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Examination of Variables Predicting the Emotional Intelligence Levels of Physical Education and Sports Teacher Candidates Using the CHAID Analysis

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ABSTRACT

This research aims to determine the variables predicting the emotional intelligence levels of physical education and sports teacher candidates and to prioritize the variables in terms of their predictiveness using a relational screening model. The study group consists of 445 physical education and sports teacher candidates studying at two state universities in the Central Anatolia and South-eastern Anatolia Regions in the 2022–2023 academic year. Research data were collected using the “Emotional Intelligence Scale” consisting of three dimensions and 20 items, and the “Personal Information Form”. Research findings were analyzed using descriptive statistics and the CHAID analysis method. According to the research results, it was determined that the teacher candidates’ emotional intelligence levels were moderate on the scale as a whole and in the emotional regulation dimension, low in the emotional identification/comprehension dimension, and high in the emotional facilitation dimension. The gender variable was observed to have the highest impact on the emotional facilitation dimension and emotional intelligence as a whole. Variables with the highest impact on the emotional identification/comprehension dimension were determined to be graduated high school, gender, and grade level. In contrast, the variables with the highest effect on the emotional regulation dimension were determined to be participation in social and cultural activities, graduated high school, and gender.

Keywords: CHAID Analysis, Emotional Intelligence, Physical Education and Sports Teaching, Teacher Candidates



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INTRODUCTION

The concept of emotional intelligence (EQ), emerging with the innovative world order and paving the way for new expansions, is among the most important topics on the agenda (Yesilyaprak, 2001). Individuals' difficulties dealing with negative emotions caused by overburden or conflicts in daily or professional life underlie the increasing interest in EQ (Erdogdu, 2008). Considering these difficulties, Goleman (1995) explains some people's success in daily life with their ability to analyze their own emotions or those of others correctly and manage them well despite having failed in school life. However, it is claimed that scientific studies on EQ do not have enough arguments to fully detail and explain EQ (Dulewicz & Higgs, 2000). This increases the efforts of both organizations and researchers to understand and make sense of EQ (Zampetakis et al., 2009).

Compared to other people, those exerting an effort to understand the feelings of others are more successful and respected in social and business life (George, 2000). Individuals and managers who understand the language of emotions support personal development by easily transferring their values to individuals or employees (Mayer & Salovey, 1997). Conversely, people who can understand emotions establish efficient and meaningful communication environments with others (Mayer et al., 2000). EQ is also vital for preventing burnout and preserving psychological health among individuals (Bar-On, 2007). Goleman (1995) states that EQ balances the relationship between the mind and emotion and that the mind cannot be used effectively without EQ. Mikolajczak and Limunet (2008) underline their significance in teaching how to cope with problems, while Austin et al. (2005) in ensuring satisfaction in social relations. Caruso and Salovey (2004) also note that EQ is essential because it contributes to decision-making processes and enriches the intellectual activities of individuals. Accordingly, it is concluded that EQ is a vital and required type of intelligence because it forms the basis for other intelligence types, especially academic intelligence; ensures emotional empathy; increases the social prestige of individuals; establishes efficient communication environments; makes people happy by interacting with each other; assures satisfaction in social relations by teaching how to cope with problems, and provides a balance among other intelligence types. Moreover, it should be noted that educational organizations are expected to develop EQ among students and increase awareness in this regard.

The duties and responsibilities of teachers, considered the most essential element of the education system, are not limited to conveying specific information to students. Teachers and candidates are responsible for raising future generations (Saribas & Babadag, 2015). According to Onen (2012), the teaching profession has its own responsibilities, values, and principles, as do other occupational groups. Awareness of teachers' affective qualities can be decisive in revealing these responsibilities, values, and principles. Indeed, realizing affective characteristics enables the development of EQ among teachers (Asrar-ul-Haq et al., 2017). Moreover, realizing affective characteristics in educational organizations is vital in finding solutions for teachers to social and emotional pressures (Ignat & Clipa, 2012) and enabling the acquisition of skills to read and manage emotions in social contexts (Zeidner et al., 2004). Therefore, it can be concluded that the teachers, as well as the teacher candidates, at the macro level and physical education and sports teacher candidates (PESTC) at the micro level should have EQ.

Emotional intelligence significantly contributes to the understanding and interpretation of both one's own and others' emotions (Mayer & Salovey, 1997; Nettelbeck & Wilson, 2005; Yeung, 2009) and increasing motivation (Hamarta et al., 2009). Similarly, high emotional intelligence is also necessary for individuals' physical and mental health (Parker et al., 2001). Individuals with developed emotional intelligence can be more successful and happier in their private and professional lives (Diken & Aydogdu, 2018). Saini (2016) summarizes the main

characteristics of individuals with high emotional intelligence as communicating effectively, instilling positive behaviors in others, being original, learning from mistakes, and social integration. In fact, these characteristics draw attention because they are the characteristics teachers should have (Bozdemir Yuzbasioglu et al., 2020). On the other hand, studies on teachers' emotional intelligence indicate that emotional intelligence is necessary for students' academic achievements (Downey et al., 2008; Sánchez-Álvarez et al., 2020), a good classroom climate (Tsoli, 2015), teacher engagement (Abiodullah et al., 2020; Pena et al., 2012), job satisfaction (Li et al., 2018) and teaching practices (Kaur et al., 2019). It is also stated that teacher candidates' classroom management skills are predicted by emotional intelligence (Ngui & Lay, 2020), and teachers or teacher candidates with high emotional intelligence have positive effects on the learning skills of the students they train (Sahin-Baltaci & Demir, 2012; Tunca et al., 2015). Some studies emphasize that emotional intelligence reduces burnout in teachers and is an essential personal resource for teachers (Chesnut & Cullen, 2014; Mérida-López et al., 2017).

