International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Korkman, H. & Tekel, E. (2020). Mediating role of empathy in the relationship between emotional intelligence and thinking styles. *International Journal of Contemporary Educational Research, 7*(1), 192-200. DOI: https://doi.org/10.33200/ijcer.659376

International Journal of Contemporary Educational Research
Volume 7, Number 1, June 2020, 192-200 ISSN: 2148-3868

Mediating Role of Empathy in the Relationship between Emotional Intelligence and Thinking Styles

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Abstract

The aim of the study is to examine the mediating role of empathy in the relationship between rational and experiential thinking styles and was designed in a correlational design. The sample of the study consists of 593 university students who were determined by simple random sampling method. Emotional Intelligence Questionnaire–Short Form, Empathy Quotient Scale, and Rational-Experiential Thinking Styles Scale were used for data collection. Bootstrapping method and Pearson product moments analysis were used to analyze the mediating role of empathy. Results indicated that there are significant relationships between the variables. In addition, empathy is a full mediation in the relationship between emotional intelligence and experiential thinking style and empathy is a partial mediation in the relationship between emotional intelligence and rational thinking style.

Key words: Emotional Intelligence, Thinking Styles, Empathy, Bootstrapping.

Introduction

Emotional intelligence is one of the most studied topics in recent years. Emotional intelligence (EI) is expressed as the ability to understand and evaluate one's own and others' emotions (Salovey & Mayer, 1990). EI was defined as a subset of social intelligence, which includes the ability to track one's feelings and feelings of himself and others, distinguish between them, and use this knowledge in their thoughts and actions (Mayer & Salovey, 1993). Within the scope of this definition, opinions about the structure of EI and what features it has been put forward. In this context, Davies, Stankov and Roberts (1998) explain that EI is a four-dimensional structure that is related to understanding and expressing emotions, understanding and recognizing the feelings of others, organizing their own emotions and using their own emotions to improve their performance. Therefore, it is thought that people require emotional quotient (EQ) more than IQ (intelligence quotient) in order to be successful in life (Cumming, 2005). Mayer, Salovey and Caruso (2000) imply that people with higher EI levels can manage their emotions, are more successful in solving the emotional problems they experience and managing stress, demonstrate more constructive and positive reactions in family and social relations when compared to people with lower EI. In addition, people with high EI levels have higher coping skills in solving the problems they experience, and they are more successful in emotional awareness and the control of emotions (Zeidner & Matthews, 2000). Goleman (2011) states that emotional intelligence is an ability to mobilize the person, to sit pat even if he experiences mishaps, not to lose hope, to delay his satisfactions by controlling his impulses, to regulate his mood, not to let his problems spoil his thoughts in addition to ability to empathize. As a matter of fact, in addition to social skills, problem-solving, self-respect, satisfaction with life (Deniz, Öztürk, & Hamarta, 2007; Ergin, Kaynak, Pınarcık, & Arslan, 2013), attribution complexity, and self-control (Fitness & Curtis, 2005) many studies have shown that emotional intelligence is related to empathy (Fitness & Curtis, 2005; Ioannidou & Konstantikaki, 2008; Mayer, DiPaolo, & Salovey, 1990; Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991).

Empathy is an important concept as the capacity of understanding and sharing the mental status or emotions of other people (Ioannidou & Konstantikaki, 2008). Empathy is generally known as the ability to understand what the other person feels and thinks by putting ourselves in someone's place. It is possible to encounter different definitions due to different approaches. Freud stated that ego requires empathy in understanding another person

