A meta-analysis study on the attitudes of pre-service music teachers towards the teaching profession in Turkey

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Article Info

ABSTRACT

The objective this study was to determine whether music teacher candidates' attitudes towards the teaching profession in Turkey differ with respect to different variables. In this direction, a meta-analysis study was carried out on the pre-service music teachers' attitudes towards their profession. The study consists of 12 studies chosen with predetermined criteria. Since the effect sizes of these studies display a heterogeneous structure, the random effects model was conducted. Effect sizes in the random effects model were calculated by using Hedges g coefficient with 12 studies for gender and nine studies for the form of high school graduated. Taking the results of the findings into consideration, it was concluded that the attitudes of female music teacher candidates towards the teaching profession are more positive than male candidates. There is no difference between Fine Arts and other high schools regarding the variable of the form of high school.

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1. INTRODUCTION

The general purpose of education systems is to determine the needs of the society in the light of education philosophies and policies, and to educate individuals in this direction. In this process, one of the most significant elements of education systems is teachers. Teachers are the guides organizing and implementing educational situations in the formation of target behavior changes in the individual. Therefore, they should possess features such as having sufficient knowledge, skills and attitudes in their field and a command of the needs and development characteristics of the audience they address [1]. Attitudes are formed with the life and experiences of the individual in line with the learning process. Also, individuals' attitudes towards an object or a phenomenon can be observed through their behaviors [2]. Although attitudes are shaped in line with the learning process, their emotional nature is also an undeniable fact. As for the teachers' attitudes to the profession are determined to some extent by their education and experience [3].

The number of scientific research is increasing day by day. However, research types are carried out with a limited number of participants for various reasons and this affects the generalization of the research results. Whether the results obtained make sense, how much they support each other and contribute to the solution can be determined by evaluating and interpreting the study data on the same subject with a holistic approach [4]. This is possible by evaluating similar studies with the meta-analysis method. Thus, it is thought that the results of studies with shared purpose will increase the reliability [5], [6].

The word meta-analysis was first used by Gene Glass in 1976 to statistically analyze the results of experimental studies on similar subjects in a more comprehensive way [7], [8]. Meta-analysis is more

commonly used in studies done in health sciences. In addition, the number of meta-analysis studies in education sciences has been increasing recently [9]. In the education field, meta-analysis studies have been used in a wide range of topics, such as comparing distance education and conventional classroom education, evaluating the effect of schooling on emerging economies, and the links between teacher credentials and student success. The outcomes of the similar meta-analysis studies have affected practices and policies in several parts of the world. As the number of primary studies in all scientific fields increases, the need to synthesize the results obtained from these studies with meta-analytic methods also increases [10]. The effect sizes of the studies that have been included in the analysis are in the foundation of the meta-analysis studies [11]. Researchers use the effect size to gain knowledge about the degree to which the dependent variable is affected by the independent one [12].

In the literature review, many studies have been carried out about the attitudes of students receiving professional music education towards the teaching profession in Turkey. These studies were carried out in order to determine the attitudes of the students, who receive professional music education, towards the teaching profession [13]-[23] as well as to examine their anxiety levels, self-efficacy and professional competence perceptions [24]-[30], their study approaches [31], their sensitivity towards the profession [32], their self-esteem [33], their attitudes towards the profession according to their profile characteristics [34] and to determine their professional value perceptions. In the light of these results, it is aimed to interpret the studies, determined in order to reveal the pre-service music teachers' attitudes in Turkey towards their profession in a more statistically reliable way in line with certain criteria, by evaluating them under the same roof with meta-analysis. Thus, at first, the studies to be analyzed were examined with respect to variables music teacher candidates evaluated their attitudes to the teaching profession. Hence, it was determined that in the studies the attitudes towards the teaching profession had been mostly compared with the variables of gender and form of high school they graduated. In this direction, answers to the inquiries below were investigated: i) Is there a meaningful difference between the gender of the music teacher candidates and their attitudes towards teaching? and ii) Is there a meaningful difference between the music teacher candidates' attitudes towards the teaching profession and the form of high school they graduated from?

With the literature review, it is seen that meta-analysis studies in education sciences are growing in number day by day. However, the number of these studies in arts education, which is a department of education sciences in Turkey, is almost non-existent. There are many studies on the attitudes of pre-service music teachers towards the teaching profession, which is the subject of this study, yet no research has been found in which these studies are evaluated within the scope of meta-analysis. For this reason, it is assumed that the research carried out will provide data for the related field.