The teaching profession has norms and values unique to it. To determine these norms and values of the teaching profession, one must know some affective qualities of teachers (Onen, 2012). In addition, teachers may experience positive or negative emotions in their interactions with students, administrators, and other colleagues. Teachers with low emotional intelligence may reflect negative emotions and attitudes in the classroom environment due to their interactions with others. Teachers with high emotional intelligence exhibit appropriate behaviors in the classroom by controlling their emotions (Sarisoy & Erisen, 2018). In this context, as future teachers, teacher candidates are expected to have developed emotional intelligence competencies in addition to personal and professional characteristics or to reach a certain maturity (Akar Kayserili & Gundogdu, 2010). On the other hand, student-teacher interaction is an important component of emotional intelligence, and students need to be made to feel valued by their teachers in the educational process (Ozturk, 2016). It is possible for students to feel valuable if teachers can provide their students with the skills of empathizing, understanding others' feelings, working in cooperation, and communicating (Girgin, 2009). Therefore, teacher candidates and teachers with high levels of emotional intelligence play a critical role in upbringing students and shaping their lives (Eranil & Ozcan, 2019). As a matter of fact, literature studies report that teachers with high levels of emotional intelligence affect students' behavior, engagement, and commitment (Corcoran & Tormey, 2013; Latif et al., 2017). Some studies in the literature also revealed that teachers who can manage their emotions well are more satisfied with their work and experience less burnout (Brackett et al., 2010; Corcoran & Tormey, 2012).

There is extensive research in the literature addressing emotional intelligence, with a sample group consisting of university students and PESTC. For example, EQ levels of university students and PESTC are reported to be related to the method of coping with stress (Deniz & Yilmaz, 2006; Saddki et al., 2017), state of physical and social health (Extremera & Fernández-Berrocal, 2006; Moeller et al., 2020; Ozkan, 2017; Zeidner & Matthews, 2016), problem-solving skills (Yilmaz Karabulutlu et al., 2011), subjective well-being (Por et al., 2011), satisfaction with life (Holinka, 2015; Kong et al., 2012), intercultural communication (Fall et al., 2013), academic success (Malik & Shahid, 2016), critical thinking (Certel et al., 2011), athletic performance (Yasar, 2010), and happiness (Furnham & Petrides, 2003). Besides these studies, there are also studies examining the effects of personal variables (such as gender, age, grade level, and graduated high school) concerning university students and PESTC on the level of EQ (Austin et al., 2007; Avsar & Kasikci, 2010; Borekci, 2002; Ergin, 2000; Harrod & Scheer, 2005; Malak, 2011; Maliha & Rehana, 2010; Ozdenk, 2018; Sivrikaya & Siktar, 2017; Taskin et al., 2010; Temeloglu, 2018; Yaliz, 2013; Yarmohammadi & Taghibigloo, 2013; Yetis & Servi, 2020). However, it was observed that none of these studies identified the predictor

variable that best explains the effect of personal variables on EQ levels. Therefore, the variables that may impact the EQ levels of the PESTC should be prioritized in terms of their predictiveness. By revealing the variables that may affect the EQ levels of physical education and sports teacher candidates, this research contributes to estimating the EQ levels of teacher candidates studying in other departments. Furthermore, no research in the literature examines the EQ levels of PESTC with the CHAID analysis. Thus, this research is being conducted with a statistical method such as the CHAID analysis, dividing the data into homogeneous subsets, which might provide more transparent and more detailed information about the predictive power of the variables. Therefore, this research determines the variables that predict the EQ levels of PESTC using the CHAID analysis method.

LITERATURE REVIEW

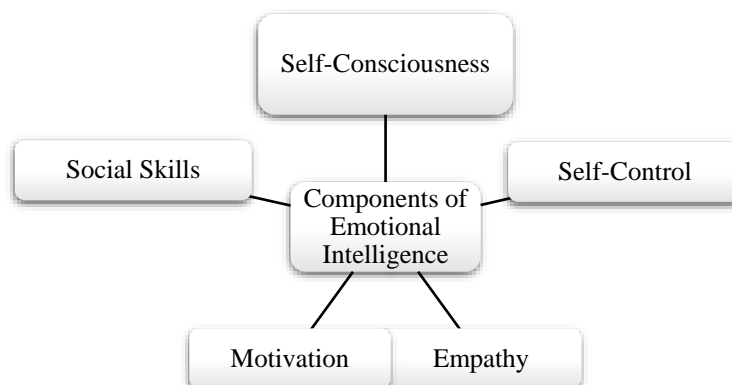
Emotional Intelligence

The foundations of EQ were laid with the development of Thorndike’s concept of social intelligence in the 1920s (Bar-On, 2006). After Thorndike, Gardner is known as the second scientist who contributed to developing the concept of EQ with his “Multiple Intelligence Theory” approach, although he did not use the concept of EQ directly (Quebbeman & Rozell, 2002). In addition to these scientists, researchers such as Wayne Payne, Bar-On, Salovey, and Mayer also made significant contributions to the spread of EQ in their studies and the theories they developed (Bastian, 2005).

The literature covers several definitions of EQ. Mayer and Salovey (1997) define EQ as the understanding of the emotions of others, regulation, and management of emotions; Petrides and Furnham (2000) as establishing good relations with other people and being able to motivate others; Goleman (1995), Casper (2003), and Austin et al. (2005) as being hopeful and developing empathy by controlling impulses; Bar-On (2006) as perseverance against the pressures of the environment; Gurbuz and Yuksel (2008) as the use of emotions effectively; and Faltas (2017) as the ability of individuals to balance their social and emotional competencies and to control their emotions by being aware of their self-capacity. It may be inferred that the common ground of these definitions is the emotional intelligence’s intention to understand and make sense of both one’s own and others’ feelings.

Components of EQ are generally addressed under the headings of “self-consciousness, self-control, empathy, motivation, and social skills” (Goleman, 1995; Mayer & Salovey, 1997).

Figure 1. Components of EQ (adapted from Goleman, 1995)



Self-consciousness: An individual’s awareness of their own feelings and mood. Self-consciousness is the most critical component of EQ (Marshall, 2001).

