

The Relationship between Musical Training and Empathy

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ABSTRACT

Individuals' empathy levels can change as a result of musical training and other factors such as, gender and personality characteristics of agreeableness and extraversion can have an influence on empathy as well. Therefore, the current study aimed to investigate the effect of musical training and gender on the levels of empathy, agreeableness and extraversion, in emerging adults that have musical training. One hundred and ninety-eight participants (99 Male and 99 Female; Mean Age: 22.05, SD: 2.11) were recruited and completed the questionnaire of "Music-Empathy Survey". One hundred and three of them had musical training and ninety-five of them had no musical training. Findings showed that individuals with musical training outscored individuals without musical training on empathy and agreeableness scales, but not on extraversion. Females also outscored males on empathy and agreeableness scales. Furthermore, results showed that males were more influenced by musical training than females. In light of the findings, levels of empathy can be elevated via musical training, suggesting the possibility of using musical training as a useful tool for increasing such pro-social behaviors and as an intervention/prevention program for individuals with empathy-deficit disorders.

Keywords: Empathy, Musical training, Gender, Personality Characteristics.

ÖZ

Bireylerin empati seviyeleri müzik eğitimi tarafından etkilenmektedir, ve ayrıca empatiyi etkileyebilecek faktörlerden ikisi cinsiyet ve uyumluluk ve dışadönüklük kişilik özellikleridir. Bu yüzden, mevcut araştırma müzik eğitiminin beliren yetişkinlerdeki empatik yeteneklere, uyumluluk ve dışadönüklük kişilik özellikleri üzerindeki etkisini araştırma amacındadır. Yüz üçü müzik eğitimine sahip olan ve doksan sekizi müzik eğitimine sahip olmayan, toplamda yüz doksan sekiz beliren yetişkin çalışmaya katılmış ve “Müzik-Empati Anketi”ni tamamlamışlardır. Bulgular, müzik eğitimine sahip olan katılımcıların empati ve uyumluluk seviyelerinin, müzik eğitimine sahip olmayan katılımcılardan önemli derecede fazla olduğu ortaya çıkarmıştır. Aynı zamanda kadınların empati ve uyumluluk kişilik özelliklerinin erkeklerden önemli derecede fazla olduğu ortaya çıkmıştır. Dahası, sonuçlar müzik eğitiminin empatiye etkinin erkeklerde daha fazla olduğunu göstermektedir. Bulgular ışığında, müzik eğitimi yoluyla empati seviyelerinin yukarı çekilebileceği anlaşılmış, ve bu doğrultuda müzik eğitiminin toplum yanlış davranışları arttırmak ve empati eksikliği içeren bozukluklara sahip olan bireylere önleme ve müdahale programları olarak kullanılması önerilmektedir.

Anahtar Kelimeler: Empati, Müzik Eğitimi, Cinsiyet, Kişilik Özellikleri

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LIST OF ABBREVIATIONS AND SYMBOLS

APA	American Psychological Association
BFI	Big Five Personality Inventory
DSM	Diagnostic and Statistical Manual of Mental Disorders
Doi	Digital Object Identifier
e.g.	Example Given
et al.	And others
EQ	Empathy Quotient
i.e.	That is
F	F-ratio
M	Mean
η^2	Effect Size
p	Probability
SD	Standard Deviation
α	Alpha

Chapter 1

INTRODUCTION

Music, as an art form, has a big potential to draw large amounts of human beings to it, thus their attention. The number of people who attended the rock concert of Rod Stewart was 3.500.000 in the year of 1994 (The British Broadcasting Corporation, 2014). In the year of 1991, 1.500.000 individuals attended "Monsters of Rock" festival that included headliners such as, AC/DC, Metallica and Pantera (The Economic Times, 2015). Over 14.000.000 people had listened to the "New York Philharmonic" orchestra since the year of 1965 (The New York Times, 2015). The observable power of music is strong, given music's qualities such as accessibility and likability in general population. In the following paragraphs, discussions will be made on how music, specifically musical training, can influence individuals' affective and cognitive functioning via empathy.

Empathy has been described as a social cognitive skill and argued that empathy is crucial for cooperation, cultural learning and everyday interactions (Goldstein & Winner, 2012). According to Schwartz (2013) empathy allows individuals to be aware of, understand, predict others' emotions and mental states – thus their behavior – and respond to them appropriately. That is why empathy is claimed to be one of the most valuable qualities of human beings in order to maintain a civilized society (Baron-

Cohen, 1995; Greenberg, Rentfrow & Baron-Cohen, 2015). It creates a powerful experience between individuals to maintain social communication. Experience of empathy allows individuals to form communities and socialize (Decety, 2011). Moreover empathy helps individuals' positive moral development, leading to pro-social and altruistic behaviors. Many areas of psychology validate this premise. For example studies in social psychology (Batson, 1991; Davis, 1994) have argued that empathy is a key factor for possible altruistic behaviors. Developmental psychologists promoted the idea that empathy is an important capacity that motivates the development of moral attitudes and thoughts, such that it helps individuals to produce pro-social behavior (Decety, 2011; Decety & Meyer, 2008; Hoffman, 2001 Miller & Eisenberg, 1988). The presence of empathy may indeed lead to altruistic behavior, and lack of empathy, by contrast, is present in certain neurodevelopmental disorders such as autism spectrum disorder (ASD), conduct disorder (CD) and oppositional defiant disorder (ODD) (American Psychological Association, 2013).

Forming a relation of oneself with other's emotional and mental state, and appropriate responding happens very rapidly and automatically (De Waal, 2008). Decety and Jackson (2004) suggested that this automaticity is an example of empathy being hardwired in our brain and develops when it is interacted with others.

1.1 Definitions of empathy

German philosopher Robert Vischer (1873) first coined the term of "*Einfühlung*" (or "feeling into") in his "On the Optical Sense of Form: A contribution to Aesthetics", which was conceptualized/translated as empathy by Edward B. Titchener (1909).

Although Vischer (1873) mentioned the notion of empathy in the field of aesthetics, it was Theodore Lipps (1903) who used empathy in a broader manner. According to Lipps (1903) empathy is essential for the comprehension of aesthetic objects but he also argued that empathy is crucial for acknowledging other's mind. Titchener (1910) described empathy as a process of humanizing objects by feeling and reading ourselves into them.

Empathy is a broad human ability that covers both cognitive and affective components of individuals when one observes another's experience (Bernhardt & Singer, 2012; Decety, 2011 De Waal, 2008; Shamay-Tsoory, 2011), thus creating a wide range of definitions in the psychological community. The definitions of empathy range from feeling emotions that are congruent with the person who is in a similar emotional condition (Hoffman, 1994; Hogan, 1969), recognizing what other individuals think or feel (Ickes, Stinson, Bissonnette, & Garcia, 1990), to a sense of concern for others that may lead to a desire to help them (Coke, Batson, & McDavis, 1978). Coke and his colleagues' definition of empathy has been criticized recently and several authors argued that their definition is about "empathic concern" or "sympathy", because both "empathic concern" or "sympathy" mean an internal state of feeling or motivation to assist others in need, but that does not necessarily mean sharing or experiencing similar emotions to those of particular others in need (Bernhardt & Singer, 2012; Decety, 2010; Singer & Lamm, 2009). Empathic arousal can generate sympathy which may cause pro-social behaviors as a result. However, empathy can cause "personal distress" which is different from "sympathy", because "personal distress" happens when an empathizer shifts the

orientation from “other” to “self” (Eres, Decety, Louis & Molenbergs, 2015). When the shift changes from “other” to “self” during an empathic process, emotions such as disturbance and anxiety arise (Eres, Decety, Louis & Molenbergs, 2015). This shift leads to a decrease in possible altruistic behavior or attitudes (Batson, 1991; Decety & Jackson, 2004; Preston & De Waal, 2002).

