

THE EFFECT OF MUSIC EDUCATION ON THE EMPATHY OF MEDICAL STUDENTS

Assist. Prof. Dr. Yüksel PİRĞON
Suleyman Demirel University
Fine Arts Faculty, Department of Music
Isparta- TURKEY

ABSTRACT

In this study, a primary comparison was made of the levels of empathy of music and medical students and then the levels of empathy of the medical students were studied with regard to whether or not they had received any music education and the type of the music they preferred to listen to. The study included a total of 127 students comprising 49 music and 78 medical students. The data acquired from the Empathic Tendency Scale developed by Dokmen was analyzed using the t test for paired comparison and One-Way Analysis of Variance for groups of three or more. The results of the study demonstrated that medical students with music education have higher levels of empathic tendency and students who listen to classical music tend to be more “agreeable” than those who listen to other types of music.

Key Words: Music student, medical student, music education, music, empathy.

INTRODUCTION

The ability to communicate is considered to be one of the most basic components of human relations. Good communication skills are significant in establishing good quality relationships with other people and thus with society. Empathy is a functional aspect in human relationships, which has a key role in developing close relationships between people (Ozbek, 2004).

Empathy is the spark of human concern for others and the glue that makes social life possible (Hoffman, 2000). Empathy is the process of experiencing emotions that match another person's emotions and discerning what another person is thinking or feeling (Dokmen, 1988). Several methods have been developed by Magee and Davidson (2002), Mills (1996) and Waldon (2001), as well as music therapy implementations, which have contributed to individual development in infants, adolescents and adults, have boosted self-confidence, reduced behavioral problems and mental disorders and helped individuals deal with communication challenges. In a study by Wu (2002), the effect of music therapy was investigated on the self-sufficiency, stress and anxiety of university students and a reduction was observed in anxiety, depression and stress levels and even 2 months later these changes were seen to have continued.

Music is often seen to unite us, and also to promote self-awareness and self-esteem, mutual tolerance, a sense of spirituality, intercultural understanding, the ability to cooperate, and to have a healing effect, to name but a few. Above all, there is a recurrent conjecture that music can enable people, somehow, to “get inside” each other's minds, feel each other's suffering and recognize each other's shared humanity—that is, in common understanding, to have empathy for each other (Urbain, 2008). In studies by Hietholahti-Ansten M and Kalliopuska M, the level of empathy skills and self-esteem of the young who were involved in music were found to be higher than those with no music involvement. All these findings are evidence of the psychological

dimensions of music. Music education impacts personality development as well as developing the skills of focusing attention and observation. It also helps people sense and interpret life, improve their creativity, thinking systems and communication skills. The role of art, thereby music, in internalizing the feeling of empathy and assimilating it as a behavior pattern cannot be disclaimed. Music, along with all its other functions and effects, offers a specific potential to enable, catalyze and strengthen empathic response, ability and relationships, and that it is this potential capacity which lies at the core of music's function within peacebuilding (Urbain, 2008).

Empathic communication contributes to a positive and healthy pace of relations in people's professional careers (Yaylaci, 2006). This can also apply to medicine. A doctor who can empathize with patients might better understand their problems in more detail and come up with better solutions (Erbaydar et al 2003; Dereboy et al. 2005).

In the report entitled "The Doctors of Tomorrow 2013" published by the United Kingdom General Medical Council, it was indicated that communication skills lessons in medical schools are an indispensable part of the curriculum and accordingly 12 learning objectives have been defined. Four of those are related to positive attitudes towards communication skills learning. In addition, developing empathy as the basis of efficient doctor-patient relationship is one of the aims of the objectives offered by the Associations of American Medical Schools (AAMC Medical School Objective Project, Report I 1998) (Dereboy et al. 2005). Humanism in medicine can be defined as those aspects of patient care that include meeting a patient's needs with compassion and empathy (Newell and Hanes, 2003). Medical education has been shown to have a negative effect on the moods of medical students because of long education period, the needs for heavy financial support, difficult working conditions, high expectations, and the high risk and responsibility of the profession (Karaoglu and Seker, 2012). Various researchers have criticized medical academicians for educating doctors without any understanding of the human condition and with a lack of empathy (Starr, 1982; Ludmerer, 1999). Today, communication skills lessons have been included in the curriculum of many medical schools in the USA and other countries (Makoul, 2003).