Self-control: The ability to control one's own emotions in a balanced and consistent manner (Poskey, 2006). The self-control component means the ability to control one's own emotions.

Empathy: The ability of individuals to understand the emotions of others and how they feel. In other words, empathy is an individual's ability to put oneself in someone else's place (Albrecht, 2006).

Motivation: An individual's activation of their emotional characteristics to start or finish a job (Dogan, 2005).

Social Skills: A person's ability to effectively communicate with others and manage this communication (Stanley, 2010).

The self-consciousness component of EQ refers to the awareness of emotions; self-control to the control of emotions; empathy to the understanding of others' emotions; motivation to the correct activation of emotions; and social skills to the ability to communicate with other people. Because of the abovementioned components, EQ differs from other intelligence types. However, according to Goleman (1995), unlike the intelligence type known as intelligence quotient (IQ), EQ is a type of intelligence that can be learned later and is open to development. In other words, it can be stated that EQ can be continuously improved with the effect of the environment and experiences. Based on the ability to continuously improve emotional intelligence, Mayer and Salovey (1997) defined people with high EQ as solution-oriented, optimistic, and capable of preventing tense situations and maintaining strong social relations. Similarly, Ozdenk (2015) lists the characteristics of individuals with low EQ as tense, pessimistic, and having weak social relations. In fact, all these explanations draw attention to the importance and necessity of individuals having EQ in social life. In other words, individuals with EQ may be more successful in social and daily life than other individuals.

Purpose of the study: This research aims to determine the variables that predict the EQ levels of PESTC. Under this objective, answers to the following questions were sought:

Q1: What are the EQ levels of PESTC?

Q2: What variables best predict the EQ levels of PESTC?

Q3: Which variables predict the EQ levels of PESTC?

METHOD

Research Design

Since this research determines the variables predicting the EQ levels of PESTC, it is quantitative research in the relational screening model. The relational screening model determines the degree of change among multiple variables (Fraenkel et al., 2012). Predictor variables of the research are gender, grade level, graduated high school, time spent on social media per day, place of birth, participation in social and cultural activities, and reading habits, while the predicted variables are the EQ level and its sub-dimensions (emotional identification/comprehension, emotional facilitation, and emotional regulation).

Research Group

The research group consists of PESTC students studying at two state universities in the Central Anatolia and South-eastern Anatolia Regions in the 2022–2023 academic year. The study participants were physical education and sports teacher candidates who could be reached

voluntarily. Although no special conditions were required for participation in the study, it was deemed sufficient for the participants to study in the physical education and sports teaching departments. Participants' demographic information such as "gender, grade of study, high school graduated from, daily social media usage time, place of birth, participation in social and cultural activities, and reading habits" were determined through the "Personal Information Form" before the scale questions. The research is an "internal validity" study aiming to determine the relationship between variables. In other words, since this research was not designed as an "external validity" study that can be generalized to large groups or populations (Buyukozturk et al., 2013), the term "Research Group" was used instead of the expressions population and sample. In the research, 540 scales were distributed, and 445 of them were found to be suitable for analysis. 254 (57.1%) were female while 191 (42.9%) were male; 43 (9.7%) were grade, 94 (21.1%) were second grade, 157 (35.3%) were third grade, 151 (33.9%) were fourth grade students; 328 (73.7%) graduated from vocational and technical high school (VTHS), 117 (26.3%) from anatolian and science high school; 296 (66.5%) used social media 5 hours a day, 149 (33.5%) used it more than 5 hours a day; 42 (9.4%) were born in villages, 80 (18%) in districts, and 323 (72.6%) provinces. In terms of participation in social and cultural activities, the number of those declaring no participation was 66 (14.8%), occasional participation was 316 (71%), and constant participation was 63 (14.2%). Moreover, 359 (80.7%) participants confirmed their habit of reading, whereas 86 (19.3%) stated that they did not have this habit.

Data Collection Tool

Research data were obtained through the "Personal Information Form" and the "EQ Scale". The "Personal Information Form" developed by the researchers consisted of questions about the participants' "gender, grade level, graduated high school, time spent on social media per day, place of birth, participation in social and cultural activities, and whether they have reading habits". The "EQ Scale" used in the research was developed by Lee and Kwak (2012). The EIS was adapted to Turkish by Kayihan and Arslan (2016). The scale comprises three dimensions and 20 items and is of a 5-point Likert-type graded between (1) totally disagree and (5) completely agree. The first dimension of the EQ Scale, "Emotional Identification/Comprehension" dimension consists of 6 items (questions 1, 2, 3, 4, 5, and 6) (Sample item: I can understand the emotions and moods of others even if I do not know them very well); the second dimension "Emotional Facilitation" consists of 6 items (questions 7, 8, 9, 10, 11 and 12) (Sample item: I understand that a person can hate and love another person at the same time); the third dimension, "Emotional Regulation", consists of 8 items (questions 13, 14, 15, 16, 17, 18, 19 and 20) (Sample item: I can control my emotions well). Cronbach's alpha reliability coefficient of the scale was determined as .72, .71, .76, and .83 for emotional identification, emotional facilitation, emotional regulation, and the whole scale, respectively. Confirmatory factor analysis (CFA) results reveal that the 3-dimensional model of the scale conforms to the range of values suitable for the research sample ($\chi^2=399.55$, $df=167$, $RMSEA=.075$, $NNFI=.90$, $CFI=.91$, $IFI=.91$, $SRMR=.080$), $GFI=.86$) (Kayihan & Arslan, 2016).

