) (CMIN/DF=2.43, root mean square error of approximation (RMSEA)=0.041, standardized root mean square residual (SRMR)=0.033; normed fit index (NFI)=0.93, comparative fit index (CFI)=0.96, and Tucker–Lewis index TLI=0.95).

VIDEOGAME ADDICTION SCALE FOR CHILDREN (VASC)

The 21-item VASC which was developed in the Turkish language by Yılmaz et al. (2017), was used to assess videogame addiction and to test for convergent validity with the DASTC. The scale comprises four sub-scales (self-control, reward/reinforcement, problems, and involvement). Scale items (e.g., *"I forget my problems while playing videogames"*) are rated on a five-point Likert scale from 1 (*never*) to 5 (*always*). Scores range from 21 to 105, and higher scores indicate greater risk of being addicted to videogames. The internal consistency coefficient of VASC was very good (α=.89). The confirmatory factor analyses (CFA) model indicated that the four-factor structure found in the original validation study was confirmed and showed good fit (p<0.001; GFI=0.91, NNFI=0.96, CFI=0.96, SRMR=0.08, and RMSEA=0.05).

SOCIO-DEMOGRAPHICS FORM

The participants were asked to complete socio-demographic questions before completing the psychometric scales. Socio-demographics included: gender, age, and grade level at school (Grade 4, Grade 5 or Grade 6).

ADAPTATION PROCESS

A standard translation, back-translation, and comparison procedure was applied following the procedure outlined by Maneesriwongul and Dixon (2004). First, the DASC items were translated into Turkish by three bilingual experts who were fluent in both languages. Then the harmony between the translated items was examined and a common text was created by comparing the versions. The developed text was then translated back into original language (English) and it was found that the back-translated items were compatible with the original items.

PILOT STUDY

To test how comprehensible and applicable the items were, the draft scale was administered to 38 volunteer schoolchildren who were not included in the main study and participated with parental permission. The youngest age groups (Grade 4) were mostly recruited to the pilot group. This was because items that can be understood and answered by younger age groups are likely to be more easily understood and answered by older age groups. The results showed that the draft scale items were easily understood and answered by schoolchildren.

PROCEDURE

Before the implementation process, necessary permissions and approvals were obtained from Gülhane Scientific Research Ethics Committee and Ankara Provincial Directorate of National Education (No:2020-478). To ensure maximum diversity, data were collected from the schools located in different socio-economic regions (low-medium-high). The students in private schools were regarded as high socio-economic status while students in public schools were regarded as having low to middle socio-economic status (and which was also the view of school administrations). The main recruitment process was planned with three private and four public school administrators who were interested in participating. Before completing the questions, the schoolchildren were informed about the study and how to complete the questions. Data were collected using a paper-pencil method in the classroom with the help of the classroom teachers, and support was provided to those who needed it during the process (e.g., having difficulty in reading or understanding).

DATA ANALYSIS

CFA was performed to verify the two-factor structure of DASC and measurement invariance of DASTC was provided to compare participants by gender and age. Both analyses were performed using Mplus (version 8.3) statistical software. Configural, metric, and scalar invariance were tested to ensure measurement invariance across the compared groups. SPSS statistical software (version 23) was used for t-tests, one-way ANOVAs, correlations, and reliability analyses. Correlations were calculated between DASTC and VASC to test for convergent validity. For reliability and internal consistency, the Cronbach's alpha coefficient (α) was calculated. The missing value proportions of the data ranged between 0 and 1.9 which is very low (MCAR: chi-square=1008.96, df=837, p<0.001). The full information maximum likelihood (FIML) estimation method was utilized for CFA. The FIML estimation is one of the most powerful methods to obtain lowest proportion of convergence failure and providing near-optimal Type-1 error rates (Enders & Bandalos, 2001). The multivariate normality test, which is assumed for FIML, indicated that the higher critical chi-square value (11.74) was lower than maximum Mahalanobi's Distance (MD) critical value for two degrees of freedom (13.82) and that the data were normally distributed.

RESULTS

VALIDITY

STRUCTURAL VALIDITY

After performing CFA, only Item 23 ("*I spend too much money on things for my device*") that had low standardized factor load (<.32) was removed from the scale and two-factor model was obtained. The factor loadings of the remaining items ranged between .38 and .72. Comrey and Lee (1992) suggest that loading in excess .71 are considered excellent, .63 very good, .55 good, .45 fair, and .32 acceptable. With .32 and higher factor loadings, at least 10% variance can be explained.

As a result of CFA, RMSEA, SRMR, CFI, and TLI values were also obtained. Below .08 for RMSEA and SRMR fit indices indicates perfect harmony between .90 and .95 for CFI and TLI fit indexes indicates good harmony, and over .95 on these indexes is considered perfect harmony (Byrne 1998; Hooper et al. 2008; Miles & Shevlin 2007). The TLI (.94) fit index of the model had good fit, and the indexes of CFI (.95), RMSEA (.032) and SRMR (.041) had excellent fit. All these results show that the established two-factor model had a near-excellent fit, confirming the two-factor structure obtained in the original scale. While the standardized results of the two-factor structure model are shown in Figure 1, Table 1 presents the Turkish item model of the DASC, the components on which items are based, and descriptive statistics.

Figure 1. *The Standardized Results of the Two-Factor Structure Model of DASTC*
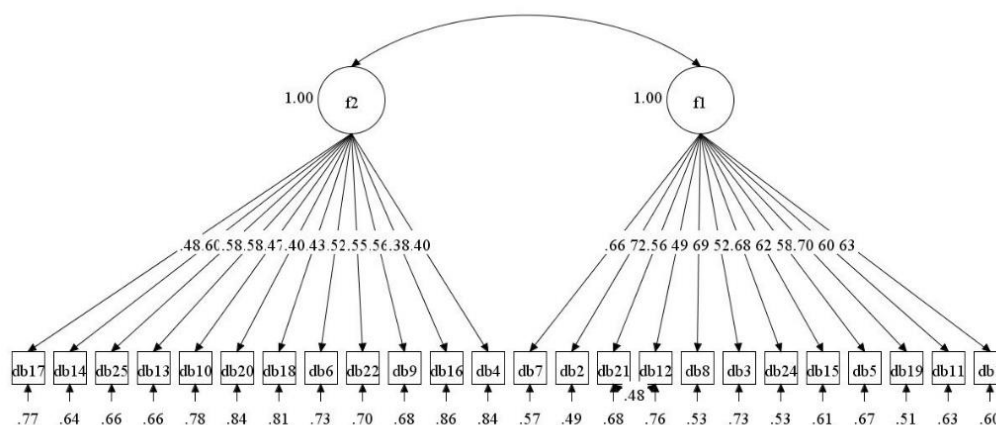
Table 1. *Turkish Item Model of DASTC and Descriptive Statistics*

Subscale	Criteria on which items are based	Items (Turkish)	M	SD	Factor Loading
Interpersonal	Displacement	6. I do not spend time with my family members because I prefer using my device (Cihazımı kullanmayı tercih ettiğim için aile bireyleriyle vakit geçiremem).	1.70	.97	.52
		18. I have lost interest in hobbies or other activities because I prefer using my device (Cihazımı kullanmayı tercih ettiğim için hobilerime veya diğer etkinliklere olan ilgimi kaybettim).	1.46	.89	.43
		20. I check my device when I am doing homework or other important things (Ödev veya diğer önemli şeyleri yaparken cihazımı kontrol ederim).	1.80	1.20	.40
	Problems	10. I am sleeping less because I am using my device (Cihazımı kullanmaktan dolayı daha az uyurum).	1.54	.96	.47
		13. I have problems with my parents about the amount of time I spend using my device (Cihazımı kullanma sürem ile ilgili ailemle sorunlar yaşarım).	1.54	.96	.58
		25. I continue using my device despite that my grades at school are getting lower and lower (Okul başarımın gitgide düşmesine rağmen cihazımı kullanmaya devam ederim).	1.36	.77	.58
	Deception	4. I lie to my parents about the amount of time I spend using my device (Cihazımla ne kadar vakit geçirdiğim hakkında aileme yalan söylerim).	1.13	.48	.40
		16. I lie to my parents about what I do on my device (Cihazımla neler yaptığım konusunda aileme yalan söylerim).	1.14	.53	.38
	Conflict	9. My parents try to stop or limit me using my device, but they fail (Ailem cihazımı kullanmamı bıraktırmaya ya da sınırlandırmaya çalışır ancak başarısız olur).	1.58	1.02	.56
		22. I argue with my parents when they ask me to stop using my device (Cihazımı kullanmayı bırakmamı istediklerinde ailemle tartışırım).	1.45	.85	.55
	Relapse	17. I am not able to control using my device (Cihazımı kullanma konusunda kendimi kontrol edemiyorum).	1.97	1.12	.48
	Preoccupation	14. Using my device is the most important thing in my life (Cihazımı kullanmak hayatımdaki en önemli şeydir)	1.50	1.00	.60
Intrapersonal	Preoccupation	1. When I am not at school, I spend a lot of time using my device (Okulda olmadığım zamanlarda, cihazımla çok vakit geçiririm).	2.69	1.10	.63
		11. When I do not have my device, I think about what I do on it (video games, social media, texting, etc.) (Cihazım yanımda olmadığı zamanlarda, onunla yaptığım şeyleri (oyun oynama, sosyal medya, mesajlaşma vb.) düşünürüm).	1.95	1.19	.60
	Relapse	19. When I stop using my device, it is not long before I start using it again (Cihazımı kullanmayı bıraksam da çok geçmeden tekrar kullanmaya başlarım).	2.00	1.17	.70
	Mood modification	5. Using my device helps me to forget my problems (Cihazımı kullanmak, sorunlarımı unutmama yardımcı olur).	2.34	1.36	.58
		15. Using my device is more enjoyable than doing other things (Cihazımı kullanmak yaptığım diğer şeylerden daha eğlencelidir).	2.14	1.26	.62
		24. Using my device makes me feel better when I feel bad (Kendimi kötü hissettiğimde cihazımı kullanmak daha iyi hissetmemi sağlar).	2.43	1.38	.68
	Withdrawal	3. I feel upset when I am not able to use my device (Cihazımı kullanamadığım zaman üzgün hissederim).	1.73	1.04	.52
		8. I feel upset when I am asked to stop using my device Cihazımı kullanmayı bırakmam istendiğinde üzülürüm.	1.93	1.25	.69
		12. I feel frustrated when I cannot use my device (Cihazımı kullanamadığım zaman sinirli hissederim).	1.52	1.01	.49
		21. I feel frustrated when I am asked to stop using my device (Cihazımı kullanmayı bırakmam istendiğinde sinirlenirim).	1.44	.95	.56
	Tolerance	2. I feel the need to spend more time using my device (Cihazımla daha çok vakit geçirme isteği duyarım).	2.56	1.26	.72
		7. I have spent more and more time on my device (Cihazımla gittikçe daha fazla zaman geçiriyorum).	1.98	1.15	.66

CONVERGENT VALIDITY

To test the convergent validity of the DASTC, the VASC, which assesses a related type of behavior structure and was developed for the same age groups (9-12 years), was used. Both scales were completed by 396 students (M_{age}=10.6; SD=0.93; 50.3% girls). A highly significant relationship was found between the DASTC and VASC (r=.75, p<.001). These results can be accepted as an indication of the convergent validity of the DASTC. The correlations are shown in Table 2.

Table 2. *Correlation Coefficient and Descriptive Statistics Between DASTC and VASC*

	DASTC	VASC	M	SD	N
DASTC	1	.75***	45.37	15.56	396
VASC		1	42.85	15.17	

***p < .001

RELIABILITY

The Cronbach's alpha reliability coefficients for the DASTC (α=0.92), the intrapersonal subscale (α=0.89), and the interpersonal subscale (α=0.80) were all found to be very good.

GROUP COMPARISONS

The present study also explored if digital addiction scores of the participants significantly differed by gender and age. Findings addressing the research questions are presented below.

GENDER

The findings indicated that the DASTC scores of boys (M=46.48, SD=15.96) were significantly higher than the addiction scores of girls (M=42.40, SD=13.55) (t=3.63, p<0.001). The effect size was small: Cohen's d=0.28 (Becker, 2000).

AGE

The one-way ANOVA showed that the DASTC scores of schoolchildren were significantly different by age ($F_{(3,678)}$=3.735, p<0.05). The Scheffe post-hoc analysis showed the DASTC scores of 11-year-olds students (M=45.53, SD=15.58, t=2.99) and 12-year-olds students (M=46.43, SD=16.96, t=3.18) were significantly higher than those scores of 9-year-olds students (M=39.89, SD=11.90) (p<0.05). Medium effect sizes were found for both groups (Cohen's d was 0.40 for those aged 9-11 years and as 0.45 for those aged 9-12 years). Furthermore, there was no significant difference between 10-year-old students (M=43.33, SD=14.15) and other groups.

MEASUREMENT INVARIANCE

In order to be able to compare participant scores by gender and age groups, DASTC measurement invariance was examined with multi-group CFA in three stages: configural, metric, and scale invariance. Table 3 and Table 5 show the goodness of fit indices obtained in the configural, metric and scale invariance stages while Table 4 and Table 6 show the SRMR, RMSEA and CFI index differences (ΔSRMR, ΔRMSEA, ΔCFI), which is a statistical comparison of the chi-square values obtained at these stages.

Table 3. *Fit Indices for Stages of Measurement Variance of Turkish Version of the Digital Addiction Scale for Children by Gender*

Stages	SRMR	RMSEA	CFI	TLI
Model A (configural invariance)	0.06	0.07	0.88	0.86
Model B (metric invariance)	0.066	0.07	0.88	0.87
Model C (scale invariance)	0.07	0.07	0.87	0.87

Model A shows that the configural invariance was achieved by gender which means that the factor structure of the DASTC is the same for boys and girls. The fit indices can be considered as acceptable for metric invariance. The difference between the chi-square values obtained for configural and metric invariance was not significant, and the ΔSRMR, ΔRMSEA and ΔCFI values were lower than the critical values (Table 3). Therefore, factor loadings of the DASTC for boys and girls were equal and that the metric invariance was achieved by gender. The fit indices can also be considered as acceptable for scale invariance. The chi-square difference between scale, metric, and configural invariance was significant for gender, but the calculated ΔSRMR, ΔRMSEA and ΔCFI values were relatively low (Table 4). Considering that the chi-square statistic is affected by the sample size, scale invariance between groups (boys and girls) was achieved by gender. This results indicated that both factor loading and intercepts were the same for boys and girls.

Table 4. *Measurement Invariance Model Comparisons by Gender*

Compared models	$\Delta\chi^2$	SD	p	ΔSRMR	ΔRMSEA	ΔCFI
Model B (metric) - Model A (configural)	14.31	12	.281	.006	-.002	-.001
Model C (scale) - Model A (configural)	40.17	24	.021	.008	-.002	-.010
Model C (scale) - Model B (metric)	28.65	12	.004	.002	.000	-.009

The chi-square difference between scale, metric and configural invariance was not significant for age (Table 5), and the calculated ΔSRMR, ΔRMSEA and ΔCFI values were relatively low (Table 6). These results show that scale invariance between groups (boys and girls) was also achieved by age. Chen (2007) suggests that .01 for CFI change, .015 for RMSEA change, and .030 (for metric invariance) or .015 (for scale invariance) for SRMR change can be used.