Recent studies have shown that doctors are able to make 60-80% of medical diagnoses as a result of an efficient patient-doctor interview and adding the physical examination to that result, the rate increases from 60-80% to 90% (Hampton et al. 1975). The most significant factor in ensuring a proper and efficient doctor-patient interview is communication, which therefore demands empathy. Medicine as a profession, by its nature, requires a close patient-doctor relationship. This relationship includes not only medical aspects but also a series of medico-social factors, which is why medical education should equip the candidate not only with the skills to solve medical problems, but also the skills to approach the medico social aspects of diseases. Resident doctors encounter health problems and accompanying social problems during their clinical training period (Smith, 2001).

In the last 10 years, important steps have been taken to provide medical students with communication skills, as one of the basic components of empathy, and communication skills courses have been added to the curriculum of many medical schools (Senol et al. 2011). However, when the course contents were examined, no course related to music was found. There have been studies in literature with the findings that music can impact the empathic tendencies of medical students. It has been said that, "There is a real danger of losing the humanity in the practice of medicine if subjects conventionally taught within the faculties of arts and humanities are ignored. I believe that the teaching of arts and humanities, in addition to ensuring that doctors practise in an ethical and humane way, will enhance their understanding of science and improve their communication skills, thus making them into better doctors." (Baum, 2002, p.3). The role of music in the development of human emotion suggests that music may be useful in teaching emotionally-based subjects such as humanities and ethics (Schellenberg, 2001). The objective of this study was to examine the impact of music education on the empathic tendencies of medical students.

METHODOLOGY

In this study, it was investigated whether or not there was a relationship between having received music education and the empathic tendencies of medical students, as empathy is one of the most important factors in doctor-patient communication. To understand this relationship:

1. To determine the effect of music education on the level of empathic tendency in a general sense, the difference was investigated between the empathic tendencies of music students and medical students.
2. To determine the effect of receiving music education on the level of empathic tendency of the medical students, the difference was investigated between those who did and did not receive music education.
3. To determine the effect of the type of music listened to on the level of empathic tendency of the medical students, the difference was investigated between levels of empathic tendency according to music type.

Research group and study process

The study included a total of 137 university students, of whom 78 were studying at Suleyman Demirel University Medical School and 59 were studying in the Music Department of the Faculty of Fine Arts at that time. The music students were 23 females and 36 males; 14 were 1st year students, 15 were 2nd year, 15 were 3rd year and 15 were 4th year.

Table 1: Characteristics of the music students

Music Students	
Male	36 (61.01%)
Female	23 (38.99%)
1st year	14 (23.74 %)
2st year	15 (25.42 %)
3st year	15 (25.42 %)
4st year	15 (25.42 %)

Table 2: Characteristics of the medical students

Medical Students	
Male	32 (% 41.1)
Female	46 (% 58.9)
6st year	78 (% 100)
Students with music education	26 (33.3%)
Students without music education	52 (66.7%)
Music Preference	
Pop music	22 (28.2%)
Traditional music	14 (17.9%)
Rock music	22 (28.2%)
Classical music	20 (25.7%)

The medical students were 46 females and 32 males, all of whom were selected from the final 6th year to be as close to professional working life conditions.

First of all, to examine the impact of music education in increasing the empathic tendencies of the medical students, an evaluation was made of whether there was any difference in the empathic tendency levels of both music and medical students

The next stage was to examine the group of medical students with regard to the variables of type of music listened to or whether or not they had received any music education. The medical students were divided into two groups as those who had received musical education and those who had not. This grouping was applied by questioning the medical students as to whether at any time previously they had received music education for at least 1 year continuously. A comparison was made between these 2 groups of the scores taken from the empathic tendency scale.

Secondly, the medical students were divided into four groups according to their musical preferences. They were asked to choose one of the categories of pop, traditional, rock and classical as their preferred type of music. The scores taken from the empathic tendency scale were compared between these subgroups.

Data collection tools

The Empathic Tendency Scale was developed by Dokmen (1988) in order to measure the emotional component of empathy and the potential of individuals to empathize in their lives. Some parts of the Empathic Tendency Scale reflect the egocentric attributes of communication. If a person gives an empathic response at the 'I' stage, that person is egocentric as rather than tending towards the thoughts and feelings of the person explaining the problem, they express their own thoughts and feelings related to the problem. Therefore, some items of the scale were corrected to reflect egocentric personal characteristics (Dokmen, 1988).