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and it is a special identification method based on certain similarities between subject and object (Özbay & Canpolat, 2003). Ferenczi (1949) who is one of the followers of Freud, suggested that instead of oedipal complexes, lack of empathy in early childhood is important in the emergence of neuroses. Kohut (1971) who is another psychoanalyst states that individuals use introspection in self-understanding and empathy in understanding other people. Today, empathy is considered as a supporting factor in the relationship between the counselee and consultant in the cognitive-behavioral approach (Altınbaş, Gülöksüz, Özçetinkaya, & Oral, 2010). In recent years, especially the biological aspect of empathy has been emphasized. Because the conducted studies indicate that empathy is closely related to mirror neurons. Findings obtained from the loss of empathy in the degeneration of mirror neurons are regarded as one of the most important indicators of this relationship (Altınbaş et al., 2010; Keysers, 2011). Furthermore, it was observed in several studies that oxytocin which is a neuropeptide hormone observed in mammals is closely related to empathy. It was demonstrated in experimental studies that interest and compassion given to the newborns increase the secretion of oxytocin and decrease the secretion of cortisol which is the stress hormone (Erbaş, 2013). Referring to the biological dimension of empathy, Herbst and Maree (2008) state that empathy is directly related to thinking styles. People use a number of thinking styles when making inferences. These inferences are also influenced by other people's feelings and thoughts. This affection occurs by empathizing. Similarly, information processing in brain, which has an important role in the formation of thought, is also associated with empathy. Keltner, Gruenfeld and Anderson (2003) advocates that people who use local processing style increase their empathic tendencies by focusing more on details, whereas Schmid Mast, Jonas and Hall (2009) defend that people who use global processing style have more empathetic tendencies since they focus on the whole instead of details.

People use specific thinking styles in order to solve the problems they encounter. Thinking style is defined as the preferred way of the performed work or thinking and a way of preference in the use of a skill that individuals possess (Sternberg & Zhang, 2005). However, it is not possible to mention a standardized thinking style for people, moreover, the same individual uses different thinking styles for each problem he/she encounters (Sternberg, 1997). Although there are several different theories and approaches in related literature, two types of thinking styles as rational and experiential thinking styles (Buluş, 2003; 2006) are focused on this research. Experiential thinking style consists of affective and experiential learning. Rational thinking style, on the other hand, consists of culturally conveyed knowledge and inferential rules. The system of experiential information processing is automatic, fast, holistic, automatic and has invocative connections and emotions. Experiential thinking is a system that processes information first, and the errors that will occur in this system affect the rational information processing, that is, the rational thinking style. The rational thinking system, on the other hand, has an analytical, optional-conscious, logical structure (Buluş, 2000, 2006; Epstein, Pacini, Denes-Raj, & Heier, 1996).

To sum up, there are many studies which show that there is a relationship between EI and empathy (Fitness & Curtis, 2005; Mayer et al., 1990), empathy and thinking styles (Herbst & Maree, 2008; Keltner et al., 2003; Schmid Mast et al., 2009), and EI and thinking styles (Moore, Snider, & Luchini, 2012; Murphy & Janeke 2009). Nonetheless, there isn’t any study that examines the mediating role of empathy in the relationship between emotional intelligence and thinking styles. In this respect, it is considered that the current study would fill the gap in the literature.

Method

Research Model

This study was designed in a correlational design to reveal whether the mediating role of empathy in the relationship between rational and experiential thinking styles. The correlational design is used to determine whether there is a relationship between two or more variables, and if so, what level it is (McMillan & Schumacher, 2006). The dependent variables in the research are thinking styles, independent variable is emotional intelligence and empathy is a mediating variable.

Population and Sample

The population of the study consists of 26,584 students studying at Afyon Kocatepe University in the spring semester of 2018-2019. The sample of the study consists of 593 students who were determined by simple random sampling method. According to Krejcie and Morgan (1970) 377 units are enough as a sample group for 20.000-unit population and 379 units are enough for 30.000-unit population. Therefore, it can be said that the

number of samples in this research reached represents the population (Krejcie & Morgan, 1970). Demographics about the sample was presented in Table 1.

Table 1. Demographics of Sample

		Female	Male						Total
Gender	f	397	196						593
	%	66,9	33,1						100
Faculty		Applied Sciences	Education	Engineering	Science and Literature	Economics and Administrative Science	Veterinary Medicine	Fine Arts	Total
	f	72	161	175	79	67	24	15	593
	%	12,1	27,2	29,5	13,3	11,3	4,0	2,5	100
Education Level		Freshman	Sophomore	Junior	Senior				Total
	f	151	83	113	246				593
	%	25,5	14,0	19,1	41,5				100

As it can be seen on table 1, the sample was consisted of 397 females (%66,9) and 196 males (%33,1). Also 72 participants (%12,1) were in applied sciences faculty, 161 participants (% 27,2) were in education faculty, 175 participants (%29,5) were in engineering faculty, 79 participants (%13,3) were in science and literature faculty, 67 participants (%11,3) were in economics and administrative science faculty, 24 participants (%4,0) were in faculty veterinary medicine faculty and 15 participants (%2,5) were in fine arts faculty. Besides, 151 participants (%25,5) were freshman, 83 participants (%14,0) were sophomore, 113 participants (%19,1) were junior and 246 participants (%41,5) were senior.

