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ARTICLES

Full Length Research Paper

Self-values of pre-school teachers working in Turkish public schools

İlknur Maya

Department of Educational Sciences, Faculty of Education, Canakkale Onsekiz Mart University 17100 Canakkale, Turkey.

This study aims at describing the self-values held by pre-school teachers working in public schools and at determining whether or not those values differ on the basis of seniority, marital status and having children. This research employs a descriptive method. The research population comprised 278 pre-school teachers working in public pre-school education institutions and in public primary education schools. The Rokeach Value Survey was used in the research. The data was analysed using the techniques as mean, standard deviation, t-test, analysis of variance (ANOVA), and Turkey HSD test in order to find the sources of differences. The self-values preferred most by pre-school teachers were "a peaceful world", "being healthy", and "national security". The self-values they considered the least important were "an exciting life", "a variable life", and "authority". Pre-school teachers' self-values differed significantly on the basis of seniority, marital status, and having children.

Key words: Self-values, values education, pre-school education, pre-school teachers.

INTRODUCTION

Owing to the fact that values influence our perspective of life, making sense out of life as well as making decisions should be analysed at organizational levels. Values, which form the guiding or reference points in people's decision-making, are at the same time the goals with differing degrees of importance. According to Sisman (2002), values are the criteria that determine what is right, what is wrong, what is good, and what is bad. According to another definition suggested by Rokeach (1973: 5), value is "a long-term personal belief about a certain manner of behaviour or about the fundamental aim of existence".

Values form the foundation that holds the societies upright (Bursalioglu, 2002), and therefore, certain values are commonly adopted by societies (Ersoy, 2006). Research results (Nartgun, 2006; Sagnak, 2005; Yilmaz and Balci, 2009) demonstrate that the values available in the organizational environment are congruent with the self-values held by the individuals in organizations.

Values are first learnt in the family setting where the basic knowledge, skills, attitudes and habits in relation to all the development of individuals are acquired. Institutions preparing children to social life after the family and supporting the family in values education are the educational institutions. Hence, one of the duties of educational institutions is to teach children the social

culture and values (Demirel, 2009).

Due to the importance of educational institutions in values education, a great amount of research concerning values in the field of education and values of education in Turkey in recent years is found. The majority of the aforementioned studies are concerned with teachers' values and pre-service teachers values (Aktepe and Yel, 2009; Cavdar, 2009; Dilmac et al., 2008; Donmez and Comert, 2007; Kusdil and Kagitcibasi, 2000; Oguz, 2012; Tokdemir, 2007; Yilmaz, 2009; Yilmaz and Yildizbas, 2012) and with values education (Balat-Uyanik, Ozdemir et al., 2011; Dilmac, 2007; İscan, 2007; Yalar and Yanpar Yelken, 2011; Yildirim, 2009). In addition to that, values in educational organizations (Nartgun, 2006; Yilmaz and Balci, 2009), and school administrators' values (Baloglu, 2012; Ercetin, 2000) are also among the issues of research. The self-values held by teachers and managers differ significantly according to their seniority (Donmez and Comert, 2007; Yilmaz, 2009) and marital status (Yilmaz, 2009) in these research results. However, values and values education remains a neglected area for research and practice in early childhood education and care (Sigurdardottir and Einarsdottir, 2016).

The first educational institution gaining importance in values education after the family is the pre-school education institution. Theoreticians such as Piaget and Kohlberg, who explain the development of values in children, suggest that Thompson (2011) values education should start in the pre-school period (Zembat, 2001). Therefore, it is important that an environment sensitive to children's rights should be created in pre-school education institutions and that pre-school teachers should set models in such an environment with what they say and they do.

According to the latest regulation, a pre-school teacher is the teacher who offers wealthy stimulating environmental possibilities appropriate to the developmental level and individual properties of 0 to 65 month old age group children, who supports their development in physical, mental, emotional, social and moral ways, and who prepares them for primary education. Besides, these teachers are the people who can increase children's willingness to display certain behaviours with their behaviours and can thus set models to children (Anderson, 2000; Sonmez, 2002; Tugrul, 2005). As part of their pedagogical tasks, educators can urge their students into certain values and they can also impose their own values and encourage them (Veugelers, 2000; Willemse, Lunenberg and Korthagen, 2005).