The Empathic Tendency Scale is composed of 20 statements with responses on a 5-point Likert-type scale. Negative sentences and structures constitute 8 items of the Empathic Tendency Scale to balance the tendencies of subjects to choose "yes" option. In the scoring, high scores given to negative items indicate a high empathic tendency. The total score can range from minimum 20 to maximum 100, with a higher score indicating high empathic tendency and a lower score indicating that empathic tendency is low.

The scale comprises 3 factors. According to the factor analysis of the scale, the factor loading of the first factor Empathic Tendency (1,4,5,9,14,16,18,19,20) was 31-62, the second factor, Egocentric Tendency (3,6,8,11,13,14,15) was 34-64 and the third factor, Sympathetic Tendency (2,7, 10, 17) was 33-75. Empathic Tendency (9 items) explained 15.69% of variance (Eigen value, 3.13), Egocentric Tendency (7 items) explained 11.94% of variance (Eigen value, 2.38) and Sympathetic Tendency (4 items) explained 9.88% of variance (Eigen value, 1.97), and 37.41% of total variance.

Correlations were determined between the Empathic Tendency Scale and the Empathic Tendency ($r=.82$, $p>0.01$), between the Empathic Tendency Scale and the Egocentric Scale ($r=-.69$, $p<0.01$), between the Empathic Tendency Scale and the Sympathetic Tendency ($r=.56$, $p<0.01$), between the Empathic Tendency and the Egocentric Tendency ($r=-.36$, $p<0.01$), between the Empathic Tendency and the Sympathetic Tendency ($r=.23$, $p<0.01$) and between the Egocentric Tendency and the sympathetic Tendency ($r=-.14$, $p<0.001$) (Kapikıran, 2007). In the reliability studies of the scale, item-total correlations were significant at the level of the first factor ($r=.43$ -. 61 .7, $p<0.001$), second factor ($r=.41$.5- $.63$.1, $p<0.001$) and third factor ($r=.54$.0- $.75$.8, $p<0.001$). Alpha values of the Empathic Tendency, Egocentric Tendency, Sympathetic Tendency and Total Scale were 73.15, 0.62, 0.47 and 0.71 respectively.

Statistical analysis

One-sample Kolmogorov-Smirnov test was used to test for normality of the distribution of the data obtained from the research and it was observed that the data had normal distribution. As the N number was >30 and as a result of the Kolmogorov-Smirnov, in the mean points of the medical and music students (0.084, $p>0.05$), only the mean points according to the variable of whether or not the medical students had received any music education (0.545, $p>0.05$) were the data parametric.

Table 3: Result of One-sample Kolmogorov-Smirnov test

	n	x	z	p
137(Medical and music students)		73,43	1.25	> 0.05
78(Medical students)		68.05	.799	> 0.05

Therefore, parametric tests were conducted. The Independent t-test was used to compare the empathic tendency levels of the medical students and music students. To investigate whether or not music education had an effect on empathy levels, the mean points obtained from the Empathy Tendency Scale of the medical students who had and had not received music education were compared with the Independent samples t-test.