Table 5. *Fit Indices for Stages of Measurement Variance of Turkish Version of the Digital Addiction Scale for Children by Age*

Stages	SRMR	RMSEA	CFI	TLI
Model A (configural invariance)	0.07	0.07	0.87	0.85
Model B (metric invariance)	0.08	0.07	0.88	0.87
Model C (scale invariance)	0.08	0.07	0.87	0.87

Table 6. *Measurement Invariance Model Comparisons by Age*

Compared models	$\Delta\chi^2$	SD	p	ΔSRMR	ΔRMSEA	ΔCFI
Model B (metric) - Model A (configural)	34.92	36	.520	.012	-.005	.002
Model C (scale) - Model A (configural)	79.93	72	.244	.013	-.006	-.005
Model C (scale) - Model B (metric)	47.15	36	.101	.001	-.001	-.007

DISCUSSION, IMPLICATIONS, AND CONCLUSIONS

Today's children have been raised in the digital age. Moreover, they are able to frequently access digital devices and spend more time on them. Although, digital devices have numerous applications that children can benefit from, they may cause specific problems to a minority of individuals such as addiction. However, the lack of a diagnostic tool developed or adapted for Turkish children has led to the inability to conduct studies examining digital addiction among Turkish children. Therefore, the present study translated and validated the Digital Addiction Scale for Children (DASC) into Turkish.

After performing CFA, a two-factor structure comprising 24 items (12 items for the 'intrapersonal' factor and 12 items for 'interpersonal factor) was obtained. Only Item 23 ("*I spend too much money on things for my device"*) that had low standardized factor load (<.32) was removed from the scale. One possible explanation for why this item did not load well is that in Turkish culture, the allowances given to children in this age group do not allow them to spend a lot of money on digital devices. In addition, the economic conditions of the families (especially those with middle and lower socio-economic status) may also be another important reason for this issue. The Cronbach's Alpha reliability coefficient was found .92 for the DASTC (α=.89 for intrapersonal factor; α=.80 for interpersonal factor) which means that the adapted instruments had high reliability coefficients. The high significant correlation between DASTC and VASC (r = 0.75) indicated very good convergent validity. To compare Turkish children's scores on the DASTC by gender and age groups, measurement invariance analysis was conducted across three types (i.e., configural, metric, and scale). This indicated that measurement invariance was achieved for both gender and age across all three types.

The DASTC scores among boys were found to be significantly higher than girls' scores. This finding was also found in the original validation study by Hawi et al. (2019). In a study conducted with Turkish adolescents, it was found that digital addiction scores of boys were significantly higher than girls' scores (Arslan, 2020). However, girls had significantly higher digital addiction scores than boys in another study conducted with Estonian children (Seema et al., 2022). These results indicate that more research is needed to have more generalizable findings. Furthermore, it is seen that the results can be divergent according to the type of activity (i.e., game, social media, internet) performed in the digital environment. For example, meta-analysis studies have reported that gaming disorder rates are approximately 2.5:1 in favor of males compared to females (Kim et al., 2022; Stevens et al., 2020). Moreover, many systematic review and meta-analysis studies have reported that males tend to have higher prevalence of internet addiction than females (Ko et al., 2005; Kuss et al., 2014; Meng et al., 2022). Finally, many meta-analysis studies have reported that gender is not a significant predictor of social media addiction even there is often an imbalanced gender ratio (mostly in favor of females) reported in studies (Cheng et al., 2021; Huang, 2022; Shannon et al., 2022; Yang et al., 2022).

The findings also showed that DASTC scores of the children in the older ages (11-12 years) were significantly higher than lower age group (9 years). Similarly, Kırık et al. (2015) indicated that social media addiction level among Turkish adolescents increased from 14 years to 17 years. Longobardi et al. (2020) found a positive association between Italian adolescents' age and their time spent using smartphone daily and using *Instagram* daily (i.e., as the age of the adolescents increased, the time they spent on their smartphone and on *Instagram* also increased). Tsai et al. (2020) reported in their study conducted with Taiwanese children that sixth grade students had significantly higher digital game/internet addiction scores than fifth grade students. One possible explanation for this is that as children grow older, their experience with digital devices and related activities (e.g., social media, video gaming, and online shopping) increases and they have the opportunity to act more independently from their families may have been a factor in the increase of their digital addictions.

The studies examining Turkish participants' digital addiction levels shows that the present study's findings make important contributions to the literature in two aspects. First, there are very few studies examining digital addiction among Turkish children. This is most likely because there have been digital addiction scales developed for both Turkish young adults and Turkish adolescents but not for Turkish children (Dilci, 2019; Kesici & Tunç, 2018). Second, in the literature, only one study (Canseven et al., 2021) examining the digital addiction levels of Turkish children has been carried out previously. However, in that study, children's digital addiction levels were determined using the Computer Game Addiction Scale which does not actually assess digital addiction. Given these weaknesses, there is clearly the need for a new scale to assess digital addiction among Turkish children.

LIMITATIONS AND CONCLUSION

As far as the present authors are aware, the DASTC is the first psychometric instrument that has been validated for Turkish children and provides a valuable tool to adequately assess and monitor digital addiction among Turkish children. However, the following limitations should be considered when interpreting the findings. More specifically, the data collected from the participants were entirely self-report. Self-report data are subject to accuracy of memory recall biases and issues related to social desirability biases. Further studies from different languages and cultures may be beneficial to re-test whether two-factor structure of the DASC can be confirmed among non-Turkish samples. Future psychometric testing could also examine other types of reliability (e.g., test-retest reliability) and other types of testing at item level (e.g., Rasch analysis) as well as examining convergent and discriminant validity using other measures (such as instruments assessing psychological distress including depression and anxiety). Furthermore, given the scale was developed to be utilized in epidemiological studies rather than in a clinical context, the scale should be psychometrically tested in a clinical context to get a more detailed picture of the psychosocial impact of digital addiction in children's lives. Despite these limitations, the present study demonstrated that the DASTC is an instrument that can assess for the risk of digital addiction among younger-aged Turkish schoolchildren. The validation of the scale will hopefully encourage other studies of digital addiction among Turkish children.

DECLARATION OF CONFLICTING INTEREST

The authors declare that they have no conflict of interest except MDG. MDG has received research funding from *Norsk Tipping* (the gambling operator owned by the Norwegian government). MDG has received funding for a number of research projects in the area of gambling education for young people, social responsibility in gambling and gambling treatment from *Gamble Aware* (formerly the *Responsibility in Gambling Trust*), a charitable body which funds its research program based on donations from the gambling industry. MDG undertakes consultancy for various gambling companies in the area of player protection and social responsibility in gambling.

AUTHOR CONTRIBUTIONS

- The first author made substantial contributions to conception, design, analysis and interpretation of data.
-The second author collected the data and made contributions to conceptualization of digital addiction phenomenon.
-The third author critically appraised, revised, and edited the manuscript.

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Effects of an 8-Week Relational Cultural Intervention on Female University Students' Attitudes Towards Dating Violence, Conflict Resolutions and Relationships[*]

Özlem Gündüz, Dr., Ministry of Education, Türkiye, ozllemgunduz@gmail.com
0000-0002-5894-1669

Seher A. Sevim, Prof. Dr., Hasan Kalyoncu University, Türkiye, sevimseher@hotmail.com
0000-0002-4914-2486

Abstract

The aim of this research is to determine the effect of the Relational Cultural Theory Based Psycho-Education Program (RCTPP) on the attitudes of university students toward dating violence (DV), relationship qualities, and conflict resolution styles. The research is an experimental study conducted with female university students. There are nine students in the experimental group and nine students in the control group. The eight-session RCTPP developed by the researcher was applied to the experimental group. No intervention was made in the control group. As a result of the research, it was determined that the variance between the pre-test and post-test scores of the individuals in the experimental group and the control group regarding the attitude towards DV, the negative conflict resolution style (NCRS), and the compliance conflict resolution style (CCRS) differed significantly from each other. Accordingly, it was determined that the participants' attitude scores towards DV decreased, that is, they considered DV as less acceptable in relationships. In addition, it was found that the participants tended to use the NCRS and CCRS less. It was determined that the program did not affect the decrease of withdrawal conflict style scores (WCRS) in conflict resolution, and the increase in positive conflict resolution style scores (PCRS) and relationship quality scores.

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[*] This study is produced from the doctoral thesis conducted by the first author in the second author's advisory

INTRODUCTION

Fulfilling important developmental tasks like romantic relationships, intimacy, and identity which are important in terms of developmental outcomes, is linked to relationship quality and psychological health in later life (Furman & Shaffer, 2003; Lanz & Tagliabue, 2007). Romantic relationships involve various risks and positive developmental outcomes (Gala & Kapadia, 2013). One of these risks is dating violence (DV). The World Health Organization (2010) defines DV as "behaviors leading to sexual, physical, and psychological harm, including sexual coercion, psychological abuse, physical aggression, and control behaviors in intimate relationships."

DV is a common problem. According to the data collected by the World Health Organization from 81 countries, 29% of females between 15 and 19 ages are exposed to physical and sexual DV (WHO, 2010). Studies conducted in Turkey also indicate similar findings. A study conducted by Toplu-Demirtaş and Hatipoğlu-Sümer in 2011 reported that around 25% of university students are exposed to psychological violence, 6% to sexual violence, and 10% to physical violence. Another study determined that 8% of young people were exposed to various kinds of violence in dating relationships (Özcebe, et al., 2002). This same study also determined that 31.6% of young people had friends who were exposed to DV, and 87.8% of those people who were exposed to violence were females.

Considering its impact, DV has long-term impacts on the mental and physical health of individuals and brings about many negative consequences such as depression, anxiety, suicide attempts, injury, drug use, low self-esteem, self-blame, and anger (Bonomi et al., 2012; Cornelius & Resseguie, 2007; Exner-Cortens et al., 2013). Currently, DV is among the social problems that need prompt attention due to its prevalence and effects. Therefore, prevention and intervention studies on DV are significant. First-order prevention programs play a role in preventing DV. There are numerous programs for preventing DV in the literature (Ball et al., 2009; Shorey et al., 2008; Wolfe et al., 2003). A few university-level programs in Turkey are also aimed at preventing DV.

Prevention programs aim to reduce risk factors and increase protective factors to prevent DV. While risk factors include factors that increase the likelihood of experiencing DV, protective factors include factors that reduce the likelihood of DV and protect against risks. Attitudes toward DV are one of the factors that increase DV risks. Having positive attitudes towards DV, which means the feelings, thoughts, and behaviors that accept or reject power control and violent behaviors in a romantic relationship, and believing that violent behaviors are acceptable, especially under certain circumstances (e.g., when insulted, not insulted, pushed or hit first), increases the risk of perpetrating violence and getting exposed to it (Foshee et al., 2001). Another risk factor is conflict resolution. Studies show that negative conflict resolution is associated with DV (Bonache et al., 2016). As a protective factor, the quality of the relationship, which describes relationships in which individuals resolve conflicts positively, perceive social support, and feel depth, reduces the risk of DV. It is known that less DV is experienced in high-quality relationships and that there is a negative association between DV and relationship quality. In this context, the prevention program developed in this study aimed to improve relationship quality and positive conflict resolution styles (PCRS) and reduce positive attitudes towards DV.

The program development process of this study was based on relational cultural theory (RCT). Most of the programs developed do not have a theoretical basis, except for a few that are based on feminist and social learning. Programs based on social learning theory emphasized the social learning of individuals and focused on attitudes that they may have developed towards the violence in their family (Luthra & Gidycz, 2006). Since feminist theory suggests that violence originates from a patriarchal system of values, the programs focus on the concepts of power and control and gender roles (Giordano et al., 2010). Current approaches, however, draw attention to raising awareness about relationships that support development in preventing DV (Fruzzetti & Levensky, 2000). Since DV is similar to negative communication patterns, it is suggested that developing relational skills could be

preventative (Ro&Lawrence, 2007; Shorey et al., 2012). In this respect, it is stated that RCT could be a guide in preventing violence. In particular, the theory offers opinions and suggestions to understand and improve the relationships. In this context, the prevention program developed in this study is grounded on RCT and focuses on social teachings-controlling images, relational images, the connection-disconnection cycle, power, relationship characteristics that promote growth, and conflict resolution.

This study is based on the requirements for preventing DV. The general purpose of the study is to determine the effect of the RCTPP on attitudes toward DV, relationship qualities, and conflict resolution styles in female university students.

METHOD

RESEARCH DESIGN

2*3 quasi-experimental design was employed in this study to examine the effect of the RCTPP on female university students' attitudes towards DV, relationship quality, and conflict resolution reactions. The study group for the research consisted of 18 female university students. The program content was announced to university students through a written, verbal, and online announcement. Being female and having a romantic relationship were the criteria for including individuals in the study. In addition, while forming the experimental and control groups, attention was paid to ensuring that no significant difference was found between the pre-test scores of the groups. There were 18 participants, 9 in the experimental group and 9 in the control group.

RELATIONAL CULTURAL THEORY-BASED PSYCHO-EDUCATION PROGRAM

The prevention program was developed in two stages and six steps based on the psychoeducational program structuring processes suggested by Nazlı (2016) and Furr (2000). The program aims to help individuals build a cognitive relationship model that supports their development based on RCT. In this way, the program was expected to promote the relationship qualities, and conflict resolution skills of individuals and change their attitudes towards DV. Session topics are "Introduction, Social Teachings –Controlling Images, Relational Images, Connection-disconnection Cycle, Relational Cycle-Power, Relationship Characteristics That Promote Growth, Conflict Resolution and Finalization.''

While creating the content of the program, attention was paid to making the content clear and understandable. The program included brief information forms about contents, role cards for hypothetical situations, metaphors, images, and stories. At the next stage, activities were planned to present the determined contents. Since the RCT-based intervention in the program was both psych-educational and experiential, both informative and experiential activities were included in the sessions.

PROCEDURE

A pilot group application was carried out before implementing the program. After completing the pilot group application, an eight-session RCTPP was applied to the experimental group, but no application was performed in the control group. Measurements were made before, at the end of, and two months after the application through the Intimate Relationships Violence Attitude Scale, Conflict Resolution Styles Scale, and Relationship Quality Scale.

INSTRUMENTS

INFORMATION FORM

A personal information form containing information such as individuals' gender, age, department, and their parents' education level was used in the study.