Values in education were handled during the decisions made at the 18th National Education Council and in the circular issued by the Ministry of Education in the 2010-2011 academic year (Balat-Uyanik, 2012). The fact that an insufficient number of research concerning the self-values of pre-school teachers was found in Turkish education literature and that the recently regulated 9th plan for development (2007-2013) targets spreading pre-

school education and increasing the social awareness for pre-school education makes it necessary to conduct this current research. This research is important in terms of being aware of self-values and doing self evaluation of pre-school teachers in public schools. In addition, this study may be the reference source for researchers seeking to conduct research on the same topic.

Objectives of the study

This research aims to describe pre-school teachers' self-values while working in public schools and to determine whether or not those values differ on the basis of seniority, marital status and having children. In line with this general purpose, answers are sought for the following sub-problems:

(1) What are the self-values that are considered as the most important and the least important by pre-school teachers?
(2) Is there any significant difference in pre-school teachers' self-values in terms of seniority?
(3) Is there any significant difference in pre-school teachers' self-values in terms of marital status?
(4) Is there any significant difference in pre-school teachers' self-values in terms of having children?

METHODOLOGY

This research employs a descriptive method. This current research makes use of quantitative research methods.

This section of the study deals with participants, data collection and analysis.

Participants

The research population comprised all the pre-school teachers working in the public pre-school institutions or in the nursery classes of public primary education schools which are under the supervision of Canakkale Province Directorate of Education. Since the research population was small, no samples were taken, and reaching all the pre-school teachers in the research population was preferred. 294 pre-school teachers (MoNE, 2015) were in the research population. 278 teachers voluntarily took part in the research. Thus, participants represented the research population at the rate of 94.55%. The demographic information of pre-school teachers' included in the research sample are listed in Table 1.

Data collection and analysis

The Rokeach Value Survey (RVS) was used in the research. It is a 7-pointed likert type scale of 18 instrumental and 18 objective value adjectives. RVS items consist of 56 value adjectives. This is a 7-pointed likert type scale ranging from -1 (opposite to my value) to 7 (highly important) for each value (Rokeach, 1973). The Turkish adaptation of the RVS, which was translated into Turkish by Bas (2004), and the questions for personal information were used for the purposes of data collection in this research. In this study, the reliability of the RVS was found as 0.93 (Cronbach α) as a result of

Table 1. Frequency and percentage distributions regarding the demographic information on the research sample.

Variable		1	2	3	Total
	-	1-10 years	11-20 years	21 years and more	-
Seniority	N	177	70	31	278
	%	64	25	11	100
	-	Married	Single	-	-
Marital status	N	175	103	-	278
	%	63	37	-	100
	-	Yes	No	-	-
Having or not having children	N	119	159	-	278
	%	43	57	-	100

a pilot study carried with 240 teachers.

In this research, first, in order to determine pre-school teachers' self-values, statistics such as mean and standard deviation were used. Then, in order to see whether or not pre-school teachers' self-values differed on the basis of seniority, the homogeneity of variances was tested and the ANOVA analysis was conducted, and in order to find the source of differences, Tukey HSD test was used. Finally, so as to see whether or not the values differed on the basis of their marital status and of having children, t- test was used. In the statistical analyses, significance level has been taken as 0.05.

FINDINGS

The most important and the least important self-values of pre-school teachers

As is clear from Table 2, the self-values that pre-school teachers consider the most important are "a peaceful world" ($\bar{x}$=5.80), "being healthy" ($\bar{x}$=5.62), "national security" ($\bar{x}$=5.46), "self-respect" ($\bar{x}$=5.42), "family security ($\bar{x}$=5.38), "the peace of mind" ($\bar{x}$=5.28), "real friendship" ($\bar{x}$=5.27), "honesty" ($\bar{x}$=5.10), "equality" ($\bar{x}$=5.00), and "independence" ($\bar{x}$=4.98), respectively. The self-values they consider the least important, on the other hand, are "an exciting life" ($\bar{x}$=2.10), "a variable life" ($\bar{x}$=2.54), "authority" ($\bar{x}$=2.55), "social power" ($\bar{x}$=2.62), "accepting one's share in life" ($\bar{x}$=2.94), "enjoyment" ($\bar{x}$=3.07), "being wealthy" ($\bar{x}$=3.16), "being ambitious" ($\bar{x}$=3.24), "courage" ($\bar{x}$=3.30), and "paying for the benevolence" ($\bar{x}$=3.47).