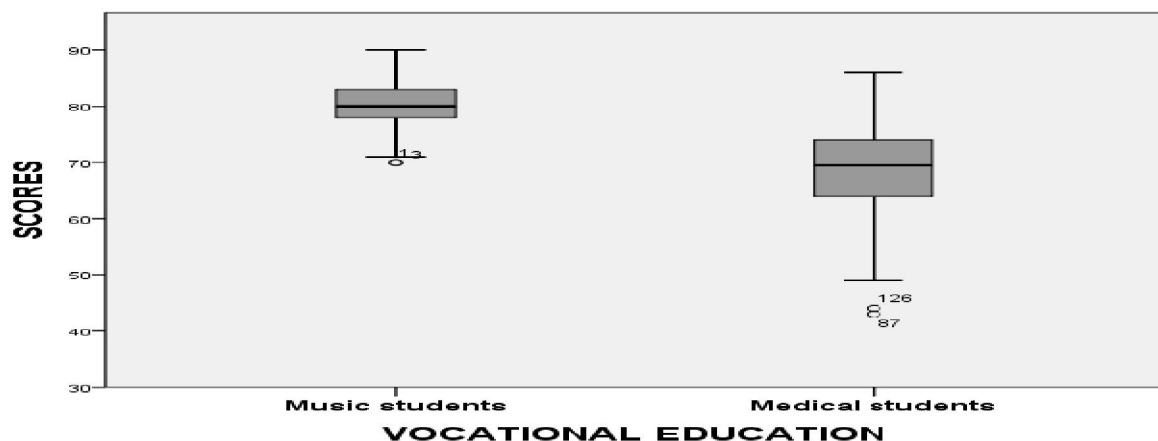


Figure 1: Empathic Tendency Levels of Music Students and Medical Students

Group differences in music preferences and reported adherence were examined using One-Way Analysis of Variance with post hoc Tukey's honestly significant difference (for more than two groups).The data of the research were analyzed using SPSS 20 packet program.

RESULTS

In the first stage of the study, the Empathic Tendency Scale scores of music students and medical students were compared. As a result of this comparison, a statistically significant difference was determined in favor of music students in ($p < 0.01$).

Table 4: Empathic tendency levels of medical and music students and empathic tendencies of medical students according to the variable of whether or not they had received any music education

	n	Empathic Tendency Levels	t	p
Medical students	78	68.05 ± 9.12		
Music students	59	80.53 ± 4.86	9,8	<0.001
Medical students with music education	26	74.03 ± 6.58		
Medical students without music education	52	64.55 ± 8.18	5,6	<0.001

Data are given as means ± SD.

From the comparison of the empathic tendencies of medical students according to the variable of whether or not they had received any music education a statistically significant difference was determined in favor of those who had received music education ($p < 0.01$).

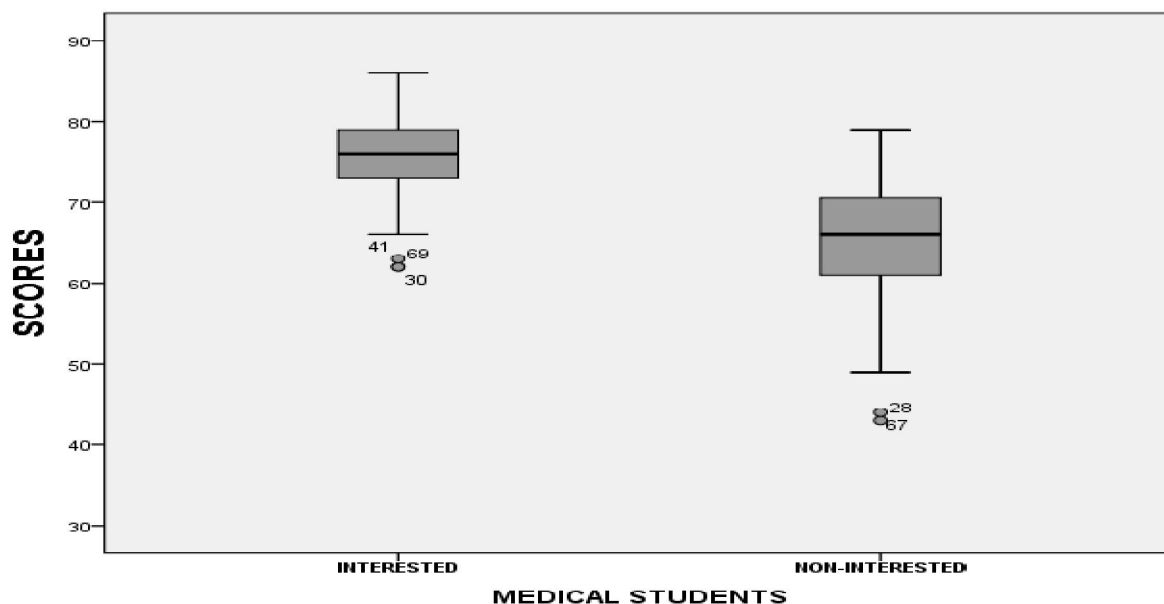


Figure 2: Empathic Tendency Levels of Medical Students in Terms of Music education

From the comparison of the empathic tendencies of medical students according to the variable of what kind of music they listened to, a statistically significant difference was determined in favor of those who listened to classical music ($p < 0.01$) (Table 3),(Figure 2b).