INTIMATE PARTNER VIOLENCE ATTITUDE SCALE-REVISED

The Intimate Partner Violence Attitude Scale was developed by Fincham et al. (2008) to measure university students' attitudes toward psychological and physical DV. The scale was adapted for Turkish by Demirtaş (2015). There were eight items in the abuse, five in the control, and four in the violence sub-dimensions. The highest score obtained from this scale shows positive attitudes towards physical and psychological violence. As a result of the confirmatory factor analysis conducted in the Turkish adaptation of the scale, the fit indices were found to be CFI = 0.74, $\chi2$= 311.50, df = 116, $\chi2$/df = 2.68, RMSEA = 0.08, SRMR = 0.08 (90% CI = 0.07-0.09). Considering the values relating to the scale reliability, the international consistency coefficients of the scale were 0.72, 0.62, and 0.65 for the violence, control, and abuse sub-dimensions, respectively (Demirtaş, 2015).

CONFLICT RESOLUTION STYLES SCALE

The Conflict Resolution Styles in Romantic Relationships Scale was developed by Özen (2016) to examine the conflict solution styles in romantic relationships. There were four sub-dimensions and 25 items in the study, where the sub-dimensions were named as withdrawal, negative, positive, and compliance conflict resolution styles. Scores obtained from these sub-dimensions were evaluated. In the validity study of the scale, the negative conflict resolution factor accounted for 16.93%, compliance conflict resolution for 13.07%, positive conflict resolution for 11.33%, and withdrawal conflict resolution for 11.01% of the total variance. Factor loadings of the items varied between 0.46 and 0.76. The Cronbach's alpha value was found to be 0.77 for PCRS, 0.81 for compliance, 0.75 for withdrawal, and 0.75 for NCRS by reliability analysis (Özen et al., 2016).

QRI-THE RELATIONSHIP QUALITY SCALE

The Quality of Relationship Inventory developed by Pierce et al. (1997) was adapted to Turkish by Özabacı (2011). In Özabacı's (2011) research, the reliability and validity study of the scale was conducted for married individuals. In this research, the validity and reliability of the Quality of Relationship Scale were examined for unmarried individuals in a romantic relationship. The confirmatory factor analysis of the Quality of Relationship Scale used in the research began with 25 items. However, nine items were excluded from the analysis due to low factor loadings. The confirmatory factor analysis results showed that the factor loadings range between 0.42-0.74 for the social support, 0.47-0.77 for the conflict, and 0.71-0.77 for the depth sub-scales. Further, the model fit indices of the Quality of Relationship Scale were chi-square/df = 1.86, RMSEA value 0.052, SRMR value 0.054, NNFI 0.95, CFI 0.95, and GFI 0.93. When the good-of-fit indices were examined, the chi-Square/df value of less than 3 showed a perfect fit, while the RMSEA and SRMR values of smaller than 0.08, and the NNFI, CFI, AND GFI of greater than 0.90 indicate a good fit (Hooper et al., 2008). These findings indicate that the model fits well and the construct validity is satisfied. As such, the Cronbach's Alpha internal consistency coefficient of the Quality of Relationship Scale was 0.65. Accordingly, one could say that the scale is of a moderate level of reliability.

STATISTICAL ANALYSIS

Before analyzing the data, it was examined whether the scores of attitudes towards DV, relationship quality, and conflict resolution styles met the assumptions of the parametric tests. The effect of the program was determined using a two-factor mixed measures ANOVA. In addition, the Bonferroni test was performed for repeated measures to determine the source of the difference across the measures.

RESULTS

The research findings are presented in the order indicated under the headings of DV attitude scores, relationship quality scores, and conflict resolution style scores.

FINDINGS REGARDING DATING VIOLENCE ATTITUDE SCORES

The pretest, posttest, and follow-up test mean scores regarding attitudes towards DV, their standard deviation values, and the results of the two-factor mixed-measure ANOVA on whether there is a difference between the scores are presented in Table 1.

Table 1. *Descriptive Statistics and ANOVA Results Before and After Intervention (pretest vs. posttest, follow-up test) in the Experimental Group (n = 9) and Control Group (n = 9)*

Variables	Group	Pretest	*Posttest*	Follow-up Test	*Time*			*Group*			*Time*Group*		
		Mean (SD)	Mean (SD)	Mean (SD)	F	P	η^2	F	p	η^2	F	p	η^2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
DV	Con.	29.56 (6.52)	30.66 (7.68)	31.89 (7.39)	2.617	.11	.14	.007	.94	.00	9.26	.04	.37
	Exp.	34.78 (7.33)	29.33 (7.57)	28.78 (6.63)									

As seen in Table 1, no significant difference was found between the groups regardless of the measures, F (1, 16) = 0.007, p > 0.05. Similarly, the difference between the measures was non-significant irrespective of which group the participants represented, F (1.30, 20.79) =37.72, p > 0.05. The Group*Measure common effect, showing whether the experimental process is effective or not, is significant, F (1.3, 20.79) = 133.45, p < 0.05. This finding indicates that 37% of the change in attitudes towards DV in repeated measures between groups may be explained by the program executed (η2 = 0.37). Accordingly, one could argue that the implemented psycho-education program has contributed largely to the positive change in individuals' attitudes toward DV. Moreover, the Bonferroni test was used to determine the source of the difference observed in the mean scores of attitudes toward DV, and the results are presented in Table 2.

Table 2: *Bonferroni Results in Experimental Group (n = 9) and Control Group (n = 9)*

			Mean Difference	*S*	*p*
DV	Exp.	Pretest-Posttest	5.44*	(1.55)	.01
		Pretest – Follow-up test	6.00*	(1.79)	.01
		Posttest – Follow-up test	.56	(.79)	1.00
	Con	Pretest - Post test	-1.11	(1.56)	1.00
		Pretest – Follow-up test	-2.33	(1.79)	.63
		Posttest – Follow-up test	-1.22	(.79)	.42
DV		Pretest	5.22	(3.27)	.13
	Exp - Con Group	Posttest	-1.33	(3.59)	.71
		Follow-up test	-3.11(3.31)		.36

Note: * *p* < 0.05

According to the analysis results given in Table 2, it was determined that the post-test DV attitude scores of the individuals in the experimental group were significantly lower than the pre-test scores (q = 5.44; p < 0.05). Meanwhile, the follow-up DV attitude scores of individuals in the

experimental group were significantly lower than their pre-test scores (q = 6.00; p < 0.05). However, no significant difference was found between the post-test and follow-up test DV attitude scores of individuals involved in the program (q = 0.56; p > 0.05). As such, no significant difference existed between the DV attitude post-test scores of the experimental and control groups (q = -1.33; p > 0.05). In this context, the findings show that DV attitude scores of female students who participated in the RCTPP significantly dropped relative to the control group, and the program effect showed persistence.

FINDINGS REGARDING QUALITY OF RELATIONSHIP

Descriptive statistics and ANOVA results relating to the pretest, posttest, and follow-up test relationship quality scores of individuals who participated in the study are provided in Table 3.

Table 3. *Descriptive Statistics and ANOVA Results Before and After Intervention (pre-test vs. post-test, follow-up test) in the Experimental Group (n = 9) and Control Group (n = 9)*

Variables	Group	Pretest	Posttest	Follow-up Test	Time			Group			Time*Group		
		Mean (SD)	Mean (SD)	Mean (SD)	F	p	η^2	F	p	η^2	F	p	η^2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Relation quality	Con.	54.33 (5.72)	56.77 (5.17)	56.56 (3.75)	1.17	32	.07	1.62	.22	.09	.59	.56	.04
	Exp.	52.67 (6.95)	53.11 (4.99)	53.00 (6.18)									

According to the results given in Table 3, no significant difference existed between groups regardless of the measures F (1, 16) = 1.62, p > 0.05. There was no difference between the pretest, posttest, and follow-up test relationship quality scores of participants irrespective of which group they represented F (2,32) = 1.17, p > 0.05. Similarly, when the significant level of the Group*Measure common effect test was examined, it was found that the relationship quality scores of individuals who underwent the procedure did not significantly change before and after the intervention, F (2, 32) = 0.59, p > 0.05. In other words, one could argue that the RCTPP did not significantly contribute to an increase in the relationship quality levels of individuals in the experimental group.

FINDINGS REGARDING CONFLICT RESOLUTION STYLES

The conflict resolution style pretest, posttest, and follow-up test mean scores of the individuals participating in the RCTPP, standard deviation values of the scores, and ANOVA results are presented in Table 4.

Table 4 shows that the difference between the groups is not significant for the PCRS score, regardless of the measurement order, F (1, 16) = .083, p > 0.05. As such, regardless of groups, the difference between the PCRS scores was non-significant in terms of the measurement order, F (1.38, 21.99) = 1.95, p > 0.05. In the meantime, the common effect of being in different groups and the repeated measure was not significant, F (1.38, 21.99) = 3.53, p > 0.05. It could be said that the program did not significantly contribute to an increase in the PCRS scores of individuals in the experimental group.

The findings also showed no significant difference between the groups for NCRS scores, regardless of the measurement order, F (1, 16) = 0.62, p > 0.05. However, independent of the group variable, the difference between NCRS scores was significant considering the measurement order, F (2, 32) = 4.34, p < 0.05. Likewise, in terms of NCRS scores, being in the experimental and control groups and the pretest-posttest common effect (Group*Measure) were significant, F (2, 32) = 5.97, p < 0.05.

This finding shows that the NCRS scores of individuals who participated in the RCTPP decreased after the intervention, and individuals in the experimental group demonstrated a lower inclination towards using an NCRS.

Table 4. *Descriptive Statistics and ANOVA Results Before and After Intervention (pretest vs. posttest, follow-up test) in the Experimental Group (n = 9) and Control Group (n = 9)*

Variables	Group	Pretest	Posttest	Follow-up Test	Time			Group			Time*Group		
		Mean (SD)	Mean (SD)	Mean (SD)	F	p	η^2	F	p	η^2	F	p	η^2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
PCRS	Con	30.33(3.31)	28.44 (4.30)	29.00 (4.47)	1.95	.17	.10	.083	.78	.005	3.53	.06	.18
	Exp.	28.55 (3.32)	28.89(3.06)	31.56 (2.88)									
NCRS	Con	14.44 (5.12)	14.78 (5.29)	14.78 (5.91)	4.34	.02	.21	.62	.44	.04	5.97	.01	.25
	Exp.	19.22 (6.51)	16.44 (7.04)	14.78 (6.04)									
CCRS	Con	18.89 (6.00)	18.22 (6.14)	18.11 (5.99)	10.91	.00	.40	1.12	.30	.07	6.05	.01	.27
	Exp.	24.56 (5.59)	19.89 (7.04)	19.33 (4.90)									
WCRS	Con	24.56 (5.05)	24.88 (5.99)	23.67 (5.85)	.80	.46	.05	.002	.97	.00	2.28	.12	.13
	Exp.	22.56 (9.26)	24.11 (7.04)	26.00 (8.54)									

There is no significant difference between the groups in terms of CCRS scores when the measurement order is disregarded, $F (1, 16) = 1.12$, $p > 0.05$. However, regardless of the group variable, the difference between the CCRS scores was significant considering the measurement order, $F (2, 32) = 10.91$, $p < 0.05$. In addition, the Group*Measure common effect on scores, which indicated whether the intervention was effective, was significant, $F (2, 32) = 6.045$, $p < 0.05$. According to the results obtained, one could argue that the RCTPP was influential in lowering individuals' CCRS scores. An examination of the effect size value indicated that the program had a moderate effect on lowering their CCRS scores, and 27% of the change in individuals' CCRS scores stemmed from the program.

Another finding showed no significant difference between the groups in terms of WCRS scores, regardless of the measurement order, $F (1, 16) = 0.002$, $p > 0.05$. As such, there was no significant difference between the WCRS scores considering the measurement order, notwithstanding the groups that individuals represented, $F (2, 32) = 0.80$, $p > 0.05$. In addition, the common effect of Group*Measure, showing whether the RCTPP affects the WCRS scores, was non-significant, $F (2, 32) = 2.28$, $p > 0.05$. According to these findings, the RCTPP did affect the WCRS scores.

The results of the Bonferroni test performed to determine the source of the significant difference observed in the groups are shown in Table 5.

Table 5. *Bonferroni Results Before and After Intervention (pre-test vs. post-test, follow-up test) in the Experimental Group (n = 9) and Control Group (n = 9)*

			Mean Difference	S	p
PCRS	Exp.	Pretest-Post test	-.33	1.28	1.00
		Pretest –Follow up test	-3.00	1.38	.14
		Posttest - Follow up test	-2.67*	.67	.00
	Con	Pretest - Post test	1.89	1.28	.48
		Pretest - Follow up test	1.33	1.36	1.00
		Posttest - Follow up test	-.57	.67	1.00
PCRS		Pretest	-1.77	1.56	.27
	Exp- Con Group	Posttest	.44	1.76	.80
		Follow-up test	2.56	1.77	.16
NCRS	Exp.	Pretest-Posttest	2.78*	.82	.01
		Pretest –Follow-up test	4.44*	1.24	.01
		Posttest - Follow up-test	1.67	.86	.21
	Con	Pretest – Posttest	-.33	.82	1.00
		Pretest – Follow-up test	.33	1.24	1.00
		Posttest – Follow-up test	.00	.86	1.00
NCRS		Pretest	4.78	2.76	.10
	Exp- Con Group	Posttest	1.67	2.94	.57
		Follow-up test	.000	2.82	1.00
CCRS	Exp.	Pretest-Posttest	4.67*	1.02	.001
		Pretest –Follow-up test	5.22*	1.13	.001
		Posttest – Follow-up test	.56	.80	1.00
	Con	Pretest - Posttest	.67	1.021	1.00
		Pretest – Follow-up test	.78	1.13	1.00
		Posttest – Follow-up test	.11	.80	1.00
CCRS		Pre test	5.67	2.74	.06
	Exp - Con Group	Post test	1.67	3.12	.60
		Follow up test	1.22	2.57	.64

Note: * p < 0.05; ** p < 0.01

The analysis results in Table 5 showed that no significant difference was found between the pretest and posttest scores of the experimental group participants (q = -0.33; p > 0.05) and the pretest

and follow-up test scores in terms of PCRSs (q = -3.00; p > 0.05). However, a significant difference was found between PCRS posttest and follow-up test scores, where the follow-up test measures were higher than posttest measures (q = -2.67; p < 0.05). Contrarily, the difference between the PCRS posttest scores of individuals in experimental and control groups was non-significant (q = 0.44; p > 0.05). Therefore, when the experimental and control groups were compared, the RCTPP did not affect PCRS scores. However, the within-group PCRS scores of the experimental group significantly increased on the follow-up test.

Besides, the NCRS posttest scores of individuals in the experimental group were significantly lower than their pretest scores (q = 2.78; p < 0.05). Also, their NCRS follow-up test scores were significantly lower than their pretest scores (q = 4.44; p < 0.05). When the post-test and follow-up test scores of the experimental group were compared, the difference between their NCRS scores was non-significant (q = 1.67; p > 0.05). Lastly, the difference between the NCRS posttest scores of the experimental and control groups was not significant. According to the resultant findings, the RCTPP is effective in lowering the NCRS scores, and this effect is persistent.