The reliability and validity of the EQ Scale were re-examined for this study. Accordingly, the Cronbach's alpha reliability coefficient calculated with the current research data was .89, .84, .90, and .90 for emotional identification, emotional facilitation, emotional regulation, and the whole scale, respectively; the McDonald's reliability coefficient was found to be .89, .85, .90, and .90 for emotional identification, emotional facilitation, emotional regulation, and the whole scale, respectively. Results of CFA testing the scale with research data also indicate that the 3-dimensional structure is coherent ($\chi^2/sd=603/164=3.67$, $RMSEA=.078$, $SRMR=.076$, $CFI=.92$, $TLI=.90$) (Kline, 2011; Schermeller-Engel et al., 2003; Wang & Wang, 2012). Therefore, it can be asserted that the EQ Scale has reliability and validity values

suitable for this research.

Data Analysis and Ethical Consideration

Participation in the study was carried out on a voluntary basis without any obligation. Informed consent was obtained from the participants through the “Voluntary Participation Form.” The researchers made explanations, including detailed information, to ensure that the participants responded honestly to the scales and made a commitment that the information, findings, or results obtained would not be used for any reason other than scientific purposes. The researchers also informed the participants that the research did not carry any risk and that they could leave the study at any time. Finally, the researchers included contact information on the front of the scales to provide the necessary explanations on issues that were not understood or hesitated about the research.

540 scales were distributed to teacher candidates in the research. However, 95 scales were determined to be blank or not returned. The remaining 445 scales were checked for missing data. Since the missing data of the research was less than 5% by chance, they were assigned by taking the averages of series through the EM expectation-maximization algorithm. Thus, data obtained from 445 participants was suitable for analysis.

Research data were analyzed with descriptive statistics and CHAID (Chi-Square Automatic Interaction Detector Analysis) analysis. The CHAID analysis was preferred in this research as it aimed to determine the impact of the predictor variables on the predicted variable through regression analysis and classification. The CHAID is an analysis technique that works with the classification logic of decision trees and is based on dividing the variables that affect the predicted variable into smaller branches in descending order (Horner et al., 2010; Michael & Gordon, 2004). Knots formed by the CHAID analysis indicate significant predictor variables while ranking the variables from top to bottom indicates the order of importance of the predictor variables (Kayri & Boysan, 2007). In the CHAID analysis, the predictor and predicted variables can be categorical or continuous. Moreover, as the CHAID analysis is not fully parametric, it does not require the general assumptions of regression analysis to be provided (Gorunescu, 2011; Maimon & Rokach, 2014). The main difference distinguishing the CHAID analysis from other decision tree analyses is that it produces multiple trees, whereas the others produce binary trees (Ture et al., 2009). The variable predicted in the CHAID analysis can be categorical or continuous. The chi-square test (χ^2) is used when the predicted variable is categorical, and the F test is used when there is a continuous variable (Atasoy & Guclu, 2020). Because the predicted variable was continuous in this research, the F test was applied. All predictor variables of the research were categorical, and all data analyses were performed using Jamovi 2.2.5 and SPSS 24 statistical package software. Research findings were reported according to .05 significance level.

FINDINGS

Findings on Descriptive Statistics

Table 1 displays the descriptive analysis results of the teacher candidates’ EQ levels for the entire scale and based on its sub-dimensions.

Table 1. Descriptive Analysis Results of the Research (n=445)

Variables	\bar{x}	Sd.	Level
Emotional Identification/Comprehension	2.56	.79	Disagree
Emotional facilitation	3.70	.76	Agree
Emotional Regulation	3.12	.80	Partly Agree
EQ Scale - Whole	3.14	.59	Partly Agree

As seen in Table 1, in general, the EQ levels of teacher candidates are at the level of “Partly agree” on average ($\bar{x} = 3.14$, $Sd = .59$). The emotional identification/comprehension dimension of the scale ($\bar{x} = 2.56$, $Sd = .79$) is at the level of “Disagree” on average, the emotional facilitation dimension is at the level of “Agree” on average ($\bar{x} = 3.70$, $Sd = .76$); the emotional regulation dimension ($\bar{x} = 3.12$, $Sd = .80$) is at the level of “Partly agree” on average. In other words, teacher candidates’ EQ and emotional regulation dimensions are medium, emotional identification/comprehension dimension is low, and emotional facilitation dimension is high. Moreover, the lowest standard deviation was observed in the total score for the whole scale ($Sd = .59$), while the highest standard deviation was observed in the emotional identification/comprehension dimension ($Sd = .79$). This result indicates that the participants’ answers on the whole scale are similar but different in the emotional identification/comprehension dimension.

CHAID Analysis Findings on the Emotional Identification/Comprehension Dimension of the Research

Figure 2. The CHAID Analysis Diagram Regarding the “Emotional Identification/Comprehension” Dimension