In the literature “cognitive empathy”, “theory of mind” and “perspective taking” are used interchangeably (Davis, 1994; Greenberg et al., 2015; Rogers, Dziobek, Hassenstab, Wolf & Convit, 2007), while “affective empathy” and “emotional empathy” are used interchangeably as well (Baron-Cohen, 1995; De Waal, 2008; Shamay-Tsoory, Aharon-Peretz & Perry, 2009). Affective empathy refers to the ability of one’s experience of another’s feeling (Bryant 1982; Mehrabian & Epstein, 1972) and cognitive empathy refers to one’s capacity of understanding, predicting, interpreting others’ thoughts, beliefs and knowledge (Blair, 2005; Gordon, 1992).

1.2 Development of empathy

Early developmental theories had mentioned lack of empathy in different stages of development (Elkind, 1967; Freud, 1923; Mead, 1934; Piaget, 2002). However infant and children studies suggest otherwise. Signs of affective component of empathy can be seen in infancy by something called “reflexive crying” or “reactive crying” (Hoffman, 1975; Martin & Clark 1982; Sagi & Hoffman 1976; Simner, 1971). During toddlerhood years, children were seen to comfort their significant ones with numerous helping behaviors (Zahn-Wexler & Radke-Yarrow, 1982). After the first 3 years, children begin to develop the cognitive component of empathy (Decety, 2010; Knafo et al., 2008;

Leppanen & Nelson, 2009; McDonald & Messinger, 2011). Leppanen and Nelson (2009) have argued that language development may be the reason for this difference between cognitive and affective empathy development.

Childhood and adolescence studies show a continuous growth of empathy until the late adolescence period (Allemand, Steiger & Fend, 2014; Dadds et al., 2008; Eisenberg et al., 1987; Geng, Xia & Qin, 2012). However adulthood studies suggest that adults' level of empathy reported to be lower than younger generations (Grühn, Rebucal, Diehl, Lumley & Labouvie-Vief, 2008; O'Brien, Konrath, Grühn & Hagen, 2012). Grühn et al. (2008) found an age difference between older and younger individuals in their cross-sectional analyses but no decline in age was observed in their longitudinal analyses. On the other hand, O'Brien et al. (2012) found an inverse U-shaped decline in their longitudinal analyses, where empathy levels peaks at middle adulthood then continues with a slow decline. Labouvie-Vief (2009) suggested that emotional representations such as empathy come from simple cognitive representations, therefore emotional representations and its functions rely on cognitive development which is in line with O'Brien et al.'s (2012) findings.

1.3 Absence of empathy conditions

The other way of examining the development of empathy is through investigating its' atypical development in individuals. In Diagnostic and Statistical Manual of Mental Disorders, Firth Edition (American Psychological Association, 2013) atypical developing conditions such as, autism spectrum disorder (ASD), conduct disorder (CD), oppositional defiant disorder (ODD) and antisocial personality disorders (APD) includes

diagnostic specifications such as lack of empathy or “callous”. Particularly in the case of CD and ODD, DSM 5 (American Psychological Association, 2013) describes them with regard to their specific behavioral manifestations, as violating the rights of others and creating significant conflict situations with societal norms. As for ASD, the importance of empathy appears to be more significant. DSM 5 describes ASD as follows: “Autism spectrum disorder is characterized by persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships” (American Psychological Association, 2013, p.31). As it can be understood from words such as, “social communication”, “social interaction” and “deficits in social reciprocity”, individuals with ASD lack empathy, of course depending on the severity level of the disorder. Simon Baron-Cohen (2002), a renowned researcher on ASD, proposes a theory called “Empathizing-Systemizing”. He (2002) claims that females and males can be distinguished in terms of their brain types. Then he argues that the female brain is more directed towards empathizing and the male brain is, on the contrary, systemizing (i.e. rule-based thinking). He goes further and combines “Empathizing-Systemizing” theory with “The extreme male brain theory of autism” which suggests that individuals with ASD have an extreme version of a male brain, thus they lack empathy (Baron-Cohen, 2002).

1.4 Musical training and empathy

Music activates cognitive and affective processing in human beings, meaning that music allows human beings to be aware of and to understand musicians’ thoughts and emotions

and react emotionally (Juslin & Västfjäll, 2008; Rentfrow, 2012; Thompson, Russo & Quinto, 2008; Tsay, 2013). Sandstrom and Russo (2011) designed a scale calling “Absorption in Music Scale (AIMS)” which is aimed to measure individuals’ capacity to experience emotions through music. They administered AIMS to 166 individuals and found out that the scale was correlated with the “Fantasy” sub-scale of Davis’s (1980) IRI. Egermann and McAdams (2012) tested if self-rated empathy - and with other variables such as being a musician or non-musician and preference in listened music – would modulate the effect between recognized and felt emotion caused by listened music in 3,164 music listeners. Their study indicated that empathy modulates the relationship between recognized and felt emotions in music listening. Their results also revealed that musicians reported more empathy than non-musicians. The authors explained this particular result by the possibility that musicians might identify themselves more with the music performers than non-musicians.

1.4.1 Theoretical backgrounds

Shared Affective Motion Expression (SAME)

Research findings mapping the relationship between empathy and music are very recent, however such findings are rapidly increasing. One such theory, proposed by Overy and Molnar-Szakacs (2009) called Shared Affective Motion Expression (SAME) which explains the relationship using the theory of “mirror-neuron system (MNS)”. "Mirror-neuron system" is a system that works as like an “abstract mirror” (Rizzolatti, Luppino & Matelli, 1998) and considered to understand others’ actions and its intensions (Decety & Meltzoff, 2011; Gallese, 2001; Meltzoff, 2002; Meltzoff, 2011; Preston & De Waal, 2001). MNS is located primarily in parietal and frontal lobes, primary somatosensory

cortex and premotor areas, (Iacoboni, 2008; Molenberghs, Cunnington, & Mattingley, 2009). MNS is considered to be the physiological basis for empathic abilities in human beings (Gallese, 2001; Meltzoff, 2002 Preston & De Waal, 2001). According to “SAME” the reason why individuals experience matching emotions – when listening to music – with the composers of that musical piece is because the expressed emotions by the music composers is shared in the listeners as well via the “ mirror-neuron system”. That expressed emotion creates an affective reaction within the music listener (Overy & Molnar-Szakacs, 2009).

A recent MRI study including four musicians and four non-musicians examined the comparison of activation level of MNS between musicians and non-musicians. They measured the brain activities of participants while participants were watching a musical performance, in order to identify different regional activation of MNS (visual movement of the performer and the audio that corresponds with the performed musical piece). They found an activation increase in several regions in musicians’ brain – vs. non-musicians – which are the left and right supplementary motor areas, the right somatosensory association cortex and the left middle temporal gyrus. Those regions are thought to possess MNS (Hou et al., 2017).

Empathizing/Systemizing Theory

A second theoretical framework has been formed in order to understand the differences of musical preference in individuals (Greenberg, Rentfrow & Baron-Cohen, 2015). The researchers integrated Baron-Cohen’s (2002) “Empathizing-Systemizing (E-S)” theory into their framework. In relation with E-S, they discussed the possibilities of different

musical genres to enhance individuals' empathy levels with different cognitive styles (empathizers versus systemizers). Greenberg et al. (2015) suggested that individuals who are more empathizers than systemizers will be more prone to listen to deep, reflective, romantic and gentle musical pieces, compared to musical pieces that contain complex melodic, rhythmic and harmonic patterns which are listened more by systemizers rather than empathizers. Because empathizers have increased abilities of perceiving, recognizing and reacting to a wide depth and range of emotions, and therefore they will encounter and experience such processes more in their daily lives. Their prediction was that reflective, romantic and gentle music which draws empathic individuals more, rather than systemic individuals, is the music that had the most potential in enhancing empathy levels.