As per another result shown in Table 6, the CCRS posttest scores of the experimental group participants (q = 4.67; p < 0.05) were significantly lower than their pretest scores (q = 5.22; p < 0.05). Contrarily, no significant difference was found between their compliance resolution style post-test and follow-up test scores (q = 0.56; p > 0.05). At the same time, no significant difference was found between the experimental and control groups in terms of their CCRS scores (q = 1.67; p > 0.05). These findings show that the program was significantly effective in lowering the compliance style scores of individuals and that this effect is persistent.

DISCUSSION, CONCLUSION AND IMPLICATIONS

The effect of the RCTPP on female university students' attitudes towards DV, relationship quality, and conflict resolution styles was examined. The study results showed a significant decrease in DV attitude, CCRS, and NCRS scores of individuals who participated in the RCTPP. This effect persisted in the follow-up test. In addition, the PCRS scores of the experimental group participants significantly increased in the follow-up measurement. However, the study revealed that the program had no significant effect on their withdrawal conflict resolution and relationship quality scores.

The RCTPP in this study was found effective in lowering the female university students' DV attitude scores. Studies showing that prevention programs are effective in changing attitudes toward DV support the findings of this research (Adler-Baeder et al., 2007; Antle et al., 2011; Kerpelman, 2010). This study is a prevention program, and other prevention programs also target raising awareness about DV and reducing attitudes toward accepting DV (Antle et al., 2011; Foshee et al., 2001; Josephson & Proulx, 2008; O'Leary et al., 2006; Wolfe et al., 2003). In this study, it is thought that RCT contributes to a decrease in the level of acceptance of DV by young women. Topics on developmentally supportive relationship characteristics, power dynamics, relational images, DV, gender roles, and controlling images in the program, and activities involving psychodrama techniques were effective in helping them understand DV. In current approaches, raising awareness of healthy and unhealthy relationship characteristics is a priority in prevention programs. One of the most fundamental elements of the program developed in this study is helping individuals develop a cognitive model about the relationships that support their development. The program focused on positive relationship traits such as rights, responsibilities, boundaries, saying no, and constructive conflict resolution in intimate relationships in the context of the connection-disconnection cycle and relationship traits that support development. Similarly, Miller et al. (2015) determined that informing about healthy relationships is also effective in changing attitudes towards DV. It is thought that explaining power dynamics in intimate relationships concerning gender roles, controlling images, and culture may have led to a change in attitude by raising awareness about DV. The teachings about

romantic relationships transferred to individuals in social relationships, and controlling images such as unqualified and incompetent women may induce an accepting attitude. For example, when a man gets angry and speaks loudly, shouts swears, and resorts to violence when he is angry, and insensitivity like "He is a man. He does!" is welcomed, even with a kind of acceptance (Navaro, 2012). In some cultures, it is accepted that men are superior to women and that men have the right to discipline women (Amoakohene, 2004). Especially in cases of psychological violence, individuals cannot always discern that they have been exposed to violence in their relationships. For example, the man's control over the woman in a relationship may be interpreted as ownership (Chung, 2005). The jealous man is defined as masculine by society and is generally perceived as having positive power connotations (Navaro, 2012). In a sense, individuals may see attitudes and behaviors that include DV as a normal part of the relationship, rather than interpreting them as violence. Consistent with this, Balsam and Szymanski (2005) determined that there was no difference between the perceived love and interest of individuals who were and were not exposed to DV. During the intervention within the scope of this research, the members of the experimental group stated that they were not aware that behaviors such as jealousy, controlling, not letting one go out, insulting, biting, and pinching were a kind of violence. Some participants stated that they stopped the violence they practiced and were able to take action to protect themselves after they gained awareness. Self-awareness, formed by individuals' critical thinking about their relationship patterns, seems important in dealing with violence.

Another finding of the study revealed that the RCTPP was not effective in increasing the relationship quality levels. While this finding is consistent with some study findings in the literature (Wolfe et al., 2003; Woodin & O'Leary, 2010), it contradicts research findings showing that DV prevention programs are effective in relationship quality (Antle et al., 2011; Miller et al., 2015). One of the focal points of the program is to raise awareness about the relationship characteristics that support development to improve the quality of the relationship. The negative quality of relationships, characterized by characteristics such as conflicts, jealousy, power imbalance, and lack of social support, has been determined to increase the risk of DV (Capaldi et al., 2012; Giordano et al., 2010). On the other hand, it is claimed that individuals with a high level of relationship quality who perceive high commitment, satisfaction, and trust in their relationships may be willing to resolve their conflicts positively. Therefore, as in this study, most prevention programs particularly focus on developing healthy relationships (Antle et al., 2011; Leaf et al., 1997). At the end of the intervention, the relationship quality scores of other individuals who participated in the program increased, whereas the relationship quality scores of some decreased, and some even ended their relationship at the end of the program. The RCT considers it important for individuals to develop self-awareness about their characteristics, relational images, and the characteristics of their relationships. Addressing positive and negative relationship characteristics together in the program, where one of the elements of the program is intimate relationship violence, may have helped them notice the negative characteristics of their relationships. In a sense, the decrease in the relationship quality scores of individuals or their break up could be explained by inquiring about their relationships and gaining awareness about the negative characteristics of their relationships. Leaving relationships where their needs are not satisfied with the awareness, they have gained might be a step towards establishing quality relationships. The program was conducted with one of the partners, not couples. Considering the dynamic nature of the relationships, the change in one of the partners is expected to affect the dynamic of the relationship. In this sense, it may take a while to witness a positive change in the quality of a relationship. However, considering the time of the measurements taken, the elapsed time may not be sufficient to see the change. In other words, to increase the quality of a relationship, couples should adapt to the newly acquired information and the change that occurs when the self-awareness of individuals increases. Therefore, a longer time might be required for the learned information to settle in the relationship dynamics. In their research, Hira and Overall (2011) found that having self-awareness regarding relationships may not be enough for a change in individuals and that the easiest change requires the voluntary participation of both parties for change to occur in relationship quality. Working with one of

the partners may have created a disadvantage in developing the quality of the relationship, both in terms of time and difficulties in transferring the learned qualities. In addition, considering the contents of the programs that are effective in increasing relationship satisfaction and relationship quality, the programs also focus on communication skills in addition to healthy and unhealthy relationship characteristics and conflict resolution skills. Although the use of communication skills was addressed in the program implemented within the scope of this study, communication skills were not considered as a separate issue. The fact that relationship quality scores of individuals do not increase may be explained by not emphasizing skills that will help the bilateral relationships to develop. The program did not contribute to an increase in relationship quality scores in the study, but the experimental group participants experienced an increase in their awareness of healthy relationship characteristics. In assessments made during and after the intervention, individuals were observed to review their relational characteristics with the awareness they had gained, where they were able to improve or leave their relationships.

Further, the study found that the RCTPP is effective in reducing tendencies towards using compliance and NCRSs. Yet, the program did not affect the participants' positive and withdrawal conflict resolution styles. However, considering the follow-up test results, the PCRS scores of individuals who participated in the intervention significantly increased two months after the intervention. In prevention programs developed, conflict resolution styles are evaluated holistically as conflict resolution skills, not one by one (Hammond & Yung, 1991; Lavoie et al., 1995). In this study, the decrease in the compliance and NCRS scores of individuals who participated in the intervention and the increase in their PCRS scores in the follow-up measures indicate that their conflict resolution skills have improved. In this sense, studies showing that prevention programs contribute to the development of conflict resolution skills support the finding of this research that the program contributes to the development of constructive conflict resolution skills in individuals (Antle et al., 2011; Hammond & Yung, 1991; Jaffe et al., 1992; Lavoie et al., 1995;).

Given that DV is correlated with conflict resolution, helping individuals improve their conflict resolution skills is a common goal in intervention programs to prevent DV (Lundquist et al., 2014). Previous studies show that negative and withdrawal styles of conflict resolution are positively related to DV, and individuals' avoiding conflict resolution or behaving aggressively in conflict resolution increases the risk of DV (Bonache et al., 2016). Therefore, constructive resolution of conflicts is considered important in romantic relationships. The program implemented in the study aimed to raise awareness about and improve conflict resolution styles. This study found that individuals in the experimental group tended to use the compliance conflict resolution style less. Conflict resolution holds a central position in the connection-disconnection cycle described in RCT. In this context, determining disconnection strategies as an element in the program may have contributed to an increase in individuals' awareness about conflict resolution. The concept of disconnection strategies described in theory is similar in certain respects to non-constructive conflict resolution styles. For instance, CCRS involves individuals not expressing their opinions, not defending themselves, and complying with demands. Similarly, individuals using disconnection strategies have difficulties taking responsibility and expressing their feelings and thoughts and demonstrate behavior similar to that of individuals using compliance styles in conflict resolution. Therefore, addressing disconnection strategies in conflict resolution processes may have contributed to individuals' understanding of the effects of compliance conflict resolution styles on relationships. At the same time, an increase in individuals' awareness of their rights and self-values in the relationship may have influenced the decrease in their compliance scores.

A significant decrease was observed in the NCRS scores of experimental group members. The RCT highlights the concept of creative conflict resolution, involving empathy. One of the elements of the relational cycle that supports development is "mutual empathy- creative conflict." Concepts of constructive conflict, respect for differences, and positive self-disclosure are considered parts of

creative conflict. As such, positive conflict resolution was addressed concerning these concepts within the scope of the program. Emphasizing constructiveness in resolving conflicts and respecting differences may have reduced tendencies toward using an NCRS. However, no significant changes were observed in the withdrawal scores when the findings regarding withdrawal scores were evaluated. Besides, the scores of some participants decreased, but those of some others increased. Individuals tending to use a WCRS avoid discussing the problem. Literature shows that there is a positive relationship between the WCRS and DV and that using the WCRS increases DV (Bonache et al., 2016). According to Christensen and Shenk (1991), avoiding conflicts prevents solving the problem, triggering negative emotions. The WCRS is often called a non-constructive style, and whether the conflict resolution style is effective in resolving conflicts may vary depending on the situation. In some circumstances, the WCRS could be used as a calming down period for solving a problem. The withdrawal subscale of the conflict resolution scale includes items such as "If I am very angry, I refuse to talk until my anger fades away", and "If I am very angry, I postpone the conversation." In this sense, individuals may utilize the WCRS as a calming down period rather than avoiding conflict.

To conclude, it could be stated that the program implemented in this study contributes to the development of individuals' conflict resolution skills. In general, a decrease in negative and compliance conflict resolution style scores indicates that individuals can manage conflicts more effectively. In addition, the study has some limitations. This study is limited to senior female university students. Therefore, the effect of the program could be examined on larger groups involving both genders. In addition, the effect of the RCTPP could be tested on various variables such as subjective well-being, resilience, and self-esteem. As such, the persistence of the program's impact could be examined through follow-up measures at longer intervals.

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Discussing of the Implementation Process for Writing to Learn Activities

Bünyamin İspir, PhD Student, Atatürk University, bunyamin.ispir14@ogr.atauni.edu.tr
0000-0002-0428-8887

Ali Yıldız, Prof. Dr., Atatürk University, ayildiz@atauni.edu.tr
0000-0001-6241-2316

Abstract

The study aims to discuss of the implementation process for writing to learn activities. The document review method has been used in the research containing qualitative data. Data were obtained from scientific articles, books, and presentations containing information about the general characteristics of process-oriented writing and writing to learn and analyzed using the descriptive analysis method. As a result of the reviews synthesised the findings, guidelines, and applications of the studies based on researchers' observations, experiences, intuitions, and inferences and presented them under five different headings. In this context, the implementation process of writing to learn has been discussed in five stages: preparation, exploration, application, evaluation, and sharing. In line with the stated results, it can be suggested that researchers who will use the WTL method in the future should make applications by considering the relevant steps. Thus, the direct or indirect effects of writing for learning activities on students can be increased.

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INTRODUCTION

Throughout their educational lives, students engage in writing actions such as copying what is written on the board into their notebooks, taking notes on what the teacher says, and summarizing by copying sentences from different parts of a work. As a result, although the information is processed in short-term memory, it tends to disappear over time. Therefore, new educational policies are being developed to increase the permanence of knowledge, and teachers are turning to contemporary approaches. In this context, writing to learn (WTL), which involves the student mentally in the process, unlike writing activities carried out only physically, draws attention as one of the methods used to increase permanence.

Writing can be defined as a tool that allows students to organize their knowledge and reflect on their beliefs (Mason & Boscolo, 2000). Writing is a productive skill that is formally acquired, learned later, and allows the expression of thoughts, observations, and experiences (Ispir & Yıldız, 2021a). Writing, which is a complex metacognitive activity that benefits from an individual's knowledge and basic skills (Walker et al., 2005), can be expressed as a learning tool (Arnold et al., 2017). In this sense, writing plays an essential role in observing learning changes for both students and teachers (Fellows, 1994).

WTL is an educational-teaching strategy that focuses on organizing and describing ideas, considering the written product (Balgopal & Wallace, 2013), or a learning path that facilitates understanding difficult concepts (Hohenshell et al., 2004). According to Ispir and Yıldız (2022), WTL is a written expression process that connects old knowledge with newly acquired knowledge, enables the formation of new thoughts, and encourages students to conduct individual research. Dalka (2019), who evaluates this process from his perspective, has described WTL, which is based on a cognitive theory, as a writing model with features such as reviewing, synthesizing, and recalling information. From these definitions, it can be said that WTL is a learning approach that ensures a better understanding of the subject content rather than improving writing skills. The literature that reveals the products of this approach shows that WTL is widely used in various disciplines, from social sciences (Dolgin, 1981; Goggin, 1985; Holbrook, 1987) to natural sciences (Clary-Lemon et al., 2019; Wright et al., 2019). Therefore, WTL activities provide the acquisition of versatile cognitive and affective skills at different teaching levels from primary school to university.

First and foremost, WTL enhances academic achievement and higher-order thinking (Caukin, 2010; Kim et al., 2021; Poock et al., 2007). By supporting meaningful learning experiences (Gupte et al., 2021), WTL promotes the retention of knowledge (Rivard & Straw, 2000) and increases students' confidence in their writing abilities (Reaves et al., 1993). WTL positively affects students' conceptual learning (Alharbi, 2015) and problem-focused learning skills (Chappell, 2006). Furthermore, students gain self-regulation skills through WTL (Nückles et al., 2020) and exhibit positive attitudes toward writing (Reilly, 2007). Despite these advantages, sufficient time is not allocated for writing activities in Turkey. Writing is often perceived as a time-wasting activity and is generally considered a mere note-taking tool (Daşdemir et al., 2015). To address this issue and observe desired behavioral changes in individuals, WTL activities need to be systematically and strategically implemented. However, Kieft et al. (2006) have noted that it has not yet been emphasized how to use WTL activities. In this context, Kayaalp and Şimşek (2021) have listed some aspects related to the preparation and implementation process of WTL. Nevertheless, these aspects have not been detailed, and the WTL process has not been described in-depth. Therefore, this study aims to discuss the implementation process for WTL activities.