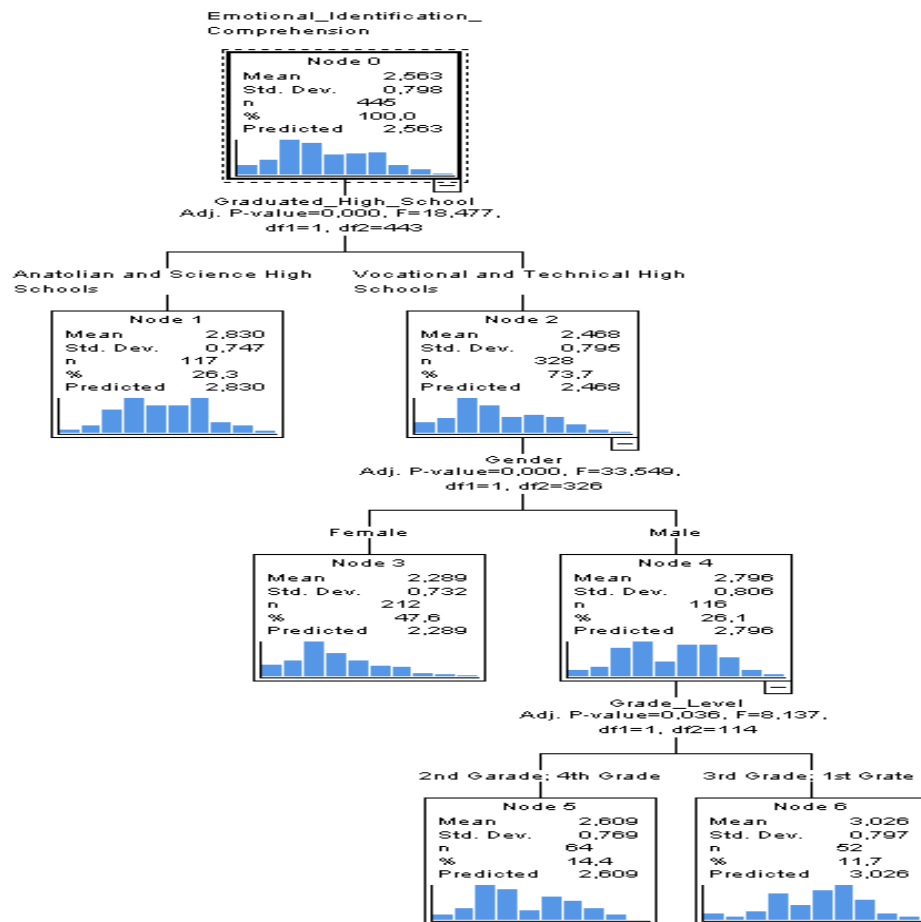


Figure 2 displays the CHAID analysis results regarding the subgroups that best explained the predicted variable, the EQ scale’s emotional identification/comprehension dimension. Accordingly, high school graduation is observed to be the variable that best predicts the emotional identification/comprehension dimension of the teacher candidates who graduated from

anatolian and science high schools ($\bar{x} = 2.830$; $Sd=0.747$; $n=117$; 26.3%) were significantly higher ($\bar{x} = 2.468$; $Sd=0.795$; $n=328$; 73.7%) than that of the teacher candidates who graduated from VTHS. Similarly, it was determined that gender was the variable that best explained the emotional identification/comprehension dimension for the teachers who graduated from VTHS. Intelligence levels on the emotional identification/comprehension dimension of male teacher candidates who graduated from VTHS ($\bar{x} = 2.796$; $Sd=0.806$; $n=116$; 26.1%) were significantly higher than those of female teacher candidates who graduated from VTHS ($\bar{x} = 2.289$; $Sd=0.732$; $n=212$; 47.6%). Regarding the gender variable, grade level was determined to be the most significant variable affecting the intelligence levels on the emotional identification/comprehension dimension of male teacher candidates. Among the male teacher candidates who graduated from VTHS, the intelligence levels on the emotional identification/comprehension dimension of the 1st and 3rd grade students ($\bar{x} = 3.026$; $Sd=0.797$; $n=52$; 11.7%) were significantly higher than those of those studying in the 2nd and 4th grades ($\bar{x} = 2.609$; $Sd=0.769$; $n=64$; 14.4%).

The CHAID Analysis Findings on The Emotional Facilitation Dimension of The Research

Figure 3. The CHAID Analysis Diagram Regarding the “Emotional Facilitation” Dimension

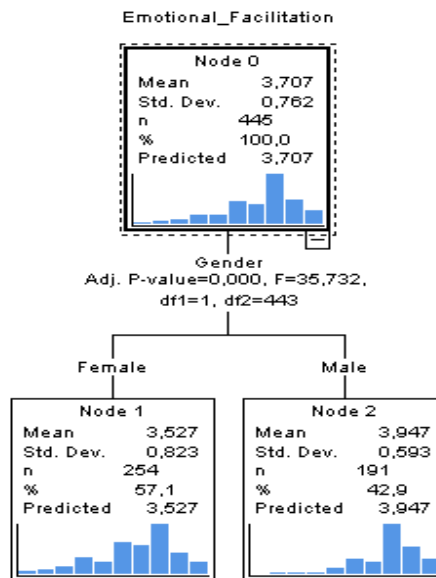


Figure 3 displays the CHAID analysis results for the subgroups that best explain the predicted variable, the EQ scale’s emotional facilitation dimension. Accordingly, gender was determined to be the predictor variable with statistically the highest impact on the predicted variable, the emotional facilitation dimension. Intelligence levels on emotional facilitation dimension of the male teacher candidates ($\bar{x} = 3.947$; $Sd=0.593$; $n=191$; %42.9) are significantly higher than that of female teacher candidates ($\bar{x} = 3.527$; $Sd=0.823$; $n=254$; %57.1). In other words, gender is the predictor variable that best explains the emotional facilitation dimension.

The CHAID Analysis Findings on the Emotional Regulation Dimension of the Research

Figure 4. The CHAID Analysis Diagram Regarding the “Emotional Regulation” Dimension