Data Collection Tools

Three scales were used for the study. First scale is Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) developed by Petrides and Furnham (2000) and adapted in Turkish by Deniz, Özer and Işık (2013). Second scale is Empathy Quotient (EQ) Scale which was developed by Lawrence, Shaw, Baker, Baron-Cohen and David (2004) and adapted in Turkish by Kaya and Çolakoğlu (2015). The last scale is Rational-Experiential Thinking Styles Scale developed by Epstein et al. (1996) and adapted in Turkish by Buluş (2000).

Emotional Intelligence Questionnaire–Short Form (TEIQue-SF)

Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) was developed by Petrides and Furnham (2000) and adapted in Turkish by Deniz et al. (2013). TEIQue-SF has 20 items and four factors such as *well-being, self-control, emotionality* and *sociability*. Exploratory factor analysis and confirmatory factor analysis were performed for the adaptation process. For exploratory factor analysis, rotated component matrix was examined, and 10 items were loaded on two or more factors, therefore these ten items were eliminated from the scale. At the end, the TEIQue-SF which has originally 30 items, has 20 items. Total variance explained following factors, well-being 27%, self-control 10%, emotionality 8%, sociability 7%, and the total was %53. To test whether this new model fit the structure of the scale, confirmatory factor analysis was performed, and the fit indices were found as $\chi 2/df$= 2.46, GFI=.95, AGFI=.92, CFI=.91, RMSEA=.056 and SRMR=.060. Findings showed that TEIQue –SF fit the data well. Reliability of internal consistency was calculated by Cronbach alpha coefficient. According to reliability values for factors were between .66 and .72 and for total scale .81

Empathy Quotient (EQ) Scale

Empathy Quotient (EQ) Scale was developed by Lawrence et al. (2004) and adapted in Turkish by Kaya and Çolakoğlu (2015). EQ consists of 13 items and 3 factors such as *social skills, emotional reactivity* and *cognitive empathy*. Exploratory Factor Analysis was performed for the first step of validity of the scale and 27 items were eliminated from the original form. According to the results of exploratory factor analysis, total variance explained following factors, *social skills* 15,3%, *emotional reactivity* 13,6% and *cognitive empathy* 9,95% and the total was 38,41%. As a second step Confirmatory Factor Analysis was conducted in order to confirm the

factorial structure and fit indices were found as $\chi 2/df$= 2.81, GFI=.92, AGFI=.88, CFI=.91, RMSEA=.078 and RMR=.066 which indicated that the model fits well. For testing the reliability of EQ, Chronbach's alpha coefficients for total scale and three subscales are respectively .86, .61, .75, .74.

Rational-Experiential Thinking Styles Scale

Rational-Experiential Thinking Styles Scale was developed by Epstein et al. (1996) and adapted in Turkish by Buluş (2000). The original form of the scale has 31 items and two factors such as *cognition (rational thinking)* and *faith in intuition (experiential thinking)*. To adapt the scale into Turkish, Exploratory Factor Analysis was conducted. As a result of Exploratory Factor Analysis, one item was excluded, and the final version of Turkish form has 30 item and two factors as in original. For testing the reliability of the scale, Chronbach's alpha coefficients for *cognition* was .75 and .80 for the *faith in intuition.*

Data Collecting Process

Google Forms was used for data collection process. The link which was generated via Google Forms was shared with only relevant participants. The researchers visited classes and they shared the link in classes' watsapp groups. The link contains the purpose of the research, how data privacy will be ensured and will only be used for the purpose of the research, how the data should be filled in, brief information about the researchers and instructions for the measurement tools. Seven missing and incorrectly filled data were not included in the study. The data collection process covers June and October, 2019. It took approximately 20-25 minutes for individuals to complete the data collection tools.