METHOD

This study, which discusses the implementation process of WTL activities, follows a qualitative research design. Qualitative research generally obtains data from interviews, observations, and examined documents (Merriam, 2013). Within the scope of the study, the implementation stages of WTL activities have been examined in different dimensions. Therefore, the document analysis method, one of the qualitative research designs, has been used in the study. Document analysis can be described as examining any document previously created formally or informally (Sönmez & Alacapınar, 2018). Letters, diaries, maps, yearbooks, autobiographies, blogs, posters, articles, notebooks, and other social application records can each serve as data sources (Bogdan & Biklen, 2007; Gibson & Brown, 2009).

Documents, which can be used as a standalone data source or combined with interviews and observations to provide additional information (Maykut & Morehouse, 1994), have strong aspects such as enabling long-term analysis, providing sample size, and being more economical in terms of time and cost. On the other hand, the lack of a standard format, the difficulty of coding, and the potential for bias are the weak aspects of documents (Yıldırım & Şimşek, 2018). Considering these features, the data for this study has been obtained from scientific articles, books, and presentations, and has been analyzed according to the descriptive analysis method.

FINDINGS

Considering the application steps, it can be said that WTL is a process-oriented approach (İspir & Yıldız, 2021a). It can be stated that there are some steps to be followed in this process, and these steps should be adhered to. In the literature, classifications and sub-stages of process-oriented writing have been formed in different ways. For example, Harmer (2002) explained the approach in three stages: planning, drafting, and revising. However, upon examining the literature, it is generally observed that the process approach consists of five stages. Widodo (2008) listed the relevant stages as prewriting, drafting, responding, reviewing-editing, and evaluating in this context. Alber-Morgan et al. (2007) and Smith (1999) have structured the approach as prewriting, drafting, revising, editing, and publishing. On the other hand, Gezmiş-Ceyhan (2014) classified the process-oriented writing stages as prewriting, drafting, checking, revising, and final proofreading.

The mentioned stages and some studies related to WTL (Aktepe & Yıldız, 2020; Bozat & Yıldız, 2015; Günel & Hand, 2005; Günel et al., 2009a; Hand & Prain, 2002; Hand et al., 1999; Hohenshell et al., 2004; İspir & Yıldız, 2021a; 2021b; 2022; Kieft et al., 2006; Klein, 1999; Klein & Boscolo, 2016; Mason & Boscolo, 2000; Pınar & Yıldız, 2020; Reaves et al., 1993; Rivard & Straw, 2000; Tynjälä, 1998; Uzoğlu & Gürbüz, 2013; Yıldız, 2012a; 2012b; Yıldız, 2014; Yıldız, 2016; Yıldız & Büyükkasap, 2011) have been examined through their written documents. The findings, guidelines, and practices of the examined studies, along with the researchers' observations, experiences, intuitions, and inferences, have been synthesized and presented under five different headings. In this context, the WTL implementation process is generally addressed in five stages: preparation, exploration, application, evaluation, and sharing. Practitioners and researchers are expected to perform each stage sequentially in this process. The linear progression of the WTL activities, where the previous stage forms the basis for the next one, is presented in Figure 1.

Figure 1. *Stages to be Followed While Carrying Out WTL Activities*
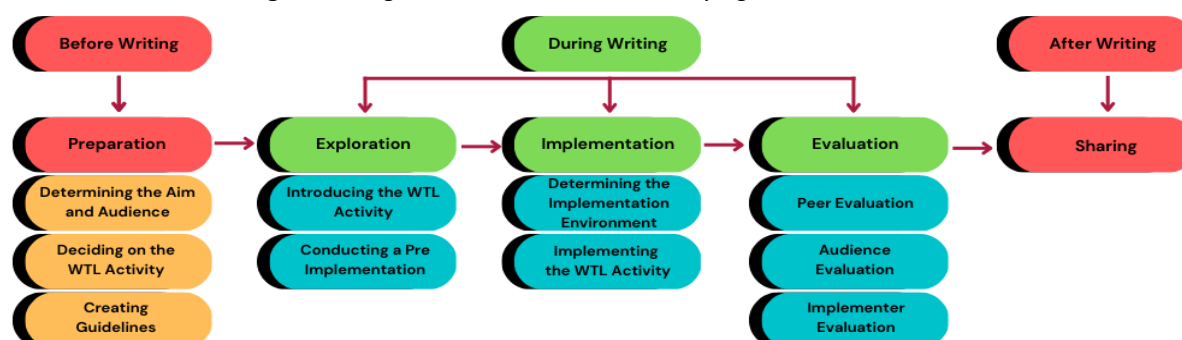
1. PREPARATION

DETERMINING THE PURPOSE AND AUDIENCE OF THE WRITING ACTIVITY

Since the author's message is closely related to the writing purpose, it should be determined beforehand. In this direction, writing activities can be carried out either to inform someone else about the subject being processed or to reinforce the subject and ensure permanent learning. Moreover, the time of the activity's use in the course process can shape the purpose of writing. Writing activities can be used at the beginning of the lesson to measure students' readiness or reveal their prior knowledge. On the other hand, writing activities can reinforce the subject during the lesson and review the information at the end of the lesson. In addition, the purpose of writing can be shaped according to the audience. In this context, individual elements such as the student's family, friends, and teachers, and mass elements such as newspapers and magazines can constitute the audience for the writing activity. Furthermore, writing activities can be prepared for a lower peer level to use more instructive language and provide detailed explanations. This can enable students to engage in more cognitive activities compared to writing activities prepared for other audiences.

DECIDING ON THE WRITING-TO-LEARN ACTIVITY

After identifying a problematic situation that mentally disturbs the researcher, it is considered which WTL activity could be beneficial in addressing the identified situation. In this direction, factors such as the problem to be solved, the subject or course for which the application will be made, the grade level of the study group, socioeconomic conditions, and reading and writing skills can be considered in the decision-making stage. Suppose the problem situation that disturbs the researcher and is believed to be resolved is aimed at determining perception and perspective. In that case, the use of journals can be recommended among WTL activities. If the unit to be studied includes situations that the student encounters in daily life, descriptive WTL activities such as letters, summaries, and stories can be used. If the unit in which the activity will be conducted includes abstract concepts, visual-based WTL activities such as posters, banners, and brochures can be used. Similarly, in cases of inadequate reading and writing skills or deficiencies in the mother tongue, WTL activities with a predominance of elements such as shapes, pictures, and graphics can be preferred. In addition, the use of WTL activities requiring higher-level mental skills, such as articles and compositions, in primary school may cause difficulties, so these activities can be carried out at higher levels. Also, limited internet access in rural areas and the financial requirements of some WTL activities, such as posters, may lead to the selection of plain text-based writing types. Besides research, teachers can determine the writing type by considering students' interests alongside the mentioned decision-making factors.

CREATING INSTRUCTIONS

To conduct a planned and systematic application in line with the decided WTL activity, a set of instructions related to the study should be prepared. When creating instructions, the study's application steps should be considered. These instructions can be conveyed to students and teachers orally or in writing. However, researchers believe that presenting the instructions in writing is more

beneficial. An appropriate environment should be created for participants to ask questions about the instruction items. Furthermore, sufficient time should be allocated to ensure participants receive answers to all their questions. When creating instructions, information regarding the writing type (which WTL activity will be used), audience (who the activity will be written/prepared for), course, and unit (the subject context in which the activity will be carried out) should be clearly stated in the introductory paragraph. Subsequently, other rules to be followed during the process should be written in bullet points after the introductory paragraph. These points include information about the general preparation time, environment, format, content, and evaluation criteria of the activity. Sample instructions are provided in the literature for students and teachers (see İspir, 2021c; İspir & Yıldız, 2022).

2. EXPLORATION

INTRODUCING THE WRITING TO LEARN ACTIVITY

An activity example prepared by the researcher or others, suitable for the previously agreed-upon writing type, is introduced to the study group. The introduction process continues with explanations about the basic features of the writing activity.

CONDUCTING A PRELIMINARY APPLICATION

The study group can carry out a preliminary application by specifying to whom they will write/prepare the writing activity. After the pilot application, necessary and appropriate corrections can be made on a few selected examples from those who want to share their work. This way, the study group can make fewer mistakes while performing subsequent activities.

3. IMPLEMENTATION

DETERMINING THE APPLICATION ENVIRONMENT FOR THE WRITING TO LEARN ACTIVITY

The environment where the activities will be performed is decided considering the chosen study group, the agreed-upon WTL activity, and the unit. This environment can be a classroom or a home. It is more appropriate to carry out WTL activities like diaries, letters, and posters at home since individuals can use their skills and intelligence more effectively in a home environment. Moreover, conducting activities at home can be suggested to reduce the effects of problems arising from time and readiness in a classroom environment. This way, students can feel more comfortable, enabling them to think, research, and inquire about topics they feel are insufficient. However, if the WTL activity is planned to be carried out in small groups, it can be preferred to be held in a classroom environment. Small heterogeneous groups can be formed in this case, considering students' gender, academic achievement, communication, and entrepreneurship. Homogeneous groups may limit diverse thinking, and large groups may pose the risk of not involving all members in the activities.

CARRYING OUT THE WRITING TO LEARN ACTIVITY

After the relevant topic is covered, the student or group members who will perform the WTL activity complete their work using their words, sentences, and thoughts. Subsequently, the prepared WTL activity is carefully reviewed from start to finish by the writer themselves to fix any detected deficiencies and errors. The completed activity is then set aside to be reviewed later, creating an opportunity for a more objective evaluation. In this context, students can be asked to write about the purpose of the topic they covered, what information they learned, which parts they enjoyed the most during the lesson, what kind of relationships they established between the topic covered and their daily lives, and the aspects they did not understand.

4. EVALUATION

Individuals preparing the WTL activities should be encouraged to carry out the activity themselves. Control can be ensured by randomly selecting some individuals when the activities are collected and asking them to provide explanations about their prepared activities.

PEER EVALUATION

The activities prepared by the class carrying out the study can be submitted to another class or group for evaluation. Also, WTL activities can be given to a different person within the same study group for evaluation, without the author's name being visible. Peers can be asked to evaluate whether the activity they read provides sufficient information about the topic, and whether it is clear and understandable.

RECIPIENT EVALUATION

The WTL activity can be given to the intended recipient to evaluate whether it is sufficiently understandable. For example, the activities prepared by pre-service teachers enrolled in an undergraduate program addressing high school students can be read by their recipients and evaluated accordingly.

IMPLEMENTER EVALUATION

The researcher or teacher can conduct an evaluation based on a rubric they have prepared or criteria they have determined. One of the ready-made rubrics teachers can use for this purpose is the evaluation rubric prepared by researchers referencing Hand and Prain's (2002) basic components of the WTL process (purpose, topic, recipient, writing type, writing style). The evaluation rubric for prepared WTL activities is presented in İspir and Yıldız's (2022) study.

4. SHARING

Selected WTL activities that meet the determined criteria can be shared on classroom and school bulletin boards. Similarly, sharing can be done on digital platforms belonging to the educational institution. Additionally, the student can present their prepared activity verbally to their peers and teacher. Therefore, deciding on a suitable platform for sharing can ensure the realization of purpose-oriented writing or make the writing process more meaningful.

DISCUSSION AND CONCLUSION

Contrary to some claims, learning and writing are distinguishable skills. Therefore, many learning examples may not originate from writing, and writing activities may not always result in learning (Bangert-Drowns et al., 2004). Writing for the purpose of learning involves a long process that occurs through instruction, practice, and feedback (Akerson & Young, 2005). Consequently, considering the comprehensive structure of lessons, students' age levels, and writing types, some aspects must be considered during the implementation and preparation process of writing activities (Ispir & Yildiz, 2022). Activities conducted with these considerations contribute to the development of various sensory, cognitive, social, and psychomotor skills and learning.

The implementation process of WTL activities generally consists of five stages: preparation, exploration, application, evaluation, and sharing. In the preparation stage, it is important to determine the purpose and the corresponding audience. In this context, it is stated that writing activities can be used to eliminate students' misconceptions and motivate them at the beginning of a topic, obtain in-depth information during the topic, and evaluate at the end of the topic (Ispir & Yildiz, 2021b). WTL activities can be prepared for very narrow audiences, such as family, friends, and teachers, or for very broad audiences, such as newspapers and magazines (Emig, 1977). Writing activities can be conducted for younger audiences, requiring detailed explanations and more instructive language (Koçak & Seven, 2016). This is because thinking about how to express a topic to younger audiences and adjusting to their level of understanding leads students to engage in various cognitive activities (Yıldız, 2016). Similarly, Günel et al. (2009b) have shown that WTL activities prepared for peers and younger students are more meaningful than those written for teachers and parents.

After identifying the problem the researcher wants to resolve, a decision should be made on which WTL activity to use to address the identified situation. Inevitably, there is a need to detail what type of writing can enhance learning (Tynjälä, 1998). In this context, factors such as class level, socioeconomic status, literacy skills, interests, and the subject or topic of the application should be considered during the decision-making stage. Kayaalp and Şimşek (2021) also argue that there should be a relationship between the topic and the type of activity when developing WTL activities. Based on the selected WTL activity, a guideline should be prepared to encourage the student to write and carry out a systematic and planned application (Firek, 2006). Simply providing a blank page and expecting a student to write about a topic may not result in learning.

During the exploration stage, an activity example prepared by the researcher or others should be used to introduce the WTL activity to students. Then, specifying to whom the students will prepare their writing activity and conducting a pilot study is considered important. This is thought to minimize or eliminate problems that may be encountered during the main application. Thus, observations and participant opinions obtained from the pilot application can be considered to identify the missing and difficult-to-understand parts of the instructional material (Uzun & Alev, 2013).

Next, during the application stage, a decision should be made on the environment in which the WTL activities will be conducted. If the WTL activity is planned to be carried out in small groups, conducting it in a classroom setting may be preferable. However, due to limitations such as curriculum requirements and the need for prior knowledge, it may be more appropriate for individually prepared activities to be done at home. This is because when the student carrying out the WTL activity is alone, they can effectively use their cognitive skills without needing anyone to explain things (Yıldız, 2016). This way, WTL activities can lead to more meaningful outcomes for both teachers and students (Kayaalp & Şimşek, 2021).

After completing the application, all prepared activities should be presented for peer, audience, or practitioner evaluation. Peers or audience members can be asked to assess whether the activity they read provided sufficient information about the topic and if it was clear and understandable. Additionally, the researcher or teacher can conduct an evaluation based on a rubric they have prepared or criteria they have determined. Thus, providing detailed feedback to students can be seen as an essential component of WTL (Fry & Villagomez, 2012). In this regard, it can be said that students who receive meaningful feedback on the corrections made to their WTL activities gain a better understanding of the writing process (Baker et al., 2008). The evaluated WTL activities can be displayed on classroom and school bulletin boards or shared on institution-owned digital platforms. Additionally, students can present their prepared activities verbally to their classmates and teachers. Ispir and Yıldız (2021a) also support this idea by suggesting that WTL activities can be displayed on classroom bulletin boards and shared with other students. In line with the stated results, it can be suggested that researchers who will use the WTL method in the future should make applications by considering the relevant steps. Thus, the direct or indirect effects of WTL activities on students can be increased.