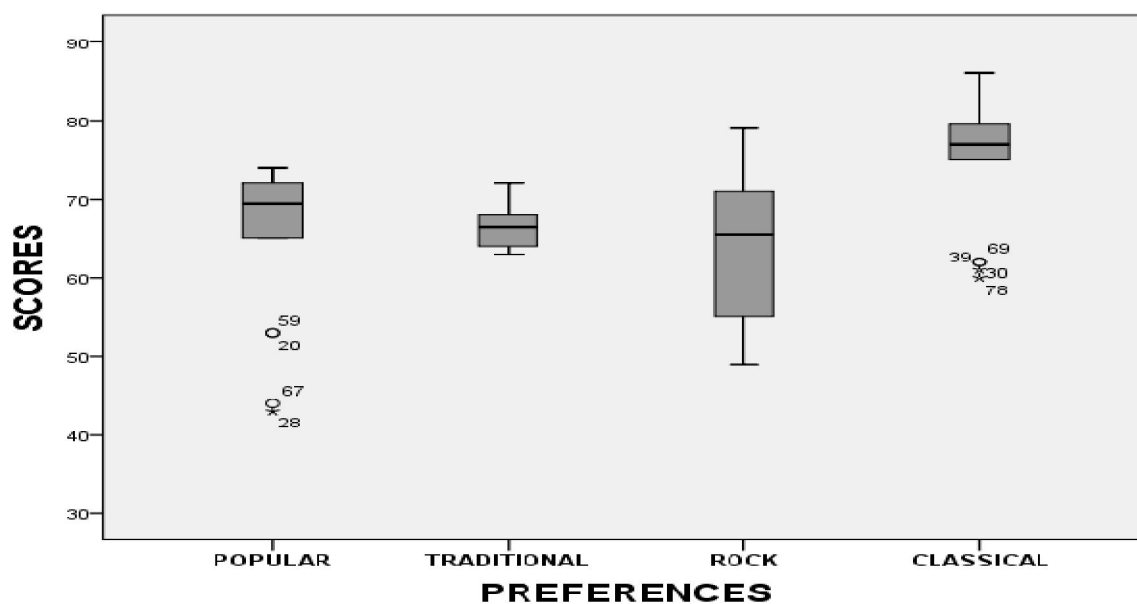


Figure 3: Empathic Tendency Levels of Medical Students in Terms of Music preference

Table 5: Empathic tendency levels of medical students in terms of music preference

Variables	n	Empathic Tendency Levels	Tukey HSD
Pop music	22	66.4 ± 9.3*	Classical-Pop
Traditional music	14	66.7 ± 2.7‡	Classical-Traditional
Rock music	22	64.1 ± 9.1‡	Classical-Rock
Classical music	20	75.4 ± 7.9	-

Statistical differences among the groups were $p < 0.001$ (ANOVA)

* Classical music preference vs. pop music preference, $p: 0.002$

† Classical music preference vs. traditional music preference, $p: 0.015$

‡ Classical music preference vs. rock music preference, $p < 0.001$

DISCUSSION

In various studies, it has been identified that becoming actively engaged in music and receiving music education affect the empathic skills of individuals and has positive effects on self-esteem and regard for their occupation. Through music, individuals can express their feelings in different forms (Froehlich and L'Roy, 1985; Hietholahti-Ansten and Kalliopuska, 1990; Kadushin, 1969; Kalliopuska and Ruokonen, 1986; Kalliopuska, 1991). The studies of Hietholahti-Ansten M and Kalliopuska M have shown that the empathy levels of children who have been playing the piano or the violin for six years are considerably higher than those who are not involved in music. In a study by Kapikiran, moral and empathic characteristic scores of the music students were compared with others receiving education in various occupation groups and it was determined that the average score of the music students was higher (Kapikiran, 2007), with the conclusion that, "art education or aesthetic education can affect the moral character and a esthetism evokes positive emotions in an individual". In the current study, the empathic tendency levels of music students and medical students were compared using the Independent t-test and a statistically significant difference was determined at the level of $p < 0.001$ in favour of the music students.

There have been very few studies in literature on the use of music to increase empathy levels. In previous studies which have analyzed the empathic tendency levels of medical students in respect of different variables, the results have shown that the empathy levels and communication skills of the medical students were negatively affected (Dereboy et al. 2005; Hojat et al. 2004; Hojat et al. 2009). Continuous care for patients results in a state of inner conflict between helping oneself or others. It is known that when trying to protect themselves, the level of empathy of medical students decreases, and exhaustion and job dissatisfaction develop (Shapiro, 2008; Newton et al. 2008). In contrast, there are also studies which have claimed that occupational factors have no effect on empathy skills (Di Lillo et al. 2009).