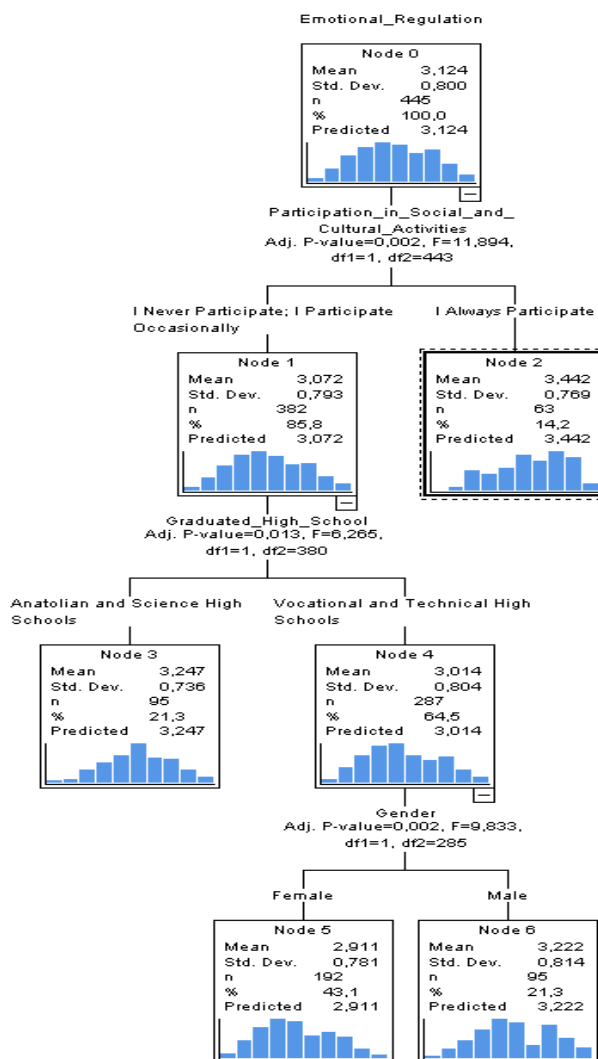


Figure 4 displays the CHAID analysis results for the subgroups that best explain the predicted variable, the emotional regulation dimension of the EQ scale. Accordingly, participation in social and cultural activities was determined to be the predictor variable with statistically the highest impact on the predicted variable, the emotional regulation dimension. It was determined that the intelligence levels on the emotional regulation dimension of the teacher candidates always participating in social and cultural activities ($\bar{x}=3.442$; $Sd=0.769$; $n=63$; %14.2) are significantly higher than that of the teacher candidates never or occasionally participating in social and cultural activities ($\bar{x}=3.072$; $Sd=0.793$; $n=382$; %85.8). Moreover, graduated high school was determined to be the predictor variable with the highest effect on the level of intelligence on the emotional regulation dimension of the teacher candidates who never or occasionally participated in social and cultural activities. Intelligence levels on the emotional regulation dimension of the teacher candidates who graduated from anatolian and science high schools ($\bar{x}=3.247$; $Sd=0.736$; $n=95$; %21.3) are significantly higher than that of teacher candidates who graduated from VTHS ($\bar{x}=3.014$; $Sd=0.804$; $n=287$; %64.5). In terms of the graduated high school variable, gender was determined to be the most important variable

affecting the intelligence levels on the emotional regulation dimension of the teacher candidates who graduated from VTHS. Intelligence levels on the emotional regulation dimension of the male teacher candidates who graduated from VTHS (\bar{x} =3.222; Sd=0.814; n=95; %21.3) are statistically significantly higher than that of female teacher candidates who graduated from VTHS (\bar{x} =2.911; Sd=0.781; n=192; %43.1).

The CHAID Analysis Findings on the Overall Total of Teacher Candidates

Figure 5. The CHAID Analysis Diagram Regarding the EQ Level

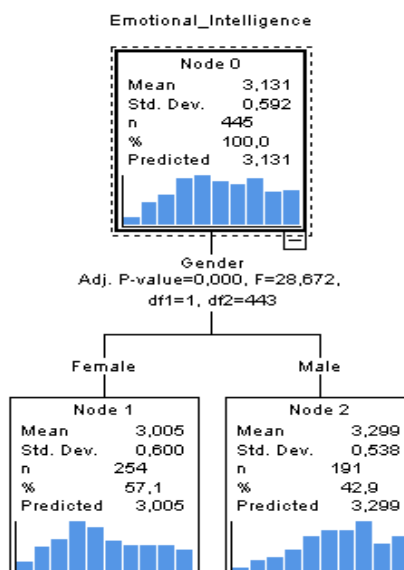


Figure 5 displays the CHAID analysis results regarding the subgroups that best explain the predicted variable, the total overall score for the EQ scale. Accordingly, gender was determined to be the predictor variable with statistically the highest impact on the predicted variable, the total overall score for emotional intelligence. Overall total scores for the EQ of the male teacher candidates (\bar{x} =3.299; Sd=0.538; n=191; %42.9) are significantly higher than that of female teacher candidates (\bar{x} =3.005; Sd=0.600; n=254; %57.1). In other words, gender is the predictor variable that best explains the teacher candidates' total overall scores for EQ.

DISCUSSION & CONCLUSION

This research aims to determine whether the variables of gender, grade level, graduated high school, time spent on social media per day, place of birth, participation in social and cultural activities, and reading habits predict the EQ level of physical education and sports teacher candidates. The research also aimed to prioritize the variables significantly impacting EQ regarding their predictiveness.

According to the research results, the EQ levels of the teacher candidates were moderate on the scale as a whole and in the emotional regulation dimension, low in the emotional identification/comprehension dimension, and high in the emotional facilitation dimension. Accordingly, although teacher candidates can effectively manage their emotions even in dire situations, they are not at the desired level in terms of understanding the emotions and moods of others and control of emotions. Moreover, it may be stated that the teacher candidates partially meet the expectations regarding the general EQ level. Besides studies in the literature, such as the current one, revealing that the EQ levels of the participants are at a moderate level (Avsar & Kasikci, 2010; Dutoglu & Tuncel, 2008; Ozdenk, 2018; Yilmaz Karabulutlu et al.,

2011), there are also studies pointing to high EQ levels (Certel et al., 2011; Simsek, 2018; Turkekul & Sarikabak, 2019). The fact that teacher candidates' EQ levels are not at the desired level can be explained by the importance attached to academic intelligence while ignoring EQ in the grown-up and educational environments. Salovey and Sluyter (1997), Slaski and Cartwright (2003) stated that the attitude of the family and the interaction with the environment are decisive in the formation of emotional intelligence; Yesilyaprak (2001) noted that EQ develops in parallel with the biological maturation of individuals and that EQ begins to take shape from an early age. Goleman (1995) and Akerjordet and Severinsson (2004) said that EQ cannot be explained only by heredity and can be learned. All these statements draw attention to emotional intelligence's feature of being open to development and able to be acquired later. Therefore, it may be concluded that the EQ levels of the teacher candidates can be raised to higher levels through intentional activities.