Analysis of Data

IBM SPSS 21 was used for analyzing data. Descriptive statistics were conducted for analyzing demographic information of participants and Bootstrapping method (Preacher & Hayes, 2008) was used to analyze the mediating role of empathy in the relationship between emotional intelligence and thinking styles. Bootstrapping is used frequently to test the significance of direct and indirect effects in the established model by increasing the number of samples (MacKinnon, 2008) and is used frequently in mediation models (see Norr, Albanese, Boffa, Short, & Schmidt, 2016; Deniz, Erus, & Büyükcebeci, 2017). In the established model, emotional intelligence is independent variable, thinking styles is dependent variable and empathy is a mediating variable.

Findings

To examine the mediating role of empathy in the relationship between emotional intelligence and thinking styles Bootstrapping method was used. Before this analysis, the relationships between the variables the Pearson product moments analysis was conducted and presented in Table 2.

Table 2. The relationships between thing styles, empathy and emotional intelligence and descriptive statistics

Scales	Correlations				Descriptive statistics		
	1	2	3	4	N	$\bar{x}$	Std.deviation
1.Rational thinking	1				593	56,38	8,41
2.Experiential thinking	.131**	1			593	48,10	8,48
3.Empathy	.257**	.465**	1		593	52,17	6,48
4.Emotional Intelligence	.287**	.114**	.339**	1	593	18,37	4,65
p<.01							

According to Table 2, there are significant positive relationship between emotional intelligence and empathy (r= .339), empathy and rational thinking style (r = .257). In addition, there are significant positive relationship between empathy and experiential thinking style (r =.465). Because both the a-path (the path from emotional intelligence to empathy) and b-path (the path from empath to experiential thinking) were significant, mediation analyses were conducted using the bootstrapping method with bias-corrected confidence estimates (Preacher & Hayes, 2004). In the study, the 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). Two models were designed in this study. In the first model experiential

thinking style is the dependent variable, emotional intelligence is independent variable and empathy is a mediating variable. The results of bootstrapping analysis of Model 1 was presented in Table 3.

Table 3. Path values and indirect effect as a result of mediating model

	Path coefficient		Bootstrap indirect affect		
	To empathy	To experiential thinking	Standard Error Values	95% Confidence intervals level LLCI	ULCI
Model 1					
From emotional intelligence	.47**	.29**			
From empathy		.63**			
EI ⟶ E ⟶ ET			2.53 (.07)	.21	.39

p<.01, EI= emotional intelligence, E= empathy, ET= experiential thinking, LLCI=lower limit of confidence interval, ULCI= upper limit of confidence interval

According to Table 3, results of the mediation analysis confirmed the mediating role of empathy in the relation between emotional intelligence and experiential thinking style (B = .29; CI = .21 to .30). In addition, results indicated that the direct effect of emotional intelligence on experiential thinking style became non-significant (B = -.09, *t* (591) = -1.28, *p* = .19) when controlling for empathy, thus suggesting full mediation and Figure 1 displays the results.

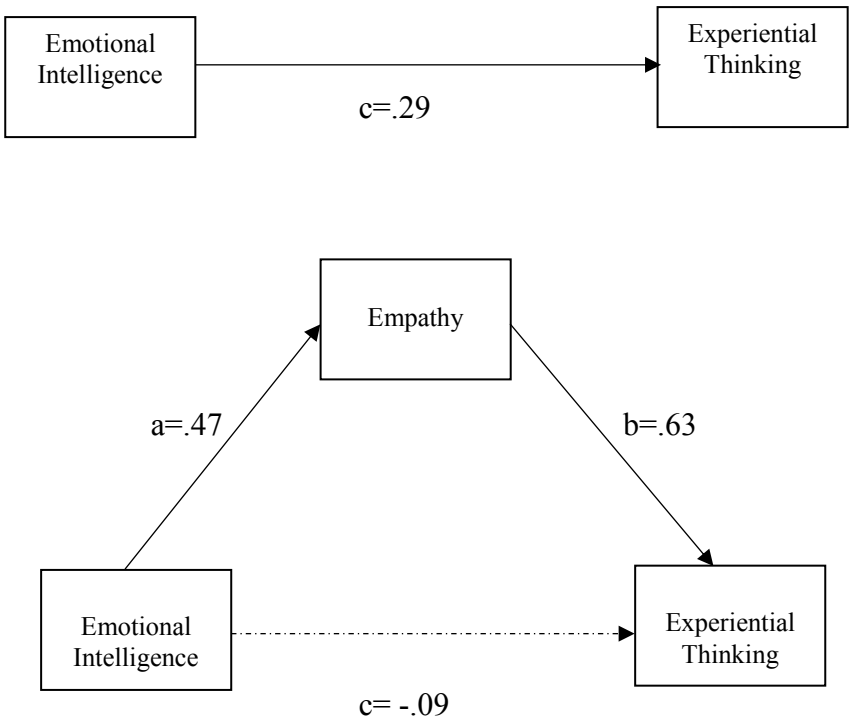

Figure 1. Indirect and direct effect of emotional intelligence on experiential thinking style