2.   RESEARCH METHOD

Meta-analysis method was used in this study. Meta-analysis method is the process of interpreting the data obtained from similar studies under a common ground by reanalyzing [35]-[37]. In this section, the processes regarding in which direction the data were created during the meta-analysis process are given under sub-headings.

2.1. Data collection

The studies used in this research were selected in line with certain criteria among the studies carried out to find out whether the attitudes of pre-service music teachers towards the teaching profession change with respect to various variables. Studies between the years of 2005 and 2020 in Google Academic and YÖK (The Council of Higher Education) National Thesis Center databases were scanned using the keywords "attitude towards the teaching profession" and "music teacher candidates". In addition, since the studies published in the Google Academic database are included in all databases except Proquest and YÖK National Thesis Center [12], a search was also conducted with the keywords "attitudes towards the teaching profession" and "pre-service music teachers".

The contents of the studies obtained as a result of this search were evaluated and elimination was carried out in accordance with certain criteria. These criteria are: i) Studies carried out in Turkey; ii) Studies carried out between the years of 2005 and 2020; iii) The data obtained from music teacher candidates; iv) Sampling sizes determined; v) The attitude scale towards the teaching profession used; vi) In the research questions, question statements about how the teacher candidates' attitudes change regarding the variables of gender and the form of high school they graduated from; vii) Values of the sample, mean and standard deviation given in the attitude scores determined towards teaching in line with the specified variables.

2.2. Validity and reliability of the study

For the validity and reliability of the effect sizes of meta-analysis studies, the validity and reliability of the studies included in a study need to be checked [38]-[40]. It has been determined that the reliability coefficient values of the attitude scales of the studies to be included in this research are higher than 0.80, and therefore the current study was determined to meet the validity and reliability requirements.

2.3. Coding of data

The last step of a meta-analysis study before the analysis stage is the coding of each included study [41]. Data in this study were coded considering the variables of title, author, publication year, type of publication, reliability coefficient value of the scale used, number of samples, analysis method, gender and form of high school candidates graduated from.

2.4. Study group

As a result of the search made with the keywords specified on May 14, 2021, 14 studies were reached. However, it was confirmed that the number of samples in one of these studies was different from the number given in the analysis of the gender and form of high school variables, and it was excluded from the analysis for this reason [13]. The sample size of one study was detected considerably higher than other studies and in this respect; it was not included in this analysis since it would affect the effect size of other studies [23]. If the total of studies analyzed in meta-analysis studies is less than 50, these studies are written together with other sources in alphabetical order in bibliography with an asterisk at the beginning [4]. The data related to the study group can be observed in Table 1.

Table 1. Data of studies included in the research

Author	Publication Type	Publication Language	Database	Study Group Size	Variable/s
Başaran (2010)	Master's thesis	Turkish	YÖK National Thesis Center	488	Gender Form of high school graduated
Küçükosmanoğlu & Can (2013)	Article	Turkish	Google Academic	115	Gender Form of high school graduated
Dalkıran & Yıldız (2016)	Article	Turkish	Google Academic	193	Gender
Hüzmeli (2017)	Master's thesis	Turkish	YÖK National Thesis Center	340	Gender Form of high school graduated
İşseveroğlu (2019)	Master's thesis	Turkish	YÖK National Thesis Center	138	Gender Form of high school graduated
Kaleli (2020)	Article	English	ERIC, Google Academic	262	Gender
Ertok Konuk (2011)	Doctoral thesis	Turkish	YÖK National Thesis Center	637	Gender Form of high school graduated
Küçük (2013)	Article	Turkish	Google Academic	82	Gender
Cüceoğlu (2014)	Article	English	ERIC, Google Academic	305	Gender Form of high school graduated
Sağlam (2008)	Article	Turkish	Google Academic	110	Gender Form of high school graduated
Şeker (2020)	Article	Turkish	Google Academic	323	Gender Form of high school graduated
Demir Yıldız & Yıldız (2018)	Article	Turkish	Google Academic	165	Gender Form of high school graduated