Music-Empathy Theory

Music-empathy theory, proposed by Cross, Laurence and Rabinowitch (2012) provided a theoretical framework that connects music and empathy, which is called "music-empathy theory". According to these researchers, listening to music or practicing music has empathy-promoting musical components (EMPC). The first component is "movement and motor resonance", which helps us in perceiving music and aids us in understanding other's action. The second one is "mimicry", which is apparent in physically mimicking other players in an orchestra and supports us in sharing the mental states' of others and in experiencing the emotions of others. The third one is "entrainment", which is the synchronization of two or more rhythmic musical processes. "Entrainment" helps in improving listeners' motoric and attentional coordination and creates cohesion, and adjusting one's inner pace with someone else's and thus having

similar affective states. The music-empathy theory has many other EMPCs that help in understanding others' affective and cognitive states by sharing the same intentions (Rabinowitch, 2015). Rabinowitch (2015) had stated that these shared emotional, cognitive and social qualities between music and empathy can be acquired through many repetitions and the willingness to participate, and only then can this process lead to an increase in empathy levels.

1.4.2 Research findings linking empathy to musical training

In light of the above theories, other studies have examined the empathy levels of individuals' who engage in musical activities more than others (musically trained individuals), in order to understand a more visible – if it exists – effect of musical training on empathy, these have been outlined below.

A group of researchers investigated the contributors in sensitivity to infant distress (Parsons, Young, Jegindø, Vuust, Stein & Kringelbach, 2014). They examined whether empathy levels, being a parent and non-parent and having musical training and no musical training would have an influence on 107 participants' perception of infants' cry. Examiners made participants listen to 2 voice recordings including an infants' cry in both of them and with different cry intensities. They were asked to choose which cry sounded louder and more distressed. They administered a self-reported empathy scale (namely "Empathy Quotient") to participants and study's initial results revealed parents with musical training scored higher on empathy scale than parents with no musical training, non-parents with musical training and no musical training. Their main findings showed that parents who had musical training were more accurate in choosing louder cry

and more distressed cry compared to parents with no musical training. (Parsons et al., 2014).

As it was explained in prior sections, empathy starts from recognizing others' experience whether it includes an affective experience or cognitive experience. Lima and Castro (2011) examined the influence of musical expertise on accurately recognizing a set of different emotions. Two experimenters recorded semantically neutral but tonally emotional sentences and those emotions were sadness, anger, happiness, fear, surprise, disgust and neutrality. Researchers presented sentences to 40 musically trained and 40 non-musically trained participants and they were asked to detect the correct emotions. Their findings showed that for all 7 emotions, musically trained individuals were more accurate in choosing the right emotions. Researchers also indicated that these results were not due to the socioeconomic background of participants, because for both control and experimental group socioeconomic factors were similar.

Rabinowitch, Cross, and Burnard (2012) designed a "Musical Group Interaction (MGI)" program for 52 primary school children who were aged between 8 and 11 years old. They administered MGI to children from 4 different primary schools in order to understand the influence of musical activities on empathy. MGI included activities that required improvisation, memory and musical training with children, the majority of whom knew how to play at least one musical instrument (including voice). Children's capacity to empathize was measured via 2 methods, both of which assess affective empathy. The empathy levels of children were measured at the beginning of the program

and those levels were compared with their levels at the end of the program. Results indicated that compared to the control group, children who took place in the MGI program showed an increase in their affective empathy levels.

Similar to the above study, researchers wanted to find out whether long-term group musical activities would have an impact on prosocial skills and sympathy levels in 3rd and 4th year school-aged children (Schellenberg, Corrigan, Dys & Malti, 2015). Study included 84 children who were 8 years old, on average. Nearly half of the participants were chosen from schools that had a group musical activity program (experimental group) and the other half was in public schools with no group musical activity program (control group) in their curriculum. The group musical activity program included musical instruments for children to learn to play and had key musical concepts to be taught such as, improvisation, ear training, ensemble and solo performing and notation. The program lasted for 10 months. At the beginning of the school semester which was fall (Time 1-T1), participants in both groups were measured in their prosocial skills, emotional comprehension, sympathy levels and vocabulary. At the end of the group musical program (Time 2-T2), children from both groups were measured for same variables in order to compare the levels of the variables between T1 and T2. For both control and experimental group, children who scored high at T1 scored similar at T2. However, an elevation was present between T1 and T2 in experimental group among children who scored low at T1. Children who had low pro-social skills and sympathy levels at T1 had high pro-social skills and sympathy levels at the end of the group musical training program.

A qualitative study by Myers and White (2011) was conducted to explore the role of empathy in musical performance. Nine professional musicians who were either a self-taught musician or received formal education, and performing in different musical genres from jazz to folk and blues to classical, were invited to give their remarks on what types of relationship they have with their co-performers when they practice music in an ensemble setting. Two themes emerged in terms of their relation to empathy; synchrony and interpersonal awareness. Participants in this study described synchrony as the attentiveness to listening to co-performers in an ensemble and respond to them appropriately. Interpersonal awareness was explained as a good process of listening to music with sensitivity between each other.

As the above studies show an influence of musical training on empathy and empathy related concepts (i.e., sympathy, pro-social skills, emotion detection) and theories which give a logical explanation to why musical training has an impact on empathy, the present study's main aim is to investigate the effect of musical training on empathy, in Turkish speaking emerging adults. On the other hand, it would be negligent for the current study's soundness if other factors that contribute to empathy had been ignored.

1.5 Empathy and gender

Findings of gender differences in empathy indicate that females are generally more empathetic than males. Females score higher than males in studies that included self-reported empathy inventories (Baron-Cohen, Richler, Bisarya, Gurunathan, & Wheelwright, 2003; Davis & Franzoi, 1991; Egermann & McAdams, 2013). Empathy deficit disorders such as ASD, ODD, CD and APD are far more common among males

(Chakrabarti & Baron-Cohen, 2006) and as it was mentioned earlier Baron-Cohen (2002) explained these findings by indicating that the female brain is orientated towards empathizing and the male brain is directed towards systemizing.

Other researchers have also suggested, as Baron-Cohen (2002), that the reason for this difference between males and females is different levels of activations in the brain. A correlation has been found between empathy related behaviors at the age of 4 and prenatal testosterone levels in typically developed children (Knickmeyer, Baron-Cohen, Raggatt, Taylor & Hackett, 2006). Furthermore it was suspected that the difference in empathy levels between males and females is due to the increased activation in the right hemisphere brain of females –vs. males individuals – when other related actions are perceived (Rueckert & Naybar, 2008; Schulte-Rüther, Markowitsch, Shah, Fink & Piefke, 2008). Schulte-Rüther et al. (2008) conducted a neuroimaging experiment to understand the underlying physiological difference between male and female individuals in their empathy levels. They recruited 12 males and 14 females, and scanned their brain levels when they were asked to identify the facial expression that is presented to the participants or express their emotions when they are presented with a facial expression. When females asked to express their emotion during face presentation, right hemisphere of the brain in females activated more strongly than males, whereas male individuals' left hemisphere of their brain activated relatively stronger than females. However when participants were asked to identify the facial expression of the presented face, females' right hemisphere activation increased, while there was no different activation in male individuals between their left and right hemisphere activation. Rueckert and Naybar

(2008) also found a correlation between increased activation in right hemisphere and self-reported empathy levels only in females (there was no distinctive correlation in men).

Although the majority of evidence suggesting a female superiority in empathic abilities. There are also fewer, however convincing, of evidence which suggests that this gender difference in empathy might be situational and due to measurement techniques. Nanda (2014) suggested that gender differences in self-reported empathy measures could disappear if participants were not informed about the intended scale's purpose. She designed her study with two groups; one group would be informed about the self-reported empathy scale's purpose and the other group was told that the scale measures social abilities. Results showed that when the participants were told the purpose of the scale, women scored much more higher than males, however, when they were not told the real purpose of the scale the discrepancy was removed (Nanda, 2014). Draguns (2015) argued in result to above findings that this gender difference may be due to gender stereotypes and social expectations. Another study indicates a situational difference in empathy levels between men and women. Their study was aimed to find empathic reactions for pain of others in individuals. They found out that both sexes showed similar activations in similar regions in the brain when others' pain was observed, however only women showed more activation in empathy-related areas when the person who was receiving the shock "unfairly" (Singer et al., 2006).

Empathy literature heavily suggests a high competency level of empathy in females, rather than males. That is why the secondary aim of the present study is to find the effect of gender differences on empathy among musically trained individuals. However, there are other factors which influence the levels of empathy among human beings.