Teaching is a stressful and emotional profession requiring constant communication with others, such as parents, students, and colleagues. The fact that teaching is a stressful and emotional profession makes it necessary for teachers to be able to manage emotional situations (Kotaman, 2016a; Kotaman, 2016b). In other words, teaching is a profession that involves processes such as empathy and emotional regulation. For this reason, the emotional intelligence levels of individuals receiving teacher education should be at a sufficient level (Celik & Gungor, 2020). In terms of physical education and sports teachers, the ability of prospective teachers to cope with problems, perceive others correctly, establish positive relationships with their stakeholders, and be happy in their lives is stated to depend on their emotional intelligence level (Sezgin & Cakmak Yildizhan, 2023). Especially in sports settings, more stress, pressure, and emotional intensity can be experienced, and emotional intelligence may be needed more to be able to accurately understand the rival athletes' emotions (Adilogullari & Gorgulu, 2015; Lazarus, 2000).

Today, teaching is recognized as an extremely stressful, emotional, and challenging profession due to the comprehensive and multidimensional roles undertaken and the high demands arising from the profession (Miyagamwala, 2015). At the same time, the fundamental role of teachers is to support students' acquisition of academic knowledge and to create appropriate learning settings by effectively organizing the environment (Whitaker, 2020). The fact that teachers have important duties and responsibilities in the upbringing of individuals necessitates teacher candidates to be equipped with competencies such as controlling their emotions and producing solutions to the problems encountered (Capri & Celikkaleli, 2008; Lopes et al., 2004). For this reason, emotional intelligence enables clarification as to whether teacher candidates create balance in their lives, whether they are motivated, and whether they accurately manage students' emotions (Cherniss & Goleman, 2001; Clarke, 2006). In a way, emotional intelligence provides teacher candidates with the ability to monitor and observe emotions related to both themselves and their students (Zeidner et al., 2004). In addition, teacher candidates with high and positive emotional intelligence are stated to exhibit skills such as problem-solving, leadership, academic success, and ability to tackle challenges (Asrar-ul-Haq et al., 2017; Mozhan et al., 2013; Preeti, 2013). Some researchers also point out that learning-teaching activity processes correlate with teachers' emotional intelligence (Dolev & Leshem, 2016; Valente et al., 2019).

The development of emotional intelligence depends on personal factors (Andreava, 2019), and the factors that affect the development of emotional intelligence can vary (Grewal & Salovey, 2005). In this context, the development of emotional intelligence may vary depending on various factors such as age, gender, and experience. For instance, there is a widespread belief that women have higher levels of emotional intelligence than men, and individuals' emotional intelligence levels are stated to differ depending on gender (Craig et al., 2009). In this context, there are studies in the literature reporting that women's emotional

intelligence levels are higher than men's (Austin et al., 2005; Brackett et al., 2004; Harrod & Scheer, 2005; Petrides et al., 2004; Sarikabak, 2019) as well as studies that do not demonstrate differences in emotional intelligence scores between men and women (Dawda & Hart, 2000; Megias et al., 2018; Meskhat & Nejati, 2017; Senel, 2015). The fact that women have higher emotional intelligence levels than men is explained by the fact that men can socialize by not revealing their emotions (Haviland-Jones et al., 1997), and women have more developed skills such as empathy and persuasion (Edizler, 2010). Similarly, Ozaslan et al. (2005) attribute the higher emotional intelligence level of women compared to men to women's ability to recognize themselves and manage their emotions; however, Erani and Ozcan (2019) and Celik and Gungor (2020) attribute it to the differences in the region of residence and socio-cultural characteristics.

This research revealed that the variables with the highest effect on the emotional identification/comprehension dimension were graduated high school, gender, and grade level. In other words, EQ levels on the emotional identification/comprehension dimension of the anatolian and science high school graduates are higher than those of the VTHS graduates. While the emotional intelligence levels of teacher candidates differed according to the type of high school they graduated in some studies (Koksal, 2003; Pektas, 2013), the type of high school they graduated was determined not to cause a difference in some studies (Ozaslan et al., 2020; Seyis, 2011; Tekin Bender, 2006). Unlike the current study, Ozlan (2020) established that the emotional intelligence levels of students graduating from vocational high schools were higher than the emotional intelligence levels of students graduating from science high schools. Ozaslan (2020) explains this result by the fact that students graduating from vocational high schools can express their emotions more openly and take their emotions under control due to the lack of academic pressure on them. Moreover, EQ levels on the emotional identification/comprehension dimension of the 3rd and 1st-grade male students who graduated from VTHS are higher than those of the female teacher candidates studying in the 2nd and 4th grades. Higher intelligence levels in the emotional identification/comprehension dimension of the graduates of anatolian and science high schools compared with those who graduated from VTHS might be related to the curriculum in the education program applied differently according to the school type. However, higher intelligence levels in the emotional identification/comprehension dimension of male teacher candidates and third- and fourth-grade teacher candidates were remarkable. The participants' improved personal development and emotion management skills may explain the higher intelligence levels in the emotional identification/comprehension dimension of the male teacher candidates and the third- and first-grade teacher candidates compared with that of the female teacher candidates and the second- and fourth-grade teacher candidates, respectively. Thus, besides many studies in the literature displaying that the EQ levels of female participants are significantly higher than that of male participants (Austin et al., 2005; Baba, 2012; Brackett et al., 2004; Erdogdu, 2008; Harrod & Scheer, 2005; Nikolaou & Tsaousis, 2002; Turkekul & Sarikabak, 2019), there are also studies reporting higher EQ levels among male participants (Borekci, 2002; Ergin, 2000; Petrides & Furnham, 2000; Tekin, 2009). Some studies have determined that the EQ levels of participants do not differ according to gender (Certel et al., 2011; Karademir et al., 2010; Karaoglu et al., 2016; Taskin et al., 2010; Tingaz, 2013). On the other hand, there are different research results in the literature regarding the existence of a significant difference in the EQ of the participants according to the grade level (Avsar & Kasikci, 2010; Aydin, 2010; Ozdenk, 2018; Yaliz, 2013). The literature shows different results of the emotional intelligence scores of prospective physical education and sports teachers according to grade level. For example, in their studies, Turkekul and Sarikabak (2012) and Senel (2015) found that the emotional intelligence scores of physical education and sports teacher candidates showed a difference according to their grade levels, while in the studies conducted by Asar and Ozyer (2003), Deniz and Yilmaz (2004), and Uyar (2021), it was found that the emotional intelligence scores of teacher

candidates did not differ according to grade levels. The fact that the emotional intelligence scores of teacher candidates are different or similar according to grade levels in the literature is thought to be related to their qualifications and, knowledge and the content of the departments in which they study. Accordingly, the literature partially supports the research results concerning the variables that impact the emotional identification/comprehension dimension.