2.5. Publication bias

Funnel plots showing the publication bias for the variables of gender and form of high school graduated are given in Figure 1. If the dots showing the effect size of the studies in the funnel plot used to indicate the publication bias are symmetrically distributed around the overall effect size given as a vertical line, there is no publication bias [42]. Figure 1 shows the funnel plots and the studies can be seen as distributed symmetrically around the vertical line inside the funnel. In this respect, there is no publication bias.
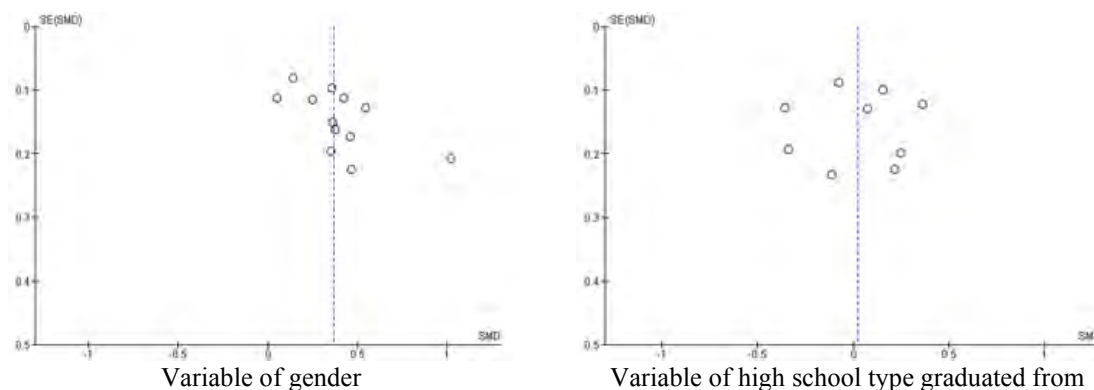
| Variable of gender | Variable of high school type graduated from |

Figure 1. Funnel plots for variables of gender and form of high school graduated from

2.6. Heterogeneity test

The heterogeneity test is significant for the calculation of the overall effect size and for the evaluation of the whole study [12]. The level of heterogeneity in the I2 value is considered low if it is less than 25%, moderate if it is 50%, and high if it is higher than 75% [43]. In Table 2, moderate heterogeneity was identified for the variables of gender and the form of high school graduated in line with I^2 values. P values (p <0.05) show that the studies have a heterogeneous structure. In effect sizes, when there is a matter of homogeneity, fixed effects model is applied, and in the matter of heterogeneity, researchers prefer random effects model [44]. Moreover, meta-analysis studies with small study groups have a more heterogeneous structure compared to larger study groups [45].

Table 2. Results of the heterogeneity test
	Number of Study	Tau^2	Q	I^2	P
Gender	12	0.034	27.617	66.594	0.004
Form of high school graduated from	9	0.04	25.36	68	0.001

2.7. Effect size

Even though this classification belongs to Cohen's d values, the same classification is also used for Hedges' g values [12]. In meta-analysis studies with study group sizes under 20, Hedges's g outperforms Cohen's d. Cohen's effect size classification; insignificant effect level (-015.≤effect coefficient (g or d)≤0.15), small effect level (0.15≤ effect coefficient (g or d)≤0.40), medium effect level (0.40≤ effect coefficient (g or d) ≤ 0.75), large effect level (0.75≤ effect coefficient (g or d)≤ 1.10), very large effect level (1.10 ≤ effect coefficient (g or d) ≤ 1.45), great effect level (1.45 ≤ effect coefficient (g or d).

2.8. Data analysis

In the study, as the sample sizes of the analyzed studies were diverse, the random effects model was chosen. The data of the study group in the research were analyzed with the "Review Manager Version 4" (RevMan 4) meta-analysis program. RevMan is a free meta-analysis program combining and analyzing the same type of data [46], [47].

3. RESULTS

In this meta-analysis study, the purpose was to discover the pre-service music teachers' attitudes towards their profession regarding the variables of gender and form of high school they graduated from. In this section, the relevant variables are presented in sub-headings.