In studies by Newell GC and Hanes DC, for a period of 8 weeks, students listened to musical pieces which were related to themes such as medicine ethics, understanding present conditions from the viewpoint of the patient, accepting cultural and sociological differences as they are, making efforts to understand patients and avoiding gender discrimination. In interviews conducted after the study, there were 2 remarkable conclusions; 70% of doctors stated that music helped them understand the viewpoints of patients with regard to doctors and illnesses, and 58% of doctors stated that music helped them become more humanitarian (Newell and Hanes, 2003). In the current study, the comparison of the empathic tendencies of students who had and had not received musical education showed that those who had received musical education had higher levels of musical tendency. In this study, music has unique features that we believe make it an excellent tool for training students and residents in medical humanism. Does music embody these characteristics of medical humanism (i.e., caring, empathy, human dignity, compassion, and the fostering of relationships?) The answer is a resounding "yes." Finally, in contrast to other arts, music teaches us how to listen. Music is the perfect medium

to learn to listen, not only to a patient's words but also to what is "behind their words" by noticing cadence, volume, inflection, and tone.

CONCLUSION

In the current study, to determine whether or not music education had any effect on empathic tendency levels, music students and medical students were compared and the conclusion was reached that the empathic tendency levels of the music students were higher than those of the medical students.

A significant conclusion was that receiving music education had a positive impact on the empathic tendency levels of medical students. It was possible to reach this conclusion by comparison of the empathic tendency levels of the medical student who had and had not received any music education. It was determined that the empathic tendency levels of medical students who preferred listening to classical music were higher than those who listened to other types of music, thereby demonstrating that there may be a relationship between listening to high quality music and "agreement" which is a component of a sense of empathy.

This conclusion, based on the high levels of empathic tendency of medical students who had received music education compared to those who had not, is an extremely important result. This can be explained by the fact that the majority of those who preferred listening to classical music were in the group who had received music education. The results from both the comparison between music and medical students and within the medical students, determined higher levels of empathic tendencies in those who had received music education.

BIODATA AND CONTACT ADDRESS OF AUTHOR



Yüksel PİRĞON currently employed as an assistant professor at Süleyman Demirel University, Faculty of Fine Arts, Department of Music. She received Phd degree in Institute of Education Sciences at Selçuk University. She is interested in music education and new approach to piano education.

Assist. Prof. Dr. Yüksel PİRĞON
Süleyman Demirel University
Faculty of Fine Arts, Department of Music
Isparta- TURKEY
Tel: 0246.2113559
Fax: 0246.2113551
E. Mail: ypirgon@hotmail.com

REFERENCES

- Baum, M. (2002). Teaching the humanities to medical students. *Clinical Medicine*, 2: 3.
- Delsing, M.J., Bogt, T.F., Engels, R.C., Meeus, W.H. (2008). Adolescents' music preferences and personality characteristic. *European Journal of Personality*, 22: 109-130.
- Dereboy C., Harlak H., Gurel S., Gemalmaz A., Eskin M. (2005). Tıp eğitiminde es duyumu öğretmek. *Türk Psikiyatri Dergisi*, 16:83-9.
- Di Lillo M, Cicchetti A, Scalzo A, Taroni F, Hojat M. (2009). The Jefferson scale of physician empathy: Preliminary psychometrics and group comparisons in Italian physicians. *Academic Medicine*, 84: 1198-1202.

Dokmen, U. (1988). A new measurement model of the empathy and developing empathy by using psychodrama. *Journal of Education Faculty of Ankara University*, 21: 155-190.

Erbaydar T., Asut O., Demirdizen H., Oniz A., Sen H., Karakaya D.(2003). TTB-GPE iletisim becerileri egitim programi. *Surekli Tip Egitimi Dergisi*, 12:109-114.

Erdal, B. (2009). The Relation of Personality Traits with Preference of Musical Genre. *Cumhuriyet University Journal of Social Sciences*, 35: 188-196.

Froehlich, H. and L'Roy, H.W. (1985). An investigation of occupancy identity in undergraduate music education majors. *Bulletin of Council for Research in Music Education*, 85: 65-75.