A comparison of pre-school teachers' self-values on the basis of seniority

According to Table 3, the pre-school teachers' self-values differ on the basis of seniority significantly in eight values, namely, "the meaning of life" ($F_{(2, 275)}$= 3.94; p< 0.05), "courage" ($F_{(2, 275)}$= 3.42; p< 0.05), "social order" ($F_{(2, 275)}$= 3.35; p< 0.05), "social recognition" ($F_{(2, 275)}$= 4.46; p< 0.05), "mature love" ($F_{(2, 275)}$= 3.90; p< 0.05), "national security" ($F_{(2, 275)}$= 6.36; p< 0.05), "independence" ($F_{(2, 275)}$= 5.23; p< 0.05), and "politeness" ($F_{(2, 275)}$= 17.00; p< 0.05).

An examination of the Tukey HSD test which was done in an attempt to find the source of difference, shows that there are significant differences between teachers with 1 to 10 years experience and 11 to 20 years experience in the values of "the meaning of life" and "courage"; while there are significant differences between groups with 1 to 10 years experience and groups with 21 years or more experience in the values of "social order", "social recognition" and "mature love". The significant differences are observed between groups with 1 to 10 year experience and 11 to 20 years experience, and those with 11 to 20 years experience and 21 years or more experience in the values of "national security" and "independence".

Finally, significant differences are also available in the value of "politeness" between the groups with 1 to 10 years experience and 11 to 20 years experience as well as between groups with 1 to 10 years experience and 21 years or more experience. It was also found that parallel to the rise in their teaching experience, pre-school teachers attached more importance to the values of "social order", "social recognition", "mature love", and "politeness".

A comparison of pre-school teachers' self-values on the basis of marital status

As seen in Table 4, pre-school teachers' self-values differ significantly on the basis of marital status. Hence, those who are married attach more importance to "honesty" ($\bar{x}$=5.30), "politeness" ($\bar{x}$=4.34), and "accepting one's share in life" ($\bar{x}$=3.34) than the single teachers do. This result may stem from the fact that they have internalised the responsibilities and duties imposed by being married and being a spouse. The fact that most of those teachers

Table 2. The most important and the least important self-values of pre-school teachers.

Values		Mean	SD
The most important self-values	1. A peaceful world	5.80	1.29
	2. Being healthy	5.62	1.25
	3. National security	5.46	1.02
	4. Self-respect	5.42	0.97
	5. Family security	5.38	1.43
	6. The peace of mind	5.28	1.42
	7. Real friendship	5.27	1.40
	8. Honesty	5.10	1.44
	9. Equality	5.00	1.42
	10. Independence	4.98	1.53
The least important self-values	1. An exciting life	2.10	1.52
	2. A variable life	2.54	1.52
	3. Authority	2.55	1.47
	4. Social power	2.62	1.56
	5. Accepting one's share in life	2.94	2.20
	6. Enjoyment	3.07	1.56
	7. Being wealthy	3.16	1.73
	8. Being ambitious	3.24	1.84
	9. Courage	3.30	1.84
	10. Paying for the benevolence	3.47	1.33

are female (Erkan et al., 2002), the gender-based roles in the society may be another cause of this result.

Single teachers, on the other hand, attach more importance to the values of "a peaceful world" ($\bar{x}$=6.13), "national security" ($\bar{x}$=5.66), "self-respect" ($\bar{x}$=5.59), "setting one's own target" ($\bar{x}$=5.28), and "courage" ($\bar{x}$=3.66). It was also found that those who were single considered the universal values and national security important, they took care of themselves more, and that they struggled for their targets.