3.1. Findings regarding the pre-service music teachers' attitudes towards their profession by gender variable

The sample size in the 12 studies analyzed regarding the gender variable consisted of female (n=1,882) and male (n=1,276) people, a total of 3,158. The overall effect size of each study was analyzed using Hedges' g value. According to Hedges' g values in Table 3, the effect sizes of the studies were found to be insignificant and in large effect range. It is seen that half of the weight percentages of the studies are

between 11.8% and 9.1%, and the other half is between 7.9% and 5.0%. In this direction, it can be said that the weight percentages of the studies included in the research are almost close to each other.

According to Table 4, the results of the analysis according to the gender variable of the studies in line with the random effects model are presented. Accordingly, the value of the standardized mean differences between the genders of the candidates was found to be 0.36 at the 95% confidence interval, while the z score was found to be statistically significant (z=8.69, p<0.05). In this case, it is seen that the attitudes of female teacher candidates towards the teaching profession are statistically more positive than male teacher candidates.

Table 3. Effect sizes of studies for the gender variable

Study or Subgroup	Female			Male			Weight	Std. Mean Diference IV, Random, 95%CI
	Mean	SD	Total	Mean	SD	Total		
Şeker (2020)	74.6	13.71	134	73.9	12.99	189	9.9%	0.05 [-0.17, 0.27]
Ertok Konuk (2011)	217.07	32.52	400	212.59	31.51	237	11.8%	0.14 [-0.02, 0.30]
Cüceoğlu (2014)	80.3	16.7	170	75.8	19.6	135	9.8%	0.25 [0.02, 0.48]
Küçükosmanoğlu and Can (2013)	224.74	25.24	74	216.17	22.3	41	5.9%	0.35 [-0.03, 0.74]
Başaran (2010)	4.11	0.65	330	3.87	0.72	158	10.9%	0.36 [0.16, 0.55]
Dalkıran and Yıldız (2016)	83.37	8.37	123	80.11	9.9	70	7.9%	0.36 [0.07, 0.66]
Demir Yıldız and Yıldız (2018)	78.38	14.58	102	72.47	17.26	63	7.4%	0.38 [0.06, 0.69]
Hüzmeli (2017)	4.06	0.73	208	3.73	0.85	132	10.0%	0.42 [0.20, 0.64]
İşseveroğlu (2019)	4.16	0.48	77	3.91	0.61	61	6.8%	0.46 [0.12, 0.80]
Küçük (2013)	75.9	14.63	42	69.12	14.3	40	5.0%	0.46 [0.03, 0.90]
Kaleli (2020)	47.26	12.62	156	40.14	13.68	106	9.1%	0.54 [0.29, 0.79]
Sağlam (2008)	4.41	0.38	66	4.02	0.38	44	5.6%	1.02 [0.61, 1.42]
			1,882			1,276	100.0	0.36 [0.24, 0.49]

Table 4. Standardized mean difference random effects model results

Hedges' g value	Z value	Std. error	p-Value
0.36	8.69	0.067	0.001

3.2. Findings regarding the attitudes of pre-service music teachers towards teaching profession regarding the variable of the form of high school graduated from

The sample size of the nine studies analyzed in this study regarding the form of high school graduated variable consisted of female (n=1,919) and male (n=699) people, a total of 2,618. The overall effect size of each study was analyzed using Hedges' g value. In addition, the weight percentages of the studies are also included in the table. The group names were coded as 'Fine Arts High School' (FAHS) and 'Other' while the data on the form of high school for each study were processed into the meta-analysis program. As shown in Table 5, it was determined that the effect sizes of the studies were in the insignificant and small effect levels. It is observed that the weight percentages of the studies in the research are between 14.1% and 12.4% in 5, and between 9.2% and 7.5% in 4 of them. Accordingly, it can be said that the weight percentages of the studies are almost close to each other.