ETHICS

All the rules in the Scientific Research and Publication Ethics Guideline were complied with, and none of the "Actions Contrary to Scientific Research and Publication Ethics" in the second part of the guideline were applied.

AUTHOR CONTRIBUTION

The authors contributed equally to the study.

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A Meta-Analysis of the Correlation Between Posttraumatic Growth and Social Support in Türkiye Sample

Sema Yazıcı Kabadayı, Dr., Recep Tayyip Erdogan University, Türkiye, sema.yazici@erdogan.edu.tr
(iD) 0000-0002-5221-6829

Abstract

There are inconsistent findings in studies examining the relationship between posttraumatic growth and social support. This meta-analysis aims to evaluate the relationship between posttraumatic growth and social support. For this purpose, a systematic search was conducted in four databases including the Web of Science (WoS), TR Index, ULAKBIM, and National Thesis Center. Studies with correlational findings on the relationship between posttraumatic growth and social support were included in the study. A total of 45 studies with a total sample size of 7704 people were included in the meta-analysis. According to the random effects model, the effect size of 45 studies was r = .37. According to the meta-analysis findings, a moderate positive relationship was found between posttraumatic growth and social support. Research findings showed that individuals with high levels of posttraumatic growth also had high levels of social support. Considering the results of this meta-analysis, attention should be paid to social support in terms of protective mental health in mental health studies.

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INTRODUCTION

Although studies on stress and trauma mostly focus on the negative consequences of stress and traumatic experiences, in recent years, there has been increasing research showing that individuals may experience growth and development in the face of negative experiences. Individuals' growth and development experiences are called posttraumatic growth. The concept of posttraumatic growth refers to the positive psychological change that occurs because of struggling with challenging life conditions (Calhoun & Tedeschi, 1999). Posttraumatic growth refers to the rise of individuals from their current position to a better level of functionality beyond getting rid of a stressor (Dolbier, Jaggars & Steinhardt, 2010).

The experience of growth emphasizes a process that expresses the process of individuals creating resilience, wisdom, and meaning in the face of these difficulties, not the disappearance of ongoing troubles (Shakespeare-Finch, Martinek, Tedeschi & Calhoun, 2013). Tedeschi and Calhoun (2004) state that growth does not occur as a direct result of the stressful event but emerges through cognitive processing and restructuring that individuals perform in the face of difficult experiences. Growth occurs when the stressful event leads to new configurations regarding the individual's needs and individuals adapt positively to this process (Joseph & Linley, 2005). Schaefer and Moss (1992) state that stressful life events contribute to the increase in individuals' personal and social resources and new coping skills. The positive changes that occur in this direction are discussed under the titles of greater appreciation of life, increased personal power, awareness of new possibilities, spiritual development, and improved social relations (Tedeschi & Calhoun, 1996).

Personal and social resources can be considered important variables in the experiences of people because of stressful events. Therefore, it is assumed that the outcomes of stressful encounters are influenced by many factors, including personality, worldviews, social support, socioeconomic status, pre-existing physical and psychological adaptation, and previous experiences (Park, 1998). Social support, one of these elements, refers to interpersonal interactions in which individuals, families, and groups help each other. Although it may not seem to be part of the main concepts related to stress, crisis, and trauma, social support is central to many stress, crisis, and trauma theories and related studies (Berger, 2015). Individuals who experience significant life events receive support from sources of social support such as family members or friends (Woods, Sciarini & Johanson, 2001).

Individuals facing stressful circumstances are more likely to experience growth if they have relatively strong social resources (Park, 1998; Tedeschi & Calhoun, 2004). This is because social resources act as a buffer against both social stressors and psychological stress (Lin & Ensel, 1989). In addition, factors such as social support facilitate growth by enabling individuals to make sense of life, connect with others, and find new paths (Hijazi, Keith, & O'Brien, 2015). A person's sources of social support can serve to increase their power capacities and increase their belief in their ability to cope with or manage stress. Social support resources not only promote well-being but also develop personal resources such as empathy, wisdom, courage, and resilience (Niemic, 2019).

Social support can help to redefine the perception of the potential harm of a situation and prevent a situation from being judged as highly stressful. Stressful processes with social support can lead to better health outcomes for individuals (Yeung & Lu, 2018). In addition, with social support, development and recovery after trauma is accelerated; in the absence of social support, symptoms last longer, the potential for chronic and severe depression increases, and the duration of quality-of-life decreases (Çelik, 2019). The findings support the idea that having social resources in the face of stressors plays a role in protecting psychological health and creates the potential for a general, adaptation-oriented framework for adaptation under both high and low stressors (Holahan & Moos, 1991). Indeed, research findings showing that social support is associated with posttraumatic growth (Calhoun & Tedeschi, 1990; Leung et al., 2010; Yeung & Lu, 2018; Yu et al., 2014; Zhou, Wu & Zhen, 2017) suggest that social support is an important factor in the emergence of growth (Jia, Ying & Lin,

2017; Li, Cao, Cao, Wang & Cuia, 2012; Picoraro, Womer, Kazak & Feudtner, 2014). However, some studies have also found that there is no significant relationship between posttraumatic growth and social support or that they are negatively related (Dolbier et al., 2010; Metelerkamp, 2013; Schmidt et al., 2012; Teixeira & Pereira, 2013; Volgin & Bates, 2016). In addition, some studies show that growth is only associated with certain types of social support (Adsever, 2019). Considering the variability between these findings, it is thought that a meta-analysis study is necessary to clarify the relationship between posttraumatic growth and social support.

It is seen that the non-significant relationships between social support and posttraumatic growth are related to the way people receive social support and the resulting growth (Volgin & Bates, 2016); social support, which is among the environmental factors, has the power to explain positive or negative outcomes following trauma (Metelerkamp, 2013). Therefore, it is thought that variables related to social support processes beyond having social support resources and using social support resources may cause different results in the relationship between social support and posttraumatic growth.

Differences observed in posttraumatic growth may also be related to individual characteristics related to culture, religion, or social support systems (Gallaway, Millikan & Bell, 2011). It is crucial to consider cultural differences when addressing factors associated with posttraumatic growth. This is because the roles of social influences, including social support, may vary across cultures and cultural factors may even affect the likelihood of growth (Kilmer et al., 2014). The fact that it is relatively easier for individuals to seek and receive positive social support in Turkish culture, where strong family ties are prominent, may help a person to reevaluate a stressful event in a more positive way (Arıkan & Karancı, 2012). In this sense, it is thought that a meta-analysis study focusing on the relationship between posttraumatic growth and social support, especially focusing on individuals with certain cultural backgrounds, is necessary. There are several benefits of such a study. The first of these is that various studies in which individuals who have experienced different types of stress and trauma have different sample sizes. Combining these studies in a meta-analysis will increase the power of the studies and provide a clearer determination of the relationship between posttraumatic growth and social support. The second benefit of this meta-analysis would be to expand the scope of existing knowledge on the relationship between posttraumatic growth and social support with a more representative sample. Finally, this meta-analysis will help to identify an important variable that is associated with posttraumatic growth. In this way, it is thought to contribute to the literature on posttraumatic growth and to further clarify the variables associated with existing growth processes, especially in specific cultural contexts.

In other words, protective factors such as social support have been found to have a critical role in increasing the level of posttraumatic growth (Yu et al., 2014). It is important to reveal the relationship between social support, which can be considered a protective factor, and posttraumatic growth for individuals with culturally similar characteristics to understand the mechanisms associated with posttraumatic growth and to focus on these mechanisms in studies aimed at increasing growth. In this direction, the general purpose of this study is to reach a general conclusion by examining the relationship between social support and posttraumatic growth levels of individuals in Türkiye through a meta-analysis method. Within the scope of this general purpose, an answer to the question "Is there a significant relationship between posttraumatic growth and social support?" was sought. It is thought that this study will contribute to reaching a general conclusion by combining the findings obtained from different studies on the relationship between posttraumatic growth and social support in Türkiye under a single finding. Thus, it is thought that the findings of this study will be used in the planning and programming of mental health services offered to individuals.

METHOD

In this study, the meta-analysis method was used. Meta-analysis is a method that involves generalizing the findings obtained from quantitative research by combining them (Şen & Yıldırım, 2020). Accordingly, this study aims to reach a general conclusion about the effect size by combining the findings obtained from independent studies that reveal the relationship between posttraumatic growth and social support. In this direction, a meta-analysis of correlational studies on the relationship between posttraumatic growth and social support was conducted. While conducting the study, the steps specified in The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) were taken into consideration (Page et al., 2021).

REVIEW OF STUDIES

Within the scope of this study, research articles and postgraduate theses conducted in Türkiye addressing the relationship between posttraumatic growth and social support were reviewed. To identify the studies on posttraumatic growth, Web of Science (WoS), TR Index, ULAKBIM, and National Thesis Center, which are the most widely used databases in Türkiye, were searched between November and December 2022. In the screening phase, databases were scanned using the keywords posttraumatic growth, and stress-related growth. Then, reviews, book chapters, and bibliographies of articles were manually searched to find studies that may have been overlooked. There are two measurement tools used in Turkey to measure Post Traumatic Growth. One of them was developed by Tedeschi & Calhoun (1996); It is the Growth After Trauma Inventory adapted to Turkish by Kağan, Güleç, Boysan and Çavuş (2012). This measurement tool consists of 21 items and 5 sub-dimensions. High scores from the scale indicate that the positive changes caused by the stressful/traumatic experience increase. Another measurement tool is the Stress-Related Growth Scale, which was developed by Park, Cohen and Murch (1996) and first translated into Turkish in its long form in 2001. The long form consists of 50 items and is one-dimensional. Increasing scores indicate an increase in positive outcomes caused by individuals' stressful experiences. Although there are other measurement tools measuring various dimensions of growth or measuring structures like growth, studies using these two scales were preferred because they are the most used valid and reliable measurement tools in this meta-analysis. The following inclusion criteria were taken into consideration in determining the studies to be included in the research;

- The studies should be quantitative.
- The studies should be in Turkish or English.
- The studies were conducted in Türkiye.
- Using the Posttraumatic Growth (Tedeschi & Calhoun, 1996) and Stress-Related Growth (Park, Cohen & Murch, 1996) scales were used to assess posttraumatic growth.
- Including statistical information about the sample size and correlation coefficient needed to calculate the effect size in the studies.
- Including correlation values for the total scores obtained from the measurement tools used for posttraumatic growth and social support in the studies.

As a result of the literature review conducted in line with the inclusion criteria, 5766 studies were reached. These studies were computerized and repetitive publications were removed. Then, the titles, abstracts, and full texts of the scanned studies were analyzed. During the analysis, articles that did not meet the inclusion criteria were excluded. 45 research were determined for posttraumatic growth and social support based on the inclusion criteria included in the meta-analysis. Results of the literature review of this process are given in Figure 1.

Figure 1. *Procedural Steps for The Studies Included in The Meta-Analysis*
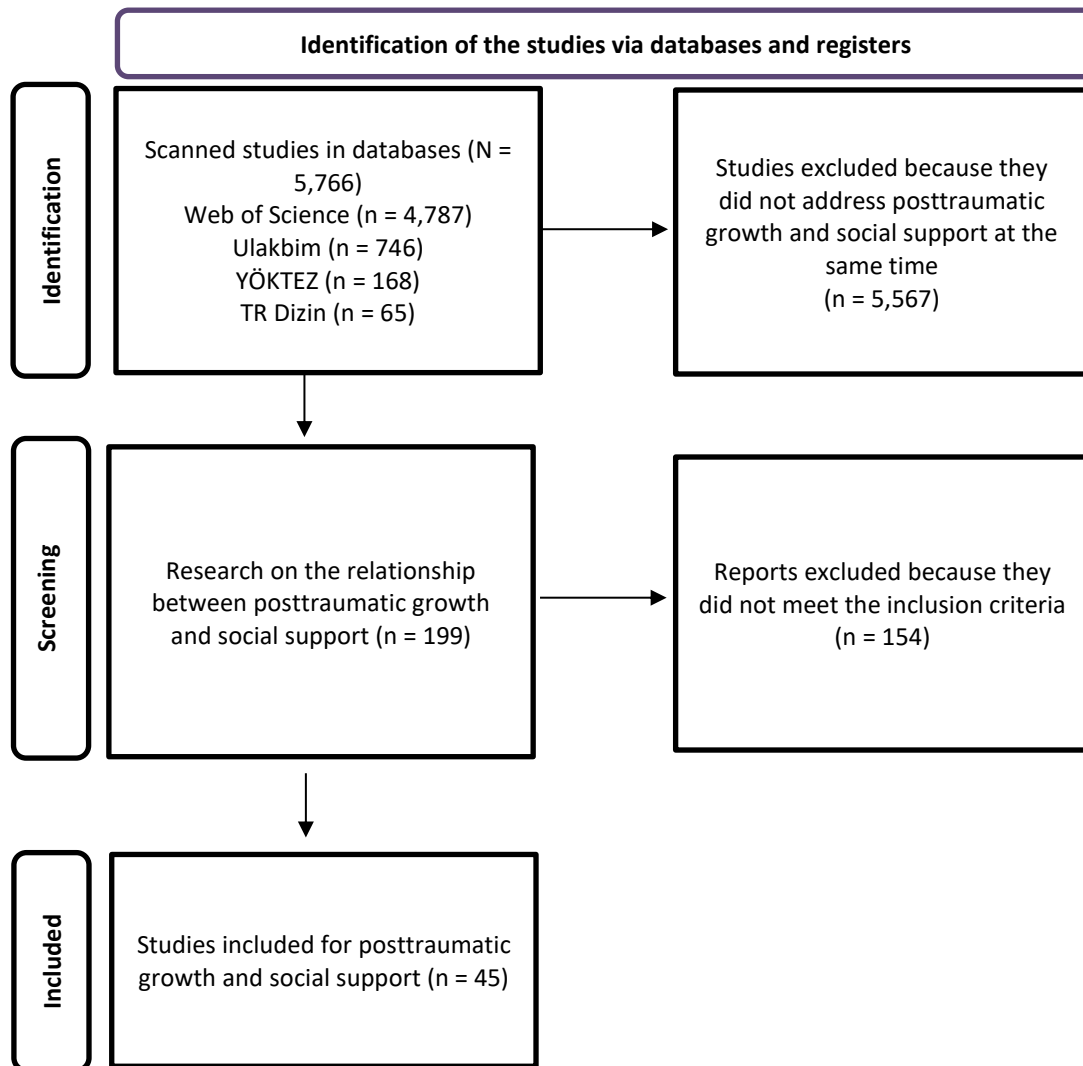
CODING OF THE STUDIES

A coding template was created to identify studies that were included in the meta-analysis and to perform data analysis. The authors' name, publication year, type of publication, study group, sample size, measurement tools used, and correlation values between variables were entered into the coding sheet to calculate the effect size of the studies included in the meta-analysis. Descriptive information about the studies included in this review is presented in Table 1. The coding performed by the author was re-coded by another independent researcher, and the coding was compared. Before proceeding to the analyses, the differences between the coding were eliminated, and the analyses were started.