1.6 Differences of personality characteristics in empathy and musical training

1.6.1 Personality characteristics and empathy

Not all people show high empathy levels; given the fact that empathy researchers suggest that empathy is biologically given (Knafo et al., 2008; McDonald & Messinger, 2011; Zahn-Waxler, Hollenbeck & Radke-Yarrow, 1984). People differ in their empathic experiences, in their empathic responses and in their other characteristics that contribute on their empathic abilities. Therefore studies examine the relationship between particular personality characteristics and empathy by using The Big Five Personality Inventory (BFI) (Goldberg, 1993). Studies highlight three sub-scales of BFI that have associations with empathy; agreeableness, extraversion and conscientiousness (Haas et al., 2015; Melchers et al., 2016). Agreeableness is the likelihood of being good-natured, trustful of others and cooperative (Luck, Saarikallio & Toiviainen, 2009). Extraversion is one person's tendency to look for a stimulation, be assertive, energetic and talkative, while conscientiousness is a sign of honesty, self-discipline and being organized (Luck, Saarikallio & Toiviainen, 2009). Agreeableness and extraversion play a critical role in interpersonal behavior and are indicators of compassion towards others (Barrio, Aluja & Garcia, 2004; Haas et al., 2015).

Haas et al. (2015) investigated whether or not individuals with high agreeableness and extraversion scores would predict high scores in empathic accuracy and emotional perspective-taking tasks. They also examined if those individuals show activity in the empathy-related regions in the brain. With a sample of 50 individuals, results showed that individuals who had agreeableness and extraversion personality characteristics displayed more expertise in recognizing others' emotional states. Those individuals who had agreeableness and extraversion personality characteristics exhibited high neural activities in the brain regions related to empathy and theory of mind during emotional perspective-taking and empathic accuracy tasks (Haas et al., 2015).

Melchers et al. (2015) conducted a study to understand the relationship between empathy and different personality types. Participants were recruited from 4 different countries and data was collected from 896 undergraduate students (Germany, China, Spain and USA). The researchers used EQ (Empathy Quotient) and IRI (Interpersonal Reactivity Index). The findings indicated that among 5 personality characteristics in BFI, agreeableness and conscientiousness were the personality characteristics that had the highest correlation with EQ. Extraversion and openness to experience also had a positive significant correlation with EQ. Agreeableness was highly correlated with the cognitive and affective empathy sub-scale of IRI. The personality characteristic of extraversion also was significantly correlated with the cognitive and affective empathy sub-scale of IRI. Results also indicated that openness to experience was significantly correlated with the "fantasy" sub-scale and cognitive empathy sub-scale of IRI. The researchers also analyzed personality characteristics' predictive value on empathy

scales. Their regression analysis showed that only agreeableness contributed highly (compared to other personality characteristics) to EQ and to cognitive and affective empathy sub-scales of IRI. Extraversion significantly predicted affective empathy sub-scale of IRI.

1.6.2 Personality characteristics and musical training

Additionally, many studies have investigated the relationship between music listening and personality characteristics. Those studies have tried to match different personalities with different musical genres (Chamorro-Premuzic & Adrian Furnham, 2007; Chamorro-Premuzic, Swami, Furnham & Maakip, 2009; Rentfrow, Goldberg & Levitin, 2011; Greenberg, Müllensiefen, Lamb & Rentfrow, 2015). However the literature about the possible dynamics between musical training and personality characteristics is very narrow.

Corrigall, Schellenberg and Misura (2013) for example examined the predictive power of cognitive abilities' and personality characteristics on duration of playing music. They collected data from 118 adults in study 1 (with a mean age of 20) and from 167 children in study 2 (with a mean age of 11.5). They found out that in study 1, openness to experience was the only personality characteristic in BFI that had the best predictive power on participants' duration of playing music. They indicated that the duration of playing music was not associated with other personality characteristics. Moreover in study 2, openness to experience and conscientiousness contributed significantly to duration of playing music in children. Another study, by Corrigall and Schellenberg

(2015) found out that children's (who had been taking music lessons) personality characteristics of openness to experience and agreeableness was associated with the duration of playing music in children.

Lastly, Kawase (2016) conducted a study to understand the role of personality characteristics and the trait of empathy in music performers, including ensemble and solitary musically trained performers. The study consisted of 64 female music major students. Study findings indicating certain personality traits such as, agreeableness, extraversion and openness to experience were in association with ensemble performers. Empathy was associated with solitary musical activities, on the other hand empathy was not significantly correlated with ensemble performers.

Although a theory or a theoretical framework that explains why personality characteristics play a more role than others in musical training and in empathy could not be found, individuals differ, with regards to their personality characteristics, in engagement in musical activities and empathy levels. Therefore another aim of the current study is to find the influence of musical training and gender on personality characteristics of agreeableness and extraversion.

1.7 The current study

In light of the literature, the present study's aim is to examine the effects of musical training and gender on both empathy levels and two personality characteristics, namely agreeableness and extraversion in Turkish speaking emerging adults. In contrast to past studies that examined and found an influence of musical training and empathy

(Rabinowitch et al., 2012; Schellenberg et al., 2015), the present study adds other possible factors (i.e. gender) to the impact of musical training on empathy. Moreover, it the current study is the first study that examines the above variables in Turkish speaking individuals. Therefore, the following hypotheses were generated:

- (i) There will be a main effect of musical training on empathy, agreeableness and extraversion levels, such that those who have musical training will score higher on empathy, agreeableness and extraversion scales than those who are not musically trained.
- (ii) There will be a main effect of gender on empathy, agreeableness and extraversion levels, such that females will score higher than males on empathy, agreeableness and extraversion scales.
- (iii) An interaction between musical training and gender on empathy, agreeableness and extraversion will be explored.

Chapter 2

METHOD

2.1 Participants

Participants were recruited with purposive sampling method, meaning that study has targeted participants who have musical training and practice music currently for musical training group and participants who have no musical training. The study had 198 participants, in which 103 of them reported to have musical training and practice music currently and 95 of them reported to not have musical training. Out of 198 participants, 99 of them are males and 99 of them are females. The participants' ages ranged from 18 to 25 ($M = 22.05$, $SD = 2.11$). All participants were Turkish speaking individuals, 38% are coming from North Cyprus and the rest are from Turkey. For this study, participants in the musical training group had at least 1 year of musical training, either self-taught or with a professional. Participants in the no musical training group had no musical training in their lifetime. Those participants who completed the questionnaire with a paper-pencil ($n = 107$) method were students from two universities in North Cyprus, namely Eastern Mediterranean University (EMU) and Near East University (NEU). Furthermore some participants were members of the university's Music Club and some of them were students from various departments who were also professional musicians regularly

performing at various locations inside the city. The rest of the participants completed the questionnaire via internet survey method ($n = 91$).

2.2 Materials

A questionnaire was prepared by the researcher that contained an informed consent, a demographic information form and two scales which were called “The Survey of Music and Empathy” (Müzik ve Empati Anketi). In order to measure participants’ empathy levels, one scale that were designed by the authors to measure empathy were included. The second scale was added in order to measure participants’ personality characteristics. This questionnaire was administered to the participants with two methods: (a) paper-pencil and (b) online survey (to see the survey <https://goo.gl/forms/78F11KWYuc1fkAUT2>).

2.2.1 Demographic Information Form

Participants were administered a demographic information form. The form consists of two sets of items that include personal information such as gender, age, nationality, occupation and two questions regarding their musical training (whether or not they have any sort of musical training in their lifetime and if they have for how long).