Hampton J.R., Harrison M.J., Mitchell J.R., Prichard J.S., Seymour C. (1975). Relative contributions of history taking, physical examination and laboratory investigation to diagnosis and management of medical out-patients. *BMJ*: 486-9.

Hietholahti-Ansten, M. and Kalliopuska, M. (1990). Self-esteem and empathy among children actively involded in music. *Perceptual and Motor Skills*, 71: 1364-1366.

Hoffman M.L. (2000). *Empathy and moral development: implications for caring and justice*. Cambridge: Cambridge University Press.

Hojat M., Vergare M.J., Maxwell K., Brainard G., Herrine S.K., Isenberg G.A. (2009). The devil is in the third year: A longitudinal study of erosion of empathy in medical school. *Academic Medicine*, 84: 1182-91.

Hojat M., Mangione S., Nasca T.J., Rattner S., Erdmann J.B., Gonella J.S. (2004). Emprical study of decline in empathy in medical school. *Journal of Medical Education*, 38: 934-41.

Kadioglu, S., Ogenler, O., Kadioglu, F., Okuyaz, S. (2011). The Impact of Clinical Education on the Empathy Level of Medical Students. *Inonu University Medical Journal*, 18: 33-37.

Kadushin, C. (1969). The professional self-concept of music students. *American Journal of Sociology*, 75: 389-404.

Kalliopuska, M. (1991). Empathy among children in music. *Perceptual and Motor Skills*, 72: 383-386.

Kalliopuska, M. and Ruokonen, I. (1986). Effect of music education on development of holistic empathy. *Perceptual and Motor Skills*, 62: 187-191.

Kapikiran, N.A. (2007). Investigating Moral Behaviors of College Students with Respect to Empathic Tendency and Self-Monitoring. *Turkish Psychological Counseling and Guidance Journal*, 3:28.

Karaoglu N., Seker M. (2012). Is medical education really stressful? A prospective study in Selcuk University, Turkey. *Kuwait Medical Journal*, 44: 104 – 12.

Ludmerer K.M. (1999). *Time to heal*. New York: Oxford University Press.

Magee, W.L., Davidson J.W. (2002). The effect of music therapy on mood states in neurological patients: a pilot study. *Journal of Music Therapy*, 39:20-9.

Makoul G. (2003). Communication skills education in medical school and beyond. *The Journal of the American Medical Association*, 289-293.

Mills, B.D. (1996). Effects of music on assertive behavior during exercise by middle- school-age students. *Perception Motor Skills Journal*, 83: 423-6.

Newell, G.C., Hanes, D.J. (2003). Listening to Music: The case for its use in teaching medical humanism. *Academi Medicine*, 78:7.

Newton B.W., Barber L., Clardy J., Cleveland E., O'Sullivan P. (2008). Is there hardening of the heart during medical school? *Academic Medicine*, 83:244-9.

Ozbek, M.F. (2004). Toplumsal yasamda empati. *Akademik Bakis*, 1:1.16.

Senol, Y., Ozdogan, M., Oktay, C., Yilmaz, T., Bozcuk, H. (2011). Hasta hekim iletisimi-iletisim becerileri egitimi ve egiticilerin rol modelligi. *Tıp Egitimi Dnyasi*, 31.

Schellenberg E.G. (2001). Music and nonmusical abilities. *Annals of the New York Academy of Sciences*, 930, 355-71.

Shapiro J. (2008). Walking a mile in their patients' shoes: empathy and othering in medical students' education. *Philosophy, Ethics, and Humanities in Medicine*, 3: 10.

Smith R. (2001). Why are doctors so unhappy? *BMJ* 322: 1073-74.

Starr P. (1982). *The social transformation of American medicine*. New York:Basic Books.

Urbain, O. (2008). *Music and conflict transformation: harmonies and dissonances in geopolitics*. New York:St Martin's Press

Waldon, E.G. (2001). The effects of group music therapy on mood state and cohesiveness in adult oncology patients. *Music Theory*, 38: 212-38.

Wu, S.M. (2002). Effects of music therapy on anxiety, depression and self-esteem of undergraduates. *Psychologia*, 45 (2): 104-114.

Yaylaci, G. . (2006). *Duygusal zekal* Istanbul:Hayat yayinlari.