Table 1. *Characteristics of the Studies Included in the Meta-Analysis*

Authors and Publication Date	Publication	N	Working Group
Elçi, 2004	Thesis	136	Families with Children with Autism
Güven, 2010	Thesis	190	Adults Who Lived Through the Marmara Earthquake
Özlü, Yıldız & Aker, 2010	Article	100	Caregivers of People with Schizophrenia
Tarhan, 2011	Thesis	122	Women Exposed to Violence
Şakiroğlu, 2011	Thesis	199	Adults Living in Kaynaşlı
Koca-Atabey, Karancı, Dirik & Aydemir, 2011	Article	70	Disabled University Students with Physical Impairments
Tanrıverdi, Savaş & Can, 2012	Article	105	Cancer Patients
Etişken, 2013	Thesis	70	Infertile Individuals
Akçayır, 2014	Thesis	62	Women with Breast Cancer
Moğulkoç, 2014	Thesis	117	Parents of Children with Cancer
Yağız et al., 2014	Article	80	As (Ankylosing Spondylitis) Patients
Coşar, 2015	Thesis	66	Breast Cancer Patients Who Have Undergone Surgery
Öksüzler, 2015	Thesis	161	Elderly People Who Have Lost Their Spouses
Bağlama & Atak, 2015	Article	31	Individuals Who Have Lost a First-Degree Relative or Romantic Partner
Ekim & Ocakçı, 2015	Article	108	Individuals Who Experienced the Kocaeli Earthquake and Currently Live in Kocaeli
Yılmaz & Zara, 2016	Article	132	Syrian War Victims
Çapar, 2016	Thesis	187	Breast Cancer Patients Who Have Undergone Surgery
Şimşir, 2017	Thesis	313	Elderly People Who Have Lost Their Spouses
Balaban et al., 2017	Article	109	Caregivers of Schizophrenia Patients
Gül & Karancı, 2017	Article	498	Adults
Şimşek, 2018	Thesis	120	Cancer Patients
Yurtsever, 2018	Thesis	90	Lung Cancer Patients
Dirik & Göcek-Yorulmaz, 2018	Article	125	Type 2 Diabetes Patients for at least One Year
Kına, 2019	Thesis	324	Individuals Over 23 Years of Age
Durak & Şenol-Durak, 2019	Article	218	Diabetes Patients
Adsever, 2019	Thesis	121	Individuals with Acquired Physical Disabilities
Meral, 2019	Thesis	119	Parents of Pediatric Hematology Patients
Akın, 2019	Thesis	119	Individuals Who Have Had a Myocardial İnfarction
Kaplan Alkan, 2020	Thesis	142	Families of Martyrs
Altınışık, 2020	Thesis	431	Syrian Adolescents
Yücel & Öztürk, 2020	Article	388	Married Couples
Çimen, 2020	Article	60	Participants From Different Professional Groups
Gökahmetoğlu, 2021	Thesis	104	Individuals Receiving Care at AÇSHB
Yazici, Özdemir & Koca, 2021	Article	350	University Students
Yegengil, 2021	Thesis	200	Parents with Children with Special Needs
Kanat & Özpolat, 2021	Article	80	Breast Cancer Survivors with and without Posttraumatic Stress Disorder
Doğançay, 2021	Thesis	462	Traumatized University Students
Fariz, İlyas& Fariz, 2021	Article	266	Health Workers
Kömürcü & Kuzu, 2022	Article	88	Dialysis Patients and Caregivers
Karakoç, 2022	Thesis	467	Individuals Between the Ages of 18-35
Taş, 2022	Thesis	182	Women with Breast Cancer During Covid-19
Uğuz, 2022	Thesis	133	Organ Transplant Recipients
Yıldız, 2022	Thesis	62	Nurses Who Have Cared For/Are Caring for Covid-19 Patients
Ezerbolat Özateş, Özpolat & Göğüş, 2022	Article	80	Caregivers of Schizophrenia Patients
Yıldız, Demir & Sarıtaş, 2022	Article	117	Liver Transplant Recipients

DATA ANALYSIS

Comprehensive Meta-Analysis (CMA) software was used for the analysis of this study. The random effects model was preferred to estimate the overall effect size value for the relationship between the variables. The sample size and correlation values of each study were entered into the dataset to address the relationship between growth after trauma and social support through meta-analysis. First, the effect sizes of each study included in the meta-analysis were calculated separately using Fisher's z-scores. The confidence interval was taken as 95% in the effect size calculations. According to Cohen (1988); .20 is small, .50 is medium, and .80 is large effect size. These criteria were considered in the evaluation of the findings. The combined effect size of all studies was then calculated, publication bias was investigated, and a heterogeneity test was performed. This is because the random effects model, which assumes that studies with different effect sizes represent a randomly distributed sample, provides a deeper understanding that cannot be obtained by examining the means and standard deviations of effect sizes (Hedges, 1983). To assess the heterogeneity in the study, a Q test was conducted, and the I^2 index was calculated. While the Q test provides information about the heterogeneity of a series of studies, the extent of this heterogeneity is handled using the I^2 test (Huedo-Medina et al., 2006). The values obtained for the Q test were evaluated at a p<.01 confidence interval. A classification method was used to evaluate the magnitude of the I^2 value, meaning 25% low, 50% medium, and 70% high heterogeneity (Higgins & Thompson, 2002). To assess the heterogeneity in the study, a Q test was conducted, and the I^2 index was calculated. Rosenthal's fail-safe N, Begg and Mazumdar rank correlations, and Egger's regression test were used to test for publication bias (Thornton & Lee, 2000). In the study, a significance level of .05 was taken as a basis for all statistical calculations.

RESULTS

GENERAL CHARACTERISTICS OF THE STUDIES INCLUDED IN THE STUDY

Approximately 55% of the studies included in the meta-analysis were theses and 45% were articles. The publications included in the study were carried out between 2004-2022 and consist of 7704 participants in total. 45 studies with 7704 participants were included in the meta-analysis. 4630 of the participants were women, 3030 were men, and 44 unspecified. Posttraumatic Growth Inventory was used as a data collection tool for 42 of these studies, Stress-Related Growth Scale was used for 3. Descriptive information about the studies is given in Table 1.

FINDINGS ON PUBLICATION BIAS

Before proceeding to the meta-analysis, publication bias was evaluated in line with the methods specified in the data analysis section. Rosenthal's fail-safe N, Begg and Mazumdar rank correlations, and Egger regression test were used to examine the publication bias. First, Rosenthal's fail-safe N number was calculated. The fail-safe N is 11344. This means that we would need to locate and include 11344 'null' studies for the combined 2-tailed p-value to exceed 0,05. Put another way, there would need to be 252,1 missing studies for every observed study for the effect to be nullified. Mullen, Muellerle, and Bryant (2001) state that when considering the fail-safe N value, the number calculated with the N/(5k+10) formula is greater than 1, which proves that there is no publication bias. Accordingly, Rosenthal's criterion value calculated for this study was calculated as 48. This was evaluated as evidence that there was no publication bias. This finding related to publication bias was also examined with the funnel plot and the results are shown in Figure 2.

Figure 2. *Funnel Plot*
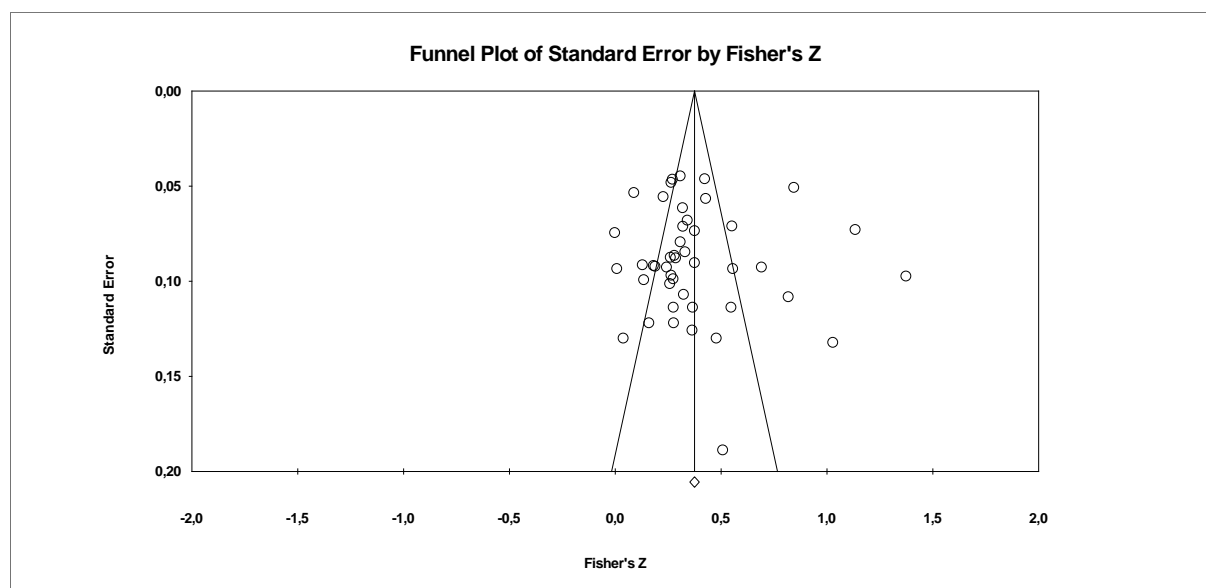
In addition, Begg and Mazumdar rank correlation test and Egger regression test were conducted to evaluate publication bias. Begg and Mazumdar's rank correlation test result and Egger regression test result were not significant (p > .05). In this research Kendall's tau b is 0.10, with a 1-tailed p-value of 0.17 or a 2-tailed p-value of 0.34. According to the Egger regression intercept, which is a stronger test for publication bias, (B0) is 0.51, 95% confidence interval (-2.65, 3.68), with t=0.33, df=43. The 1-tailed p-value is 0.37, and the 2-tailed p-value is 0.74. The fact that the p-value is not statistically significant in these methods is interpreted as no publication bias (Şen & Yıldırım, 2020). Accordingly, the analysis results were interpreted as no publication bias in the meta-analysis study. Findings regarding the Begg and Mazumdar rank correlation test results are given in Table 2.

Table 2. *Results of Begg and Mazumdar Rank Correlation and Egger Regression Test*

	Begg and Mazumdar Rank Correlation	Egger Regression Test
Kendall's S statistic (P-Q)	99	-
Tau	0.10	-
z-value for tau	0.97	-
p-value		.51
p-value (1-tailed)	0.17	.37
P-value (2- tailed)	0.33	.74

HETEROGENEITY AND META-ANALYSES OF EFFECT SIZE

Correlation values and sample sizes between posttraumatic growth and social support were collected from 45 studies (N = 7704) that met the inclusion criteria. Then, all values were converted to Fisher's z. Before proceeding to the meta-analysis, the studies were examined for heterogeneity. The data were subjected to a heterogeneity test. For this purpose, the Q statistic was obtained, and the I^2 and τ^2 value was calculated. The results obtained are given in Table 3.

Table 3. *Results of Random Effect Meta-analyses*

k	N	ES_r	95% CI	Z	P_z	Cochran's Q	P_Q	I^2 (%)	τ^2
45	7704	0.37	[0.31-0.46]	9.64	<.00	499.10	<.00	91.18	0.06

Note. k = number of studies, Cochran's *Q* = tests of heterogeneity, *N* = number of participants in all studies, CI = confidence interval
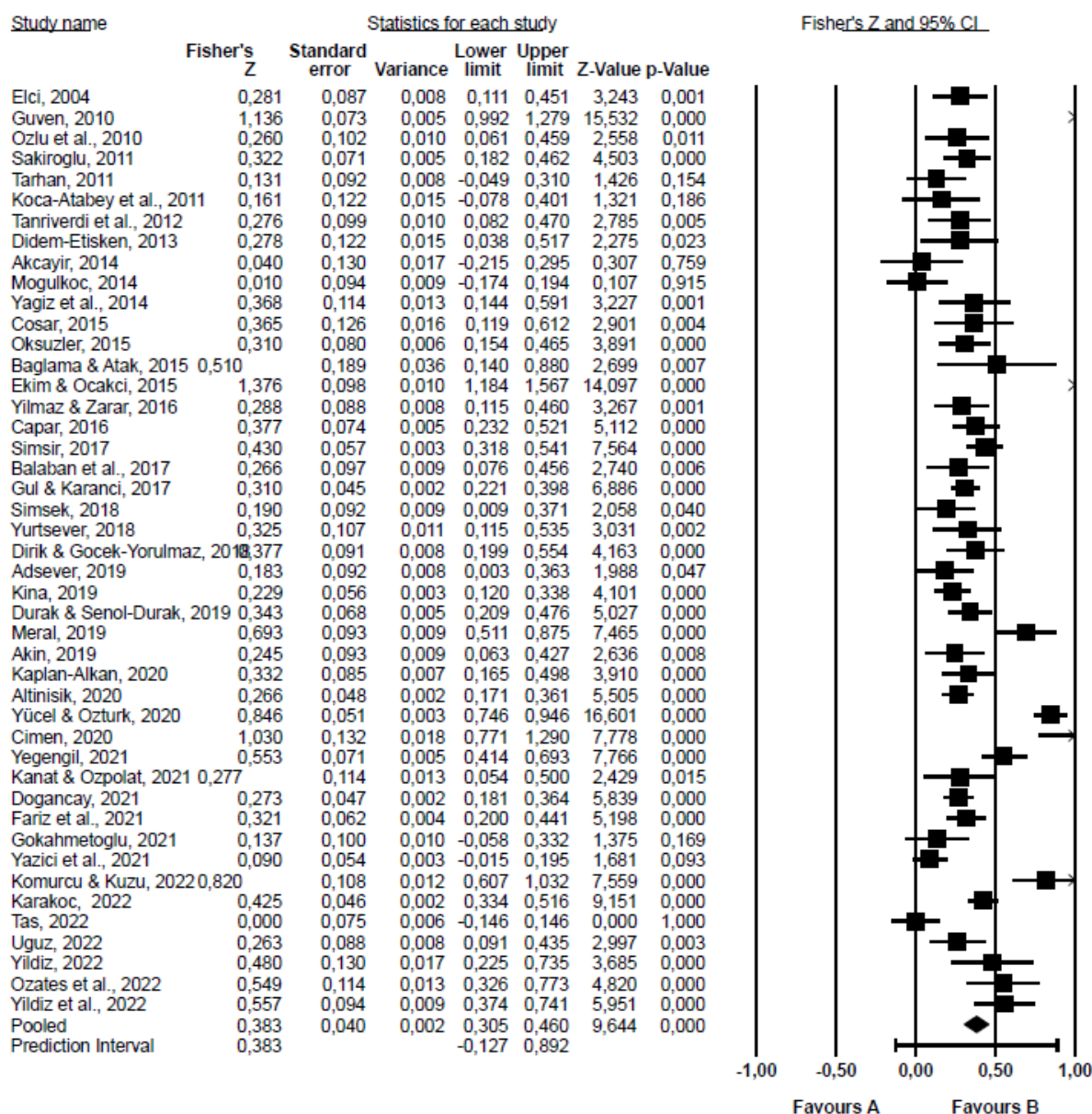
The τ^2 (0.06) statistic was used to evaluate heterogeneity. It was concluded that this difference cannot be fully explained by the variance within the studies, since there are differences between the studies according to the τ^2 statistic and the variance within the study is at a minimum level (Borenstein, Hedges, Higgins & Rothstein, 2010). As a result of the heterogeneity test, the Q (df = 44) statistic value was calculated as 499.10 (p < .01). The Q value obtained exceeded the value at 44 degrees of freedom and .05 confidence level (df = 44, χ^2(.05) = 60.48) read from the chi-square table, which was interpreted as heterogeneous data. The Q-statistics were found to be significant (p < .00, Q = 499.10 with df = 44) The I^2 value, which is another method of testing heterogeneity, was found to be 91.18%. As the I^2 statistic, which enables comment on the amount of variance in correlated measurements, approaches zero, it is stated that the observed variance is not real (Dinçer, 2022). The I^2 value of 91.18% obtained in this research indicates a high level of heterogeneity (Higgins & Thompson, 2002).