According to Figure 1, students' emotional intelligence can increase their empathy and this raise can affect their experiential thinking styles. Variables explain 21% of the variance of experiential thinking style and the Model 1 is significant [F = 82.22; p < .000].

In the second model rational thinking style is the dependent variable, emotional intelligence is independent variable and empathy is a mediating variable. The results of bootstrapping analysis of Model 2 was presented in Table 4.

Table 4. Path values and indirect effect as a result of mediating model

	Path coefficient		Bootstrap indirect affect		
	To empathy	To rational thinking	Standard Error Values	95% Confidence intervals level LLCI	ULCI
Model 2					
From emotional intelligence	.47**	.40**			
From empathy		.23**			
EI ⟶ E ⟶ RT			2.68 (07)	.05	.16

p<.01, EI= emotional intelligence, E= empathy, RT= rational thinking, LLCI=lower limit of confidence interval, ULCI= upper limit of confidence interval

According to Table 4, results of the mediation analysis confirmed the mediating role of empathy in the relation between emotional intelligence and experiential thinking style (B = .40; CI = .05 to .30). In addition, results indicated that the direct effect of emotional intelligence on rational thinking style became decreased (B = .40, *t* (591) = 5.46, *p* = .000) when controlling for empathy, thus suggesting partial mediation and Figure 2 displays the results.

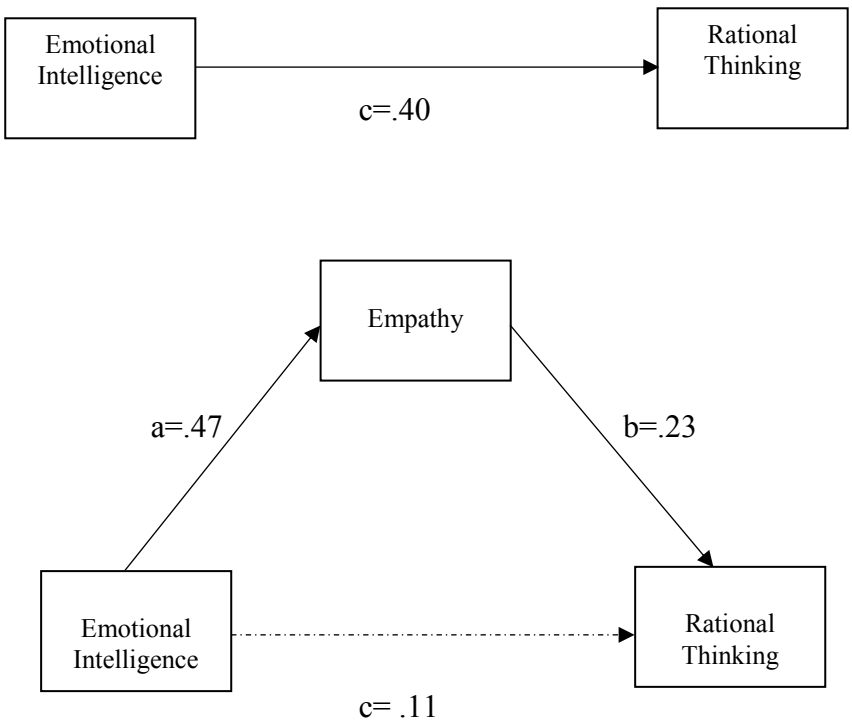

Figure 2. Indirect and direct effect of emotional intelligence on rational thinking style

According to Figure 2, students' emotional intelligence can increase their empathy and this increase can affect their rational thinking styles. Variables explain 11% of the variance of rational thinking style and the Model 2 is significant [F = 36.91; p < .000].