2.2.2 The Empathy Quotient (EQ)

The EQ is a 4 point Likert scale that has an aim to measure empathy (Lawrence, Shaw, Baker, Baron-Cohen & David, 2004). Participants filled out the Turkish adapted version of EQ (Bora & Baysan, 2009). The original and Turkish scale consisted of 60 statement items which 20 (2, 3, 5, 7, 9, 13, 16, 17, 20, 23, 24, 30, 31, 33, 40, 45, 47, 51, 53, 56) of them were filler items with a statistical value of “0”. For example, "I find it hard to

know what to do in a social situation" is an item with a statistical value, and "I try to keep up with the current trends and fashions" is a filler item with no statistical value. Participants selected the answer for each item out of four options, which are "strongly agreed", "frequently agreed", "sometimes agreed" and "strongly disagreed". To the two responses that were the least empathic ones had a value of "0" in the calculation process, to a response that was the most empathic one had a value of "2" in the calculation process and to the response that was the second empathic one had a value of "1" in the calculation process. The possible lowest score is "0" and the possible highest score is "80". Participants' scores were assessed according to how close their score was to the highest possible score. The Cronbach alpha of the Turkish version of EQ was found to be .84 (Bora & Baysan, 2009). Reliability analysis for the current study found to be a Cronbach alpha value of .89.

2.2.3 The Big Five Inventory (BFI)

In the study, an adapted Turkish version of the BFI (Goldberg, 1993) was used (Sümer & Sümer, 2005). In this study scale was shortened from five personality traits to two personality traits because the selected traits which were agreeableness and extraversion were the ones that had high positive correlation with empathy in literature. BFI is a 5 point Likert scale which consists of seventeen items. Scale's answers range from 1 (Strongly disagree) to 5 (Strongly agree). Agreeableness items are 1, 3, 5, 7, 9, 11, 13, 15, 17 (1, 5, 11, 15 are reverse items which are scored reversely) and items 2, 4, 6, 8, 10, 12, 14 and 16 measure extraversion (4, 10, 14 are reverse items which are scored reversely as well). For example, "Helpful and unselfish" is an item under the sub-scale of agreeableness, and "Talkative" is one of the many items indicating extraversion.

Higher scores indicate strength of the particular personality trait. Participants' score was assessed according to how close their score is to the highest possible score. The Cronbach alpha of agreeableness was .58 and .71 for extraversion in the adaptation study of BFI (Sümer & Sümer, 2005). Final results showed an alpha value of .58 for agreeableness and .68 for extraversion sub-scales.

2.3 Study design

A survey method was used to explore the effect of musical training and gender on empathy, agreeableness and extraversion levels among musically trained participants. There were two independent variables (Gender & Musical Training) with two conditions in each independent variable (Females vs. Males & Musical Training vs. No Musical Training). Furthermore, there were three dependent variables, which were empathy, agreeableness and extraversion. An attempt was made to ensure participants in each group were matched on a number of variables, namely, gender, age, nationality and education level.

2.4 Procedure

After obtaining approval from the Ethics Committee of the Psychology Department in EMU, participants were recruited by either a paper-pencil method or online survey method. Musically trained individuals were found in various ways. A number of the participants were students in EMU and NEU. EMU also has a Music Club where student musicians organize concerts, and some participants were recruited from this club. Other participants were recruited by kindly requesting their participation. Individuals with no musical training were recruited randomly, although with a purpose of finding individuals

with no musical training. After a verbal consent was obtained from the participants who were given a paper-pencil questionnaire, they were administered the questionnaire. They began to fill out the questionnaire after they read and signed the Informed Consent Form. Participants who were recruited via filling out the online questionnaire were from various musically related social network sites. Although a verbal consent could not be obtained from the participants who completed the online questionnaire, Informed Consent Form was available and participants had to read and give their consent before starting to fill out the questionnaire. Aim of this study was written on the Informed Consent Form clearly and fully, and no form of deception was involved. In the consent form, participants were informed about the right to withdraw from the study and the confidentiality of the information provided by the participants. The questionnaire was administered in a calm place where it was convenient for participants. The whole questionnaire was completed by participants in approximately 15 minutes. Participants were assured that they could ask any questions regarding understanding and completing the questionnaire, and they could take breaks between each scale. At the end of the administration of the questionnaire participants were given a debriefing form that explains the aim of the study. In the debriefing form findings from past studies and the rationale of the study were also provided. This information was conveyed to participants who filled out the paper-pencil questionnaire verbally as well.

Chapter 3

RESULTS

For the purposes of this study, gathered data were analyzed with SPSS. In order to examine the influence of musical training and gender on empathy, agreeableness and extraversion, a 2 (Gender: Females & Males) x 2 (Musical Training: Having a Musical Training & Not Having a Musical Training) multivariate analysis of variance was used. Preliminary tests were conducted to check the assumptions of normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity, with no serious violations noted.

3.1 Main effect

Initial results of multivariate analysis showed a significant main effect of musical training on combined dependent variables, $F(3, 194) = 3.60, p = .014$; Wilks' Lambda = .94, $\eta^2 = .05$. There was also a significant main effect of gender on combined dependent variables, $F(3, 194) = 9.10, p < .001$; Wilks' Lambda = .88, $\eta^2 = .12$.

3.1.1 Musical training

Tests of between-subjects effects results showed a significant influence of musical training on empathy levels of participants, $F(1, 194) = 7.99, p = .005, \eta^2 = .04$. Participants who had musical training ($M = .80, SD = .02$) scored higher on empathy scale than participants who had no musical training ($M = .72, SD = .02$). Moreover, the

results showed a significant effect of musical training on agreeableness levels of participants $F(1, 194) = 6.31, p = .013, \eta^2 = .03$. Individuals who had musical training ($M = 3.78, SD = .06$) scored higher on agreeableness scale than individuals who had no musical training ($M = 3.56, SD = .06$). However, analysis did not show a significant effect of musical training on extraversion levels of participants, $F(1, 194) = 2.43, p > .05$.

3.1.2 Gender

Analysis also revealed a significant effect of gender on empathy scores of participants, $F(1, 194) = 26.66, p < .001, \eta^2 = .12$. Females ($M = .84, SD = .02$) outscored males ($M = .69, SD = .02$) in empathy levels. Furthermore, results demonstrated a significant effect of gender on agreeableness levels of participants as well $F(1, 194) = 5.02, p = .026, \eta^2 = .03$. Females ($M = 3.77, SD = .06$) outscored males ($M = 3.58, SD = .06$) on agreeableness levels. A non-significant effect of gender on extraversion levels of participants was found, $F(1, 194) = .73, p > .05$.

3.2 Interaction

Results demonstrated a significant interaction effect of gender and musical training on all dependent variables, $F(3, 194) = 2.71, p = .05$; Wilks' Lambda = .96, $\eta^2 = .04$, observed power = .65.

A significant interaction effect was found between gender and musical training on empathy levels of participants $F(1, 194) = 7.88, p = .006, \eta^2 = .04$, observed power = .79. Males who had musical training ($M = .77, SD = .03$) scored higher on empathy scale

than males who had no musical training ($M = .60, SD = .03$). However, empathy levels did not differ in females who had musical training versus females who had no musical training. Lastly, a non-significant interaction effect was found between gender and musical training on agreeableness [$F(1, 194) = .16, p > .05$] and extraversion [$F(1, 194) = .10, p > .05$]. See Figure 1 for interaction between gender and musical training on empathy scores.