Findings showed that heterogeneity was achieved. A meta-analysis of the relationship between posttraumatic growth and social support was then conducted. Statistics and forest plots for the 45 included studies as explained in Figure 3.

When Figure 3 is examined; it is seen that the relationship between posttraumatic growth and social support varies between .00 and 1.37. Under the random-effects model, the mean ES value of the overall effect size (in terms of Fisher z) obtained from 45 studies was found to be .38 with a 95% confidence interval of 0.31-0.46. The Pearson correlation coefficient of the effect size value obtained in Fisher z was found to be .37. In Figure 3, the distribution of effect sizes obtained from each study included in the meta-analysis can be examined.

The meta-analysis results were evaluated according to the random effects model. The random effects model accepts that the effect sizes in the studies conducted based on the assumption that there may be different effect sizes under different studies represent a random sample from a certain distribution (Borenstein et al., 2010). Dinçer (2022) states that if the universes of the studies are not of the same size, the random effects model should be used. Accordingly, in this study, the results were evaluated based on the random effects model and the random effects model was taken as a basis when interpreting the effect size values obtained in the study. According to the random effects model, the effect size of 45 studies was .38 in Fisher *z*; It was found to be .37 in terms of the Pearson Correlation coefficient. Cohen (1988) stated that effect sizes between .20 and .50 are medium. Accordingly, it can be stated that the relationship between posttraumatic growth and social support is medium.

Figure 3. *Statistics on Studies and Forest Graphs*

Study name	Fisher's Z	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Elci, 2004	0,281	0,087	0,008	0,111	0,451	3,243	0,001
Guven, 2010	1,136	0,073	0,005	0,992	1,279	15,532	0,000
Ozlu et al., 2010	0,260	0,102	0,010	0,061	0,459	2,558	0,011
Sakiroglu, 2011	0,322	0,071	0,005	0,182	0,462	4,503	0,000
Tarhan, 2011	0,131	0,092	0,008	-0,049	0,310	1,426	0,154
Koca-Atabey et al., 2011	0,161	0,122	0,015	-0,078	0,401	1,321	0,186
Tanriverdi et al., 2012	0,276	0,099	0,010	0,082	0,470	2,785	0,005
Didem-Etisken, 2013	0,278	0,122	0,015	0,038	0,517	2,275	0,023
Akcayir, 2014	0,040	0,130	0,017	-0,215	0,295	0,307	0,759
Mogulkoc, 2014	0,010	0,094	0,009	-0,174	0,194	0,107	0,915
Yagiz et al., 2014	0,368	0,114	0,013	0,144	0,591	3,227	0,001
Cosar, 2015	0,365	0,126	0,016	0,119	0,612	2,901	0,004
Oksuzler, 2015	0,310	0,080	0,006	0,154	0,465	3,891	0,000
Baglama & Atak, 2015	0,510	0,189	0,036	0,140	0,880	2,699	0,007
Ekim & Ocakci, 2015	1,376	0,098	0,010	1,184	1,567	14,097	0,000
Yilmaz & Zarar, 2016	0,288	0,088	0,008	0,115	0,460	3,267	0,001
Capar, 2016	0,377	0,074	0,005	0,232	0,521	5,112	0,000
Simsir, 2017	0,430	0,057	0,003	0,318	0,541	7,564	0,000
Balaban et al., 2017	0,266	0,097	0,009	0,076	0,456	2,740	0,006
Gul & Karanci, 2017	0,310	0,045	0,002	0,221	0,398	6,886	0,000
Simsek, 2018	0,190	0,092	0,009	0,009	0,371	2,058	0,040
Yurtsever, 2018	0,325	0,107	0,011	0,115	0,535	3,031	0,002
Dirik & Gocek-Yorulmaz, 2018	0,377	0,091	0,008	0,199	0,554	4,163	0,000
Adsever, 2019	0,183	0,092	0,008	0,003	0,363	1,988	0,047
Kina, 2019	0,229	0,056	0,003	0,120	0,338	4,101	0,000
Durak & Senol-Durak, 2019	0,343	0,068	0,005	0,209	0,476	5,027	0,000
Meral, 2019	0,693	0,093	0,009	0,511	0,875	7,465	0,000
Akin, 2019	0,245	0,093	0,009	0,063	0,427	2,636	0,008
Kaplan-Alkan, 2020	0,332	0,085	0,007	0,165	0,498	3,910	0,000
Altinisik, 2020	0,266	0,048	0,002	0,171	0,361	5,505	0,000
Yücel & Ozturk, 2020	0,846	0,051	0,003	0,746	0,946	16,601	0,000
Cimen, 2020	1,030	0,132	0,018	0,771	1,290	7,778	0,000
Yegengil, 2021	0,553	0,071	0,005	0,414	0,693	7,766	0,000
Kanat & Ozpolat, 2021	0,277	0,114	0,013	0,054	0,500	2,429	0,015
Dogancay, 2021	0,273	0,047	0,002	0,181	0,364	5,839	0,000
Fariz et al., 2021	0,321	0,062	0,004	0,200	0,441	5,198	0,000
Gokahmetoglu, 2021	0,137	0,100	0,010	-0,058	0,332	1,375	0,169
Yazici et al., 2021	0,090	0,054	0,003	-0,015	0,195	1,681	0,093
Komurcu & Kuzu, 2022	0,820	0,108	0,012	0,607	1,032	7,559	0,000
Karakoc, 2022	0,425	0,046	0,002	0,334	0,516	9,151	0,000
Tas, 2022	0,000	0,075	0,006	-0,146	0,146	0,000	1,000
Uguz, 2022	0,263	0,088	0,008	0,091	0,435	2,997	0,003
Yildiz, 2022	0,480	0,130	0,017	0,225	0,735	3,685	0,000
Ozates et al., 2022	0,549	0,114	0,013	0,326	0,773	4,820	0,000
Yildiz et al., 2022	0,557	0,094	0,009	0,374	0,741	5,951	0,000
Pooled	0,383	0,040	0,002	0,305	0,460	9,644	0,000
Prediction Interval	0,383			-0,127	0,892		

Fisher's Z and 95% CI

-1,00   -0,50   0,00   0,50   1,00

Favours A   Favours B

DISCUSSION

In this study, the relationship between posttraumatic growth and social support was examined by the meta-analysis method. With this method, the findings of scientific studies examining the relationship between posttraumatic growth and social support were statistically analyzed and reinterpreted, and a common judgment was tried to be reached about the relationship between the two variables by combining the findings. For this purpose, 45 studies that met the criteria for inclusion in the meta-analysis were examined. 55% of the studies were theses and the total sample size of the studies was 7704.

The publication bias of the included studies was examined by Rosenthal's fail-safe N, Begg, and Mazumdar rank correlations and Egger regression test, and no evidence of publication bias was found. While examining the relationships between variables, a heterogeneity test was performed, and effect sizes were examined. According to the random effects model, it was determined that there was a moderately significant relationship between posttraumatic growth and social support. Our findings,

which are in line with the findings in the literature (Dirik & Karancı, 2008; Jia, Ying & Lin, 2017; Yu vd., 2014) show that there is a significant positive relationship between posttraumatic growth and social support and that the relationship is continuous in the context of Turkish culture in the face of different stressful stimuli.

It is known that receiving social support can reduce the impact of stressors (Anisman, 2015). With social support resources, individuals feel stronger, and their belief that they can cope with stress may increase, through these resources, individuals both support their well-being and develop their resources (Niemic, 2019). A review of models and approaches explaining posttraumatic growth shows that social support emerges as an important factor. Schaefer and Moss (1992), in their model of life crises and personal growth, state that the environmental and personal systems of the individual affect the outcomes of life crises and their aftermath. According to the model, the environmental system that can cause growth includes the social support resources that individuals have and growth results in the context of these factors. Similarly, Tedeschi and Calhoun (2004) state in the functional descriptive model that the relationship between individuals and their social environment can affect growth through the effect of stress on cognitive processing. Regression studies have also found that social support predicts growth after trauma (Dong et al., 2015; Li et al., 2012; McDonough, Sabiston, & Wrosch, 2014). As can be seen, social support is seen as an important variable related to individuals' coping processes and stress-related factors, and its role in the realization of growth is underlined. Social support helps individuals tolerate their emotional, behavioral, and cognitive processes and enables individuals to maintain their integrity to maintain functional coping behaviors in stressful situations by providing expression of emotions (Yılmaz & Zara, 2016). Through social support, individuals can experience growth by exploring new possibilities in life (Hijazi et al., 2015). Social support, which is thought to facilitate posttraumatic growth by reducing perceived stress (Yeung & Lu, 2018), may be associated with the constructive development of individuals (Pat-Horenczyk et al., 2015). Therefore, social support may serve as an important protective resource above and beyond the protection it offers (Siegel & Schrimshaw, 2007) and should be considered in terms of posttraumatic growth.

SUGGESTIONS

The results of this study underlined the importance of social support in preventing the effects of stress. Considering the negative effects of stress, increasing, and supporting resources that will positively affect growth will become a priority for mental health professionals. While carrying out mental health studies, it is recommended to work on strengthening the social support resources of individuals who struggle with intense stressors.

Although the findings of this study reveal the relationship between posttraumatic growth and social support, they provide only limited information about the nature of this relationship. For this reason, more studies based on different methodological and statistical analyses that address the relationship between the two variables are needed. Getting support from our social environment is one of the most important ways to reduce the effects of stressors and is used as a coping method. However, it is known that it is not only social support that is beneficial but also the quality of support (Anisman, 2015). The availability and use of social support are important factors in facilitating better short- and long-term outcomes after facing adversity. When people know that they have sources of help, they can provide support to reduce stress and cope (Berger, 2015). Therefore, variables such as the type of social support, its purpose, and how it is used may cause differences in terms of growth. Therefore, studies can be designed to consider how such changes make a difference in terms of post-traumatic growth. In addition, considering that there may be differences based on cultural context in terms of social support, it may be recommended to conduct quantitative and qualitative studies in which the relationship between growth and social support is culturally addressed.

The observed relationship between posttraumatic growth and social support suggests that increasing sources of social support may be important for individuals facing highly stressful life events. Social support may be a way to promote posttraumatic growth (Benetato, 2011; Yeung & Lu, 2018). For this purpose, it is thought that mental health professionals aiming to increase growth in personal, social, and coping areas should focus on social support (Dirik & Karancı, 2008; Şakiroğlu, 2011; Şenol-Durak & Ayvaşık, 2010; Yu et al., 2014). The role of social support in the emergence of posttraumatic growth may contribute to individuals facing challenging life events. Therefore, mental health professionals should help individuals recognize the people they can trust in times of crisis and improve their perceptions of social support in the context of responding to stressful experiences (Jia et al., 2017). Ensuring awareness of existing social supports in mental health services will be a facilitator of growth (Gül & Karancı, 2017). Therapeutic work that involves the client in social activities related to regular and consistent interaction can increase growth (Michael & Cooper, 2013). Active coping styles and social support foster positive schema change. Assessing these two factors is very important. Individuals should be educated about various coping strategies and the benefits of active coping. They should also be encouraged to seek help from others around them. Self-disclosure, reflection, and listening to the experiences of others should also be recommended to promote positive outcomes (Schexnaildre, 2011). Therapists should strengthen individuals' social resources in the face of stressful situations, encouraging them to connect, trust and accept family support as a resource that can improve their mental health and enable them to grow (Sobol & Ben-Shlomo, 2019). Individual and group psychological counseling practices and psycho-educational groups prepared in this direction can be recommended.

LIMITATIONS

This meta-analysis study is important in terms of addressing the relationship between posttraumatic growth and social support in a holistic manner and ensuring that the findings can be evaluated and interpreted holistically. However, it should be kept in mind that this study has some limitations. The first of these limitations is that only published studies were included in the meta-analysis study. The second limitation is that the research is based only on studies that address the relationships between variables and include statistical data on this relationship. For example, if correlation values were not included in the studies dealing with the variables with the regression model and these findings were not shared with the researcher by the authors, these data were excluded from the scope of the article. The third limitation of the study is that only the results of the studies conducted in Türkiye were included in the study. The fourth limitation is the inclusion of articles using Post Traumatic Growth (Tedeschi & Calhoun, 1996) and Stress-Induced Growth (Park et al., 1996) scales to assess post-traumatic growth. Different measurement tools that measure growth and similar structures were not included in this study. Another limitation is that the analyses are based on findings obtained from cross-sectional data. Another limitation is that subgroup analyzes were not performed in this study. Finally, the studies that constitute the data set of this study are limited to those obtained from the analyzed databases. These limitations should be taken into consideration when evaluating the findings of this study.

CONCLUSION

Today, stress and stressful situations are quite common, and it is almost impossible not to be affected by stress. However, it is also known that stress does not only have negative effects but also causes improvement in individuals' personal, social, and coping skills. Social support is known to have a buffering role in the negative effects of stress. As far as is known, there is no meta-analysis study dealing with the relationship between these two variables. Although the study has some limitations the current findings of the meta-analysis were consistent with the results of previous studies. The

analyses showed that there is a significant positive relationship between posttraumatic growth and social support. However, there is limited information on how the relationship between posttraumatic growth and social support works. It is necessary to better understand the mechanism between these concepts, which are important for preventive mental health, and to conduct studies for this purpose.

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