Another result of the research is that gender is the only significant predictor of the emotional facilitation dimension and the EQ scale as a whole. The EQ levels of male teacher candidates were higher than those of female teacher candidates in both the emotional facilitation dimension and the EQ scale as a whole. In other words, the impact on the emotional facilitation dimension and the EQ scale as a whole varies depending on the participant's gender. Hence, when compared to female participants, male participants are more prone to forget bad memories and are more skilled at coping with their emotions even in an unpleasant job. Nonetheless, the fact that the only constant variable with significant predictiveness in all dimensions of the present research and the whole scale can be interpreted as another remarkable result of the research. Several explanations support this argument in the literature regarding the impact of gender on emotional intelligence. For example, Yarmohammadi and Taghibigloo (2013) noted that gender has a significant impact on emotional intelligence; Salovey and Mayer (1990) that women's EQ scores are higher than men's; and Bar-On (1997) that there is no difference between men and women in terms of emotional intelligence. Therefore, Yesilyaprak (2001) stated that studies on EQ should be planned according to gender differences. In the empirical literature, there are many similar and different research results on whether gender has a significant impact on the EQ score (Austin et al., 2005; Baba, 2012; Brackett et al., 2004; Nikolaou & Tsaousis, 2002; Petrides & Furnham, 2000; Tekin, 2009; Tingaz, 2013). Haviland-Jones et al. (1997) explained this difference in EQ between men and women with socialization processes, while Edizler (2010) explained the feminine paradigm beginning to dominate in today's world and the increase in communication options. When evaluating the theoretical and empirical results as a whole, there is no consensus on the impact of gender on emotional intelligence. However, this research unexpectedly revealed that men's EQ is higher than women's, which is pleasing and promising.

In this study, the most important variables with a significant predictive effect on the emotional regulation dimension were determined to be participation in social-cultural activities, graduated high school, and gender. Accordingly, the intelligence levels on the emotional regulation dimension of those always participating in social-cultural activities are higher than those who never or occasionally participate. On the other hand, intelligence levels on the emotional regulation dimension of the anatolian and science high school graduates declaring no or occasional participation in social-cultural activities were higher than those of VTHS graduates; and intelligence levels on the emotional regulation dimension of the male graduates of VTHS were higher than those of female participants. Indeed, participation in social and cultural activities is expected to impact individuals' emotional regulation intelligence. Participation in social and cultural activities can contribute to individuals' social development and intellectual capital accumulation. This contribution might increase the intelligence level on the emotional regulation dimension, including the skills of managing and controlling emotions. Poskey (2006) links the formation of EQ to the individual's management of their own emotions well; Albrecht (2006) to the development of empathy; Stanley (2010) to the interaction with others; Fall et al. (2013) to intercultural communication with others; Petrides and Furnham (2000) to the establishment of good relations with others; and Faltas (2017) to the social competencies of individuals. Similarly, Bar-On (2006) stated that social skills are the determinants of emotional intelligence. Moreover, the results of certain studies in the literature point to a relationship between social and cultural levels and EQ levels of individuals (Castillo et al., 2013; Loopes et al., 2004; Mayer et al., 1999; Mustaffa et al., 2013; Yip & Martin, 2006). Therefore, this research pointing to the fact that intelligence levels on the emotional regulation

of teacher candidates vary according to their social and cultural activities is supported by theoretical and empirical research in the literature.

LIMITATIONS & RECOMMENDATIONS

This research has its own limitations. The research being conducted only with quantitative data obstructs the determination of the principal reasons underlying the results. Moreover, the research only consists of a certain number of PESTC participants, and no university students from different departments and fields are included in the study, which can be considered another limitation. Despite these limitations, several suggestions can be made to practitioners and researchers. To increase the EQ level in general and the intelligence level in the emotional identification/comprehension dimension in particular, personal development activities of the teacher candidates intended to increase EQ, such as social skills, motivation, empathy, and communication, might be supported. In this respect, participating in conferences, seminars, or workshops given by experts on emotional development, organizing activities such as debates where diverse ideas are debated, and sharing good examples of emotion management can positively affect the emotional development of teacher candidates. The curriculum of VTHS and universities can be updated concerning topics related to emotional intelligence, such as social skills, motivation, empathy, and communication. Universities might organize action plans with the participation of all students, academicians, and administrative staff, with the aim of increasing the EQ of female teacher candidates. Students can be encouraged to participate in social and cultural activities by increasing the number of facilities for social and cultural activities in universities. The researchers may consider remaking the study using qualitative or mixed model methods, analyzing the EQ scores by converting them into categorical variables, including teacher candidates from different departments and fields in the research, examining the variables using binary, sequential, or multiple logistic regression, and conducting the research in foundation universities as well. Thus, the emotional intelligence level of the participants can be examined more comprehensively and more accurately with different analysis techniques. For example, with a logistic regression analysis in which the level of emotional intelligence is the dependent variable, the estimated values of the level of emotional intelligence can be calculated as probability, or a classification analysis can be performed in accordance with probability rules. Similarly, analysis of covariance (ANCOVA), which statistically controls the effect of other variables on emotional intelligence, can be used to determine whether the participants' emotional intelligence levels change according to different variables.

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