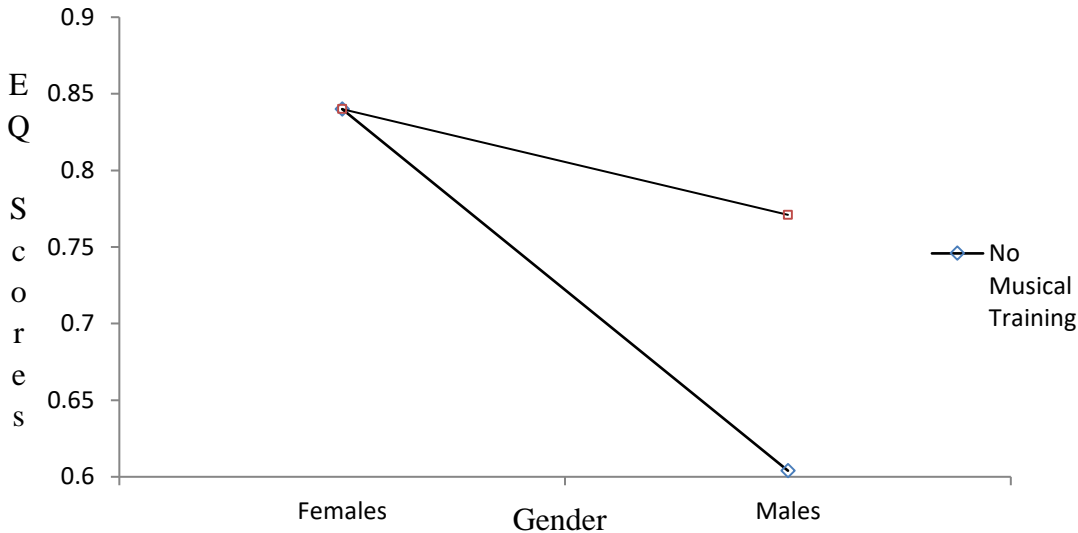


Figure 1: Interaction effect between musical training and gender on empathy

Chapter 4

DISCUSSION

The aim of this study was to find the effect of gender and musical training on empathy and personality characteristics of agreeableness and extraversion. The three hypotheses that were derived from this aim have been mostly supported: (1) There was a significant influence of musical training on empathy and agreeableness, but not on extraversion, (2) There was a significant of gender on empathy and agreeableness, but not on extraversion, and lastly (3) there was a significant interaction between gender and musical training on empathy, but not on agreeableness and extraversion.

The first hypothesis was to predict an influence of musical training on empathy, agreeableness and extraversion in musically trained individuals. This prediction was mostly supported. Findings revealed a significant effect of musical training on empathy and agreeableness which means that in the current study's sample, musically trained participants scored higher on empathy and agreeableness scales than individuals that had no musical training. However, there was no significant effect of musical training on the personality characteristic of extraversion. This is in line with previous findings, for instance; Parsons et al. (2014) found musical training's influence empathy with a self-reported scale but also they found out in an experimental paradigm, in which parents

who had musical training were the more sensitive to infants' cry than parents who had no musical training, Rabinowitch et al. (2012) and Schellenberg et al. (2015) found that continuing musical training had increased the level of empathy in children and Lima and Castro (2011) demonstrated that musically trained people were more accurate in emotion detection than non-musically trained people, given that information that one of the key phrases in empathy literature is ability to recognize others' experience, either it is a cognitive or an affective experience (Ickes, 1990; Schwartz, 2013).

Rabinowitch (2015) promoted the idea that music possesses empathy-promoting musical components and she discussed that only by repetition in exposure of music and with willingness to participate in musical activities empathy can be increased. Even though the current study did not use any form of neuroimaging techniques, because of the theories which put "mirror-neuron system" as a neurological basis for empathic functioning, the theory of "SAME" (Overy & Molnar-Szakacs, 2009) can be speculated as a possible basis for why musical training influenced present study's participants as well. Overy and Molnar-Szakacs (2009) argued that "mirror-neuron" system is acting as a mediator between listening to music and the emotion that is felt after listening it.

The finding that there is an impact of musical training on agreeableness was also in line with many studies that have been mentioned earlier. Corrigan and Schellenberg (2015) did find a significant association between children's agreeableness (along with openness to experience) levels and their duration of music playing, and Kawase (2015) found that agreeableness (along with extraversion and openness to experience) was significantly

associated with musicians who defined themselves as ensemble music performers. Past studies about the relationship between agreeableness and empathy might give a reason why musical training effected agreeableness levels in the present study's participants; Haas et al. (2015) and Melchers et al. (2015) showed that the personality characteristic of agreeableness is highly correlated with more than one self-reported empathy scale. Perhaps influencing empathy with musical training had also affected the levels of agreeableness in present study's participants.

The second hypothesis was a gender influence on empathy, agreeableness and extraversion. This hypothesis has also been supported. Findings demonstrated that gender had a significant impact on empathy and agreeableness. However there was no significant effect of musical training on personality characteristic of extraversion. The present study's participants revealed that females outscored males in self-reported empathy and agreeableness scales. These results can also be seen in past empathy related studies. Many empathy related studies have suggested a female superiority in empathic functioning (Baron-Cohen, Richler, Bisarya, Gurunathan, & Wheelwright, 2003; Davis & Franzoi, 1991; Egermann & McAdams, 2013). Besides the impact of gender on empathy, the impact of gender on agreeableness is quite logical, since the literature suggests that empathic functioning is related with the personality characteristic of agreeableness (Haas, et al., 2015; Melchers et al., 2016). On the other hand, the theory of "Empathizing-Systemizing" (Baron-Cohen, 2002) can explain the female superiority for this specific finding in current study's sample and in general for that matter. Baron-Cohen (2002) suggested that the female brain is more directed towards "empathizing"

and the male brain is towards "systemizing", thus it is because of this the current study's female participants outscored males in agreeableness scale.

The third and last hypothesis was to explore interaction effects of gender and musical training on combined and each dependent variables. The findings revealed that the interaction between gender and musical training on combined dependent variables (empathy, agreeableness and extraversion) was significant. However when the interaction on each dependent variable was looked at more closely, only empathy as a dependent variable showed significance. The significant interaction between musical training and gender on the levels of empathy in the current study's participants is present in males rather than females. It is understood that the effect of musical training is more in male musicians than female musicians. The change in empathy levels is much larger in males than in females. The empathizing/systemizing theory might explain why. Baron-Cohen (2002) theorized that the females are high empathizers and low systemizers and, in contrast, males are high systemizers and low empathizers. Therefore, because women already have a high capacity for empathy functioning and men have a low capacity for empathy, it would be logical to assume that men will be more influenced by musical training than women. Results also showed that the levels of agreeableness and extraversion appeared not to be dependent on the interaction between musical training and gender.

Contrary to some studies that found an association between extraversion and musical training (Kawase, 2016) and between empathy and extraversion (Barrio, Aluja & Garcia,

2004; Haas et al., 2015; Melchers et al., 2015), the current study did not find a significant influence of musical training and gender on extraversion levels, and did not find a significant interaction effect between musical training and gender on agreeableness and extraversion. It is thought that there could be two reasons for this non-significant main effect for those two variables on extraversion levels and the non-significant interaction effect on extraversion and agreeableness. The first one is that the personality characteristic of extraversion may not depend either on gender or musical training in current study's participants. Some studies about personality characteristics and musical training did not find an association between musical training and extraversion (Corrigall & Schellenberg, 2015; Corrigall, Schellenberg & Misura, 2013). Thus, agreeableness and extraversion may not be dependable on the interaction between musical training and gender as well.

In order to detect the bias of acting in a socially desirable way, a social desirability scale had been used in some self-reported empathy scales' (i.e. "Empathy Quotient", "Basic Empathy Scale") validity and reliability studies (Jolliffe & Farrington; Lawrence et al., 2004). The possibility of some participants, incorrectly, reporting to score high on empathy scales, therefore misleading the results, can be considered as the biggest limitation in this study. Secondly, as some gender and empathy related studies suggested, with evidence, that the differences of empathy levels between men and women can be due to social norms and expectations (i.e. gender stereotypes) (Nanda, 2014; Draguns, 2015), the difference that has been occurred between the present's study's male and female participants might be because of gender norms. Therefore, lack

of deception in the purpose of the scales can be considered as another limitation. Moreover, one of the observable and perhaps the most valuable (to the influence on the society) quality of empathy is pro-social (or altruistic) behaviors. Therefore the absence of the variable of altruism, to be able to see the effect of musical training on a behavior, can be another limitation as well. Lastly, as Zahn-Wexler and Radke-Yarrow (1982) reported that parenting quality is a factor that has an influence on the development of empathy; and as Kawase (2016) suggested that, the personality characteristic of openness to experience has a relationship with ensemble performers, and Corrigan et al. (2013) and Corrigan and Schellenberg (2015) emphasize the importance of the role of openness to experience in musically trained individuals, lack of contributing factors to empathy such as parenting quality and personality characteristic of openness to experience could be considered as other possible limitations in this study.