Conclusion

The aim of this study is to examine the mediating role of empathy in the relationship between emotional intelligence and rational and experiential thinking styles. Baron and Kenny (1986) suggested that before the mediating analysis, some conditions should be fulfilled: There is a relationship between an independent variable and a mediating variable, (ii) there is a relationship between the mediating variable and dependent variables.

Therefore, before the mediating analyses, the relationships between the variables were examined and according to results there is a significant relationship between emotional intelligence (independent variable) and empathy (mediating variable). In addition, significant relationships were found between empathy (mediating variable) and both rational and experiential thinking styles (dependent variables). After that mediating role of empathy in the relationship between emotional intelligence and experiential thinking styles were analyzed. Results indicated that the direct effect of emotional intelligence on experiential thinking style became non-significant when controlling for empathy, thus suggesting full mediation. According to Baron and Kenny (1986) when mediating variables are included in an analysis, the effect of the independent variable on the dependent variable totally disappears, which indicates the full mediation. Accordingly, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes experiential thinking style to increase. According to the other result of the study, the direct effect of emotional intelligence on rational thinking style became decreased when controlling for empathy, thus suggesting partial mediation.

When related studies are examined, it is seen that EI is associated with empathy (Boyatzis, Goleman & Rhee 1999; Faye et al., 2011; Fitness & Curtis, 2005; Ioannidou & Konstantikaki, 2008; Jokić & Purić, 2019). As a matter of fact, according to Çetinkaya and Alparslan (2011) the empathic sensitivity dimension, one of the sub-dimensions of emotional intelligence, influences the communication skills. In this context, it is unlikely to think of emotional intelligence and empathy separately. In sum, individuals with high empathy skills have the ability to understand the feelings of other people. Emotional intelligence is related to the ability to understand and manage their own emotions. A person who can understand and manage his own feelings can also understand the feelings of others. It is known that empathetic people use their emotional intelligence better (Fitness & Curtis, 2005; Ioannidou & Konstantikaki 2008; Mayer, et al. 1990; Mayer et al., 1991) and people with high emotional intelligence also experience their rational and rational thinking skills better (Jokić & Purić, 2019).

It is seen that emotional intelligence is related with thinking styles. Goleman (2011) mentions two types of intelligence as IQ (Intelligent Quotient) and EQ (Emotional Quotient). Although these two types of intelligence are different from each other, they interact with each other. IQ is our conscious side and is a way of understanding that we are often aware of. EQ is an impulsive, powerful, and sometimes irrational comprehension system. Though emotions contribute to the study of IQ, IQ sometimes ignores emotional data. Both reflect the functioning of different but interconnected circuits in the brain. Although EQ and IQ are generally in equilibrium, in the event of a life-threatening situation, the balance between the two is disrupted and EQ is able to neutralize IQ by dominating (Goleman, 2011). As can be seen, rational thinking is related to IQ rather than EQ. Rational thinking takes place primarily at the level of consciousness; purposeful, analytical, and verbal thinking. It is relatively independent of emotional influences. IQ refers to an individual's capacity to understand, learn, remember, rational thinking, problem-solving, and practice what they have learned (Atkinson, Atkinson & Hilgard, 1995). Experiential thinking style, on the other hand, is automatic, associative, holistic, essentially non-verbal, and very influenced by instant emotions (Buluş, 2003, 2006; Epstein, Lipson, Holstein, & Heier, 1992). Accordingly, it can be said that empathy and emotional intelligence are much more related with experiential thinking style, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes experiential thinking style to increase. On the other hand, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes rational thinking style to partially increase. However, it can be said that empathy is a mediating variable in the relationship between emotional intelligence and thinking styles as rational and experiential.

There are limitations in this study. The first one is that most of the participants are female which may affect the results. Since according to Sladek, Bond and Phillips (2010) females preferred more experiential thinking styles than males. It is similar for Turkish culture in which gender role is strong. According to Buluş (2006) in Turkey females are perceived as more cautious, dependent, fault-finding, shy and males as more adventurous, enterprising, individualistic, intentive, independent and progressive which means gender difference can affect thinking styles. Therefore, similar studies can collect data from males and females equally. Another limitation is that mediating role of empathy in the relationship between emotional intelligence and thinking styles was tested by bootstrapping method in this study. Similar study can be tested by structural equational model.

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