Table 5. Effect sizes of studies for the form of high school graduated variable

Study or Subgroup	FAHS			Other			Weight	Std. Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total		
Başaran (2010)	4.11	0.72	345	4	0.66	143	14.1%	0.16 [-0.04, 0.35]
Sağlam (2008)	4.3	0.5	70	4.17	0.55	40	8.9%	0.25 [-0.14, 0.64]
Cüceoğlu (2014)	80.4	16.1	203	74.15	19.3	102	12.8%	0.36 [0.12, 0.60]
Demir Yıldız and Yıldız (2018)	130.32	23.85	131	138.18	19.8	34	9.2%	-0.34 [-0.72, 0.04]
Ertok Konuk (2011)	214.85	32.44	460	217.3	34.3	174	14.7%	-0.07 [-0.25, 0.10]
Hüzmeli (2017)	3.94	0.78	264	3.88	0.82	76	12.4%	0.08 [-0.18, 0.33]
İşseveroğlu (2019)	4.07	0.54	114	3.95	0.63	24	7.8%	0.21 [-0.23, 0.66]
Küçükosmanoğlu and Can (2013)	222.19	25.57	92	225	18.53	23	7.5%	-0.11 [-0.57, 0.34]
Şeker (2020)	73	13.8	240	77.66	10.9	83	12.5%	-0.35 [-0.61, -0.10]
			1,919			699	100.0	0.02 [-0.14, 0.19]

The results of this analysis with respect to the variable of the form of high school graduated in line with the random effects model of the studies can be seen in Table 6. In accordance with this, in the 95% confidence interval the value of the standardized mean differences between the type of high school graduated of the candidates was found to be 0.022, while the z score was not found to be a statistically significant

difference (z=0.26, p>0.05). According to this data, it is seen that students' attitudes are not statistically significant regarding the form of high school they graduated from.

Table 6. Standardized mean difference random effects model results

Hedges' g value	Z value	Std. error	p-Value
0.022	0.26	0.083	0.789

4.   DISCUSSION

This study was carried out to attain generalizable data about the change of pre-service music teachers' attitudes towards the teaching profession according to demographic characteristics (gender-form of high school graduated). In this context, a literature review on the research subject was made, and a study group for the research was gathered by evaluating similar studies in line with the research criteria. This study was carried out to attain generalizable data about the change of pre-service music teachers' attitudes towards the teaching profession according to demographic characteristics (gender-form of high school graduated). In this context, a literature review on the research subject was made, and a study group for the research was gathered by evaluating similar studies in line with the research criteria.

In the studies of the research within the framework of meta-analysis, it was determined that the attitudes of female music teacher candidates towards the teaching profession were more positive than male music teacher candidates regarding the gender variable. In the literature review, there are studies with similar results with respect to the relations between attitudes towards the teaching profession and the candidates' gender. Findings from this study also support the findings of the current studies [43], [48], [23], [32], [15], [20], [25], [29], [16], [24], [30]. In some of the studies, a significant difference was not found in the attitudes of pre-service music teachers towards their profession with respect to gender [14], [19], [21], [27], [49]. Contrary to the results of this study, there are also studies in the literature where male pre-service teachers have higher attitude scores towards the teaching profession than female candidates [50].

In the meta-analysis outcomes of the studies in this research, no significant difference was discovered according to the variable of the form of high school that the candidates graduated from. In the literature, there are studies that support this finding as well [23], [14], [19], [27], [16], [24], [30]. In some studies, it is seen that the attitude scores of Fine Arts High School graduates are higher than the attitude scores of other high school graduates [20], [25], [21]. On the contrary, Küçük [32], found that general high school graduates have more positive attitudes than Fine Arts High School graduates in her research.

5.   CONCLUSION

As a result of this meta-analysis research, it was seen that the effect sizes varied between insignificant and large effect levels depending on the gender variable. In this respect, it can be said that the effect level of the gender variable on the attitude towards the teaching profession is low in each of the studies. Depending on the variable of the type of high school graduated, it was determined that the effect sizes varied between insignificant and small effect levels. In this case, it was determined that the level of effect of the variable of the type of high school graduated on the attitude towards the teaching profession is between low and medium levels, and the attitudes of female pre-service music teachers' towards the teaching profession are more positive than male pre-service music teachers'. Finally, it was concluded that there was no difference between Fine Arts and other high school groups in line with the variable of the type of high school graduated.

In line with the results obtained in the research, different perspectives on the field can be created by carrying out studies in which the attitudes of pre-service music teachers' towards the teaching profession are evaluated in a wider framework besides demographic characteristics, and it will be more effective than the results of individual studies that meta-analysis studies to be carried out in different fields of music education. Especially in the field of music education, determining the general effect sizes by re-evaluating the experimental studies carried out for the same purpose with meta-analysis studies can contribute to the strengthening of the foundations on which the studies are based. Finally, it is thought that the number of meta-analysis studies carried out in the field of music education in the literature review is low and the studies that the researchers will carry out with the specified method will contribute to the related field.

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