Correspondingly, there should be more studies that are designed to quantify this qualitative relationship between musical training and the development of empathy in order to make it more apparent. Experimental designs should be generated to reduce the effect of social desirability bias or social desirability scales should be used in future studies with a survey design. In order to detect the existence or the absence of differences of the empathy levels' between males and females, deceptions about the real purpose of the study should be utilized as well (see Nanda, 2013). Past studies have mentioned one of the qualities of empathy being a gateway to altruistic attitudes and behaviors. Thus, the long-term effect of musical training on altruistic behaviors should be examined. Further investigations into the link of such variables, namely personality

characteristics, parenting quality and comparison between practiced music genres should and musical training will enhance the literature in this topic. Furthermore, Myers and White (2011) have mentioned the different concepts in a qualitative study with ensemble musical performers, such as; "synchrony" and "interpersonal awareness". Those concepts can be seen in Cross et al.'s (2012) music-empathy theory as well. Therefore, two groups including similar numbers of participants should be formed for comparison between solitary practicing and practicing in an ensemble setting, in order to prove or to reject the premise of the impact of ensemble practicing on empathy and its affective and cognitive components.

The inception of studies that investigate the relationship between musical training and empathy began with the observable relationship between music listening and the affective response in the perceiver. Therefore, the impact of listening to music and the impact of practicing music should be compared, to understand the difference between different types of exposure to music. Given the findings of the current study and past studies that demonstrate the impact of musical training and gender on empathy, studies including participants with empathy deficit disorders (such as; CD, ODD and ASD) must be conducted. Above suggestions may help to see the extent of the influence of musical training on empathy.

The current study's findings have many constructive implications to the different fields of psychology. The main evidence of the current study is the influence of musical training on empathy and agreeableness. As already mentioned, empathy can lead to

altruistic attitudes and behaviors (Decety, 2011; Decety & Meyer, 2008; Hoffman, 2001 Miller & Eisenberg, 1988). The role of social psychology may be important in order to create practical applications with regards to musical training to be an influence in increasing pro-social attitudes and behaviors. With the help of studies in social psychology, increasing the levels of altruistic patterns in human beings in general via programs including music education could be vital to the well-being of the societies. The construct of empathy, itself, has a developmental quality, as studies show a linear growth of empathy beginning from birth to middle adulthood. Therefore, it would be logical to imply that exposure to music, either by practicing music or listening to music, can impact the development of the structure of empathy-related brain regions, due to the neuroplasticity quality of the human brain. In addition, musical training can be used as a protective tool in empathy deficit disorders such as, CD, ODD, ASD, ADHD and anti-social personality disorder. The first four disorders are considered under the category of neurodevelopmental disorders in DSM – 5 (American Psychology Association, 2015). Greenberg, Rentfrow and Baron-Cohen (2015) discussed the possibility of music increasing the levels of empathy in their article. They speculated with different genres of music with regards to their affective and cognitive qualities and also with regards to those qualities' impact on individuals with ASD. Music education programs can be implemented in prevention programs in clinics and hospitals that specialize in these disorders, and can also be implemented as an intervention program in governmental education systems, to be applied by typically developed children in schools.

In summary, the study sheds light on the limited research that investigates the role of musical training on empathy by including the role of gender and personality characteristics in a Turkish speaking population. The continuous growth in the quality and quantity of studies in this topic is promising. Along with this growth, it is believed that musical training will continue to have a more positive influence on the psychology of human beings.

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APPENDIX

Music Empathy Survey

Onam Bilgi Formu

Değerli katılımcı,

Lütfen bir kaç dakikanızı ayırarak dikkatlice aşağıdaki bilgileri okuyunuz ve araştırmaya katılmaya kendiniz karar veriniz. Anlamadığınız herhangi bir soruyu çekinmeden araştırmayı uygulayan kişiye sorunuz.

Bu çalışma Doğu Akdeniz Üniversitesi'nde Gelişim Psikolojisi Yüksek Lisans öğrencisi Kenan Çetinel tarafından, Prof. Dr. Biran Emete Biran ve Doç. Dr. Mehmet Erginel denetimde yürütülmektedir. Bu araştırmanın amacı, müzik eğitimi almış olan beliren yetişkinlerde, aldıkları müzik eğitiminin empatik becerileri arasındaki ilişkiyi incelemektir. Çalışmaya katılmak ortalama 45 dakikanızı alacaktır. Çalışmaya katılmakta gönüllülük esastır. Ayrıca istediğiniz anda bir neden belirtmeksizin çalışmadan çekilebilirsiniz ve bu durumda yanıtlarınız araştırma kapsamına alınmaz.

Ankette dolduracağınız yanıtlar tamamen gizlilik ilkesine uygun olarak kullanılacaktır. Veri analizleri toplu olarak yapılacak ve hiçbir şekilde isminiz kullanılmayacaktır. Tüm bilgiler 6 yıl boyunca D.A.Ü. Psikoloji Bölümü tarafından saklanacaktır. Ayrıca araştırmacı yukarıda belirtilen şartlarda bulguları yayın yapma hakkına sahip olacaktır.

Lütfen aşağıdaki gönüllü onam formunu doldurunuz.

Araştırmanın adı: Müzik Eğitimi ile Empati Arasındaki İlişki

Araştırmacıların isimleri:

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Lütfen aşağıdaki bildirimleri okuyup onaylıyorsanız kutucukları işaretleyiniz.

- 1- Bu çalışmanın onam formunu okuduğumu ve anladığımı onaylıyorum.
- 2- Katılımımın gönüllü olduğunu, araştırma ile ilgili soru sorabileceğimi ve istediğim anda hiçbir gerekçesiz çekilebileceğimi anlıyorum
- 3- Bu çalışmanın bir parçası olmayı kabul ediyorum.

Katılımcı ismi:

Tarih:

İmza:

Yapılan araştırmanın etik tutumuyla ilgili herhangi bir sorun yaşadıysanız Doğu Akdeniz Üniversitesi Psikoloji Bölümü Araştırma ve Etik Komitesi Başkanı Dr. Şenel Hüsnu Raman ile iletişime geçebilirsiniz (shenelhusnu.raman@emu.edu.tr).

Kişisel Bilgiler

Kat. No:

Cinsiyet: K() E()

Yaş: _____

Uyruk: TC() KKTC() Diğer: Lütfen belirtiniz:

Halen bulunduğunuz şehir: _____

Halen kayıtlı olduğunuz bölüm: _____

Müzik Deneyimi

Hiç müzik eğitimi (bir profesyonel ile veya kendi başına) aldınız mı?

() Evet () Hayır

1. Evet ise, ne kadar süre boyunca müzik eğitimi aldınız (örn: 9 gün, 2 ay, 2 sene)?

Aşağıda bazı ifadelerin listesi bulunmaktadır. Lütfen her ifadeyi çok dikkatlice okuyunuz ve hangi şiddetle kabul veya red ettiğinizi, cevabınızı daire içine alarak oranlayınız. Bu testte doğru veya yanlış cevap yoktur.

LÜTFEN AŞAĞIDAKİ HİÇBİR İFADEYİ BOŞ BIRAKMAYINIZ

- 1= Kesinlikle katılıyorum**
2= Sıklıkla katılıyorum
3= Bazen katılıyorum
4= Kesinlikle katılmıyorum

1) Başka birisi sohbete katılmak istediğinde bu durumu kolaylıkla anlayabilirim.	1	2	3	4
2) Hayvanları insanlara tercih ederim.	1	2	3	4
3) Güncel eğilimler ve modayı takip etmeye çalışırım.	1	2	3	4
4) Benim kolaylıkla anladığım şeyleri anlamadıklarında, onlara açıklama yapmak bana zor gelir.	1	2	3	4
5) Çoğu gece rüya görürüm.	1	2	3	4
6) Diğer insanlarla ilgilenmekten hoşlanırım.	1	2	3	4
7) Problemlerimi diğerleri ile tartışmaktansa kendi başıma çözmeye çalışırım.	1	2	3	4
8) Sosyal ortamlarda ne yapacağımı bilmekte zorlanırım.	1	2	3	4
9) Sabahları günün kendimi en iyi hissettiğim vaktidir.	1	2	3	4
10) İnsanlar sıklıkla tartışmada kendi görüşümü söylerken çok ileri gittiğimi söylerler.	1	2	3	4
11) Bir arkadaşımın buluşmaya geç kalırsam bu durumdan çok rahatsız olmam.	1	2	3	4
12) Arkadaşlıklar ve ilişkiler benim için çok zordur, bu nedenle onlarla canımı sıkmam.	1	2	3	4
13) Ne kadar küçük olursa olsun, asla kuralları/kanunları çiğnemem.	1	2	3	4
14) Bir şeyin kaba ya da nazik olup olmadığına karar vermek bana sıklıkla zor gelir.	1	2	3	4
15) Sohbet sırasında dinleyenin ne düşünüyor olabileceğinden çok kendi fikirlerime odaklanma eğilimindeyimdir.	1	2	3	4
16) Sözlü şakalardansa el şakalarını tercih ederim.	1	2	3	4
17) Hayatı gelecekte çok bugün için yaşarım.	1	2	3	4
18) Çocukken ne olacağını görmek için solucanları kesmeyi severdim.	1	2	3	4

19) Eğer bir kişi bir şey söylüyor fakat görünürde söylediğinden başka bir şeyi kastediyorsa bunu çok çabuk kavrarım.	1	2	3	4
20) Ahlaki konularda çok katı fikirlerim vardır.	1	2	3	4
21) Bazı şeylerin insanları neden çok üzdüğünü anlamak benim için zordur.	1	2	3	4
22) Kendimi başka birinin yerine koymak benim için kolaydır.	1	2	3	4
23) İyi davranışların bir ailenin çocuğuna öğreteceği en önemli şey olduğunu düşünürüm.	1	2	3	4
24) Anlık kararlarla bir şeyler yapmayı severim.	1	2	3	4
25) Bir kişinin nasıl hissedeceğini tahmin etmekte iyiyimdir.	1	2	3	4
26) Gruptan bir kişinin kendini huzursuz ya da mahçup hissettiğini çok çabuk fark ederim.	1	2	3	4
27) Başka birinin güceneceği bir şey söylersem, bu durumun benim değil onların problemi olduğunu düşünürüm.	1	2	3	4
28) Eğer birisi yeni saç kesimini nasıl bulduğumu sorarsa, beğenmemiş de olsam doğruyu söylemeyi tercih ederim.	1	2	3	4
29) Neden bazılarının bir söz ile gücenebileceğini anlayamam.	1	2	3	4
30) İnsanlar sıklıkla sağımın solumun belli olmadığını söylerler.	1	2	3	4
31) Herhangi bir sosyal faaliyette ilgi odağı olmayı severim.	1	2	3	4
32) Ağlayan insanları görmek beni (gerçekten) üzmez.	1	2	3	4
33) Politika hakkında tartışmalara katılmayı severim.	1	2	3	4
34) Bir kastım olmamasına rağmen son derece açık sözlü biriyim ki bazı insanlar bunu kabalık olarak görüyor.	1	2	3	4
35) Sosyal ortamlarda ne yapacağımı bilmekte zorlanmam.	1	2	3	4
36) İnsanlar onların nasıl hissettiklerini ve ne düşündüklerini anlamada iyi olduğumu söylerler.	1	2	3	4
37) İnsanlarla konuşurken kendimle ilgili şeylerden çok onlarla ilgili konulardan bahsetmeye eğilimliyimdir.	1	2	3	4
38) Bir hayvanı acı içinde görmek beni mutsuz eder.	1	2	3	4
39) Diğer insanların düşüncelerinden etkilenmeden kararlar verebilirim.	1	2	3	4
40) O gün için planladığım her şeyi yapmadan rahatlayamam.	1	2	3	4
41) Ben konuşurken birisi ilgilenir ya da sıkılırsa bunu kolayca anlarım.	1	2	3	4
42) Haberlerde acı çeken insanlar gördüğümde mutsuz olurum.	1	2	3	4

43) Arkadaşlarım çoğunlukla problemlerini bana açarlar çünkü benim çok anlayışlı birisi olduğumu söylüyorlar.	1	2	3	4
44) Eğer birini rahatsız ediyorsam, o kişi bunu bana söylemese bile ben bunu anlarım.	1	2	3	4
45) Sürekli yeni hobilere başlarım ama onlardan kolaylıkla sıkılıp başka şeyler aramaya yönelirim.	1	2	3	4
46) İnsanlar bazen çok fazla alay edip ileri gittiğimi söylerler.	1	2	3	4
47) Gerçekten büyük bir hızlı trene binecek olsaydım çok sinirli ve tedirgin olurdu.	1	2	3	4
48) Nedenini anlayamama rağmen insanlar çoğu kez duygusuz biri olduğumu söylerler.	1	2	3	4
49) Eğer gruba yeni birisi katılırsa ortamla kaynaşmak için çabalaması gereken odur.	1	2	3	4
50) Bir filmi genellikle karakterlerin duygularına kendimi kaptırmaksızın izlemeyi beceririm.	1	2	3	4
51) Günlük yaşamda organize olmayı çok severim ve sıklıkla yapmam gereken gündelik işlerin bir listesini çıkarırım.	1	2	3	4
52) Başka birinin belli bir durumda ne hissettiğini hızla ve kolayca anlayabilirim.	1	2	3	4
53) Risk almayı sevmem.	1	2	3	4
54) Karşımdaki kişinin ne hakkında konuşmak isteyebileceğini kolaylıkla tahmin edebilirim.	1	2	3	4
55) Birisinin gerçek duygularını saklıyor olduğunu anlayabilirim.	1	2	3	4
56) Karar vermeden önce destekleyen ve karşıt olan yönleri tartarım.	1	2	3	4
57) Sosyal ortamlarda doğru davranabilmeyi çaba harcamaksızın başarabilirim.	1	2	3	4
58) Birisinin ne yapacağını tahmin etmede iyiyimdir.	1	2	3	4
59) Arkadaşlarımın problemleri olduğunda duygusal olarak etkilenirim.	1	2	3	4
60) Diğer kişilerin bakış açılarına katılmasam da genellikle değer veririm (saygı duyarım).	1	2	3	4

Aşağıda sizi kısmen tanımlayan (ya da pek tanımlayamayan) bir takım özellikler sunulmaktadır. Örneğin, başkaları ile zaman geçirmekten hoşlanan birisi olduğunuzu düşünüyor musunuz? Lütfen aşağıda verilen özelliklerin sizi ne oranda yansıttığını ya da yansıtmadığını belirtmek için sizi en iyi tanımlayan rakamı işaretleyiniz.

LÜTFEN AŞAĞIDAKİ HİÇBİR İFADEYİ BOŞ BIRAKMAYINIZ

1= Hiç katılmıyorum

2= Biraz katılmıyorum

3= Ne katılıyorum ne de katılmıyorum (kararsızım)

4= Biraz katılıyorum

5= Tamamen katılıyorum

1) Başkalarında hata arayan	1	2	3	4	5
2) Konuşkan	1	2	3	4	5
3) Yardım sever ve çıkarıcı olmayan	1	2	3	4	5
4) Ketum/Vakur	1	2	3	4	5
5) Başkalarıyla sürekli didişen	1	2	3	4	5
6) Enerji dolu	1	2	3	4	5
7) Affedici bir yapıya sahip	1	2	3	4	5
8) Heyecan yaratabilen	1	2	3	4	5
9) Genellikle başkalarına güvenen	1	2	3	4	5
10) Sessiz bir yapıda	1	2	3	4	5
11) Soğuk ve mesafeli olabilen	1	2	3	4	5
12) Atılgan bir kişiliğe sahip	1	2	3	4	5
13) Hemen hemen herkese karşı saygılı ve nazik	1	2	3	4	5
14) Bazen utangaç, çekingen olan	1	2	3	4	5
15) Bazen başkalarına kaba davranabilen	1	2	3	4	5
16) Sosyal girişken	1	2	3	4	5
17) Başkalarıyla işbirliği yapmayı seven	1	2	3	4	5