A comparison of pre-school teachers' self-values on the basis of having children

As is clear from Table 5, pre-school teachers' self-values differ significantly according to whether or not they have children. Thus, teachers with children attach more importance to "being tolerant" ($\bar{x}$=5.03), "the meaning of life" ($\bar{x}$=4.88), "the world of beauty" ($\bar{x}$=4.06), "accepting one's share in life" ($\bar{x}$=4.05), and "paying for the benevolence" ($\bar{x}$=3.83) than their colleagues who do not have children. It may be said that the feeling of parenthood causes pre-school teachers to try to understand their own children, to be more tolerant, and to internalise their roles in life. On the other hand, the fact that the teachers who do not have children ($\bar{x}$=2.80) prefer the value of "a variable life" more than those who

have children ($\bar{x}$=2.19) may stem from the fact that those who have children wish to live a more regular life.

DISCUSSION

The self-values that pre-school teachers prefer most are related to "security". They are "a peaceful world", "being healthy", "national security", "self-respect", and "family security". Several research studies conducted in educational institutions have found that "security" is one of the values that educators consider the most important (Aktepe and Yel, 2009; Cavdar, 2009; Dilmac et al., 2008; Ercetin, 2000; Kusdil and Kagitcibasi, 2000). This situation can generally be accounted for with the properties of Turkish society. According to Hofstede (1980), avoidance of uncertainty in Turkish society is in a high level. The other self-values that pre-school teachers consider important are: "the peace of mind", "real friendship", "honesty", "equality", and "independence", respectively. The self-values that they consider the least important are: "an exciting life", "a variable life", "authority", "social power", "accepting one's share in life", "enjoyment", "being wealthy", "being ambitious", "courage", and "paying for the benevolence".

It may be stated that values that pre-school teachers consider the most and the least important are similar to the ones in the findings of the research studies conducted in institutions of education with the

Table 3. Pre-school teachers' self-values on the basis of seniority.

Values	Seniority	N	Mean	SD	F	p	Meaningful difference
The meaning of life	1.1-10 years	177	4.85	1.40			
	2.11-20 years	70	4.31	1.57	3.94	0.02*	1-2
	3.21 years and more	31	4.61	1.69			
Courage	1.1-10 years	177	3.47	1.83			
	2.11-20 years	70	2.81	1.77	3.42	0.03*	1-2
	3.21 years and more	31	3.48	2.06			
Social order	1.1-10 years	177	4.35	1.40			
	2.11-20 years	70	4.35	1.57	3.35	0.03*	1-3
	3.21 years and more	31	5.06	1.23			
Social recognition	1.1-10 years	177	3.97	1.44			
	2.11-20 years	70	4.20	1.63	4.46	0.01*	1-3
	3.21 years and more	31	4.83	1.46			
Mature love	1.1-10 years	177	4.76	1.37			
	2.11-20 years	70	5.05	1.54	3.90	0.02*	1-3
	3.21 years and more	31	5.48	1.15			
National security	1.1-10 years	177	5.55	0.95			
	2.11-20 years	70	5.11	1.09	6.36	0.00*	1-2 2-3
	3.21 years and more	31	5.77	1.11			
Independence	1.1-10 year	177	5.12	1.45			
	2.11-20 year	70	4.48	1.72	5.23	0.00*	1-2 2-3
	3.21 year and more	31	5.29	1.34			
Politeness	1.1-10 years	177	3.77	1.40			
	2.11-20 years	70	4.67	1.57	17.00	0.00*	1-2 1-3
	3.21 years and more	31	5.16	1.69			

*$p < 0.05$

administrators, teachers and prospective teachers. Hence, in research conducted by Ercetin (2000) with the administrators of primary education schools, "family security" was the value that was considered the most important. In the research performed by Kusdil and Kagitcibasi (2000), teachers were found to attach the most importance to the values of "universalism", "security", and "benevolence". In this research, "paying for benevolence" as one of the values considered the least important was noteworthy. This finding was different from the results reached in Kusdil and Kagitcibasi (2000).

In their research, Donmez and Comert (2007) found that "family", "close friendship", "belief", "personal development", and "being healthy" were the values that primary education teachers considered important. The same research also found that "wealth", "career", and "participation in social activities" were the values that teachers considered the least important. According to the research conducted by Dilmac et al. (2008),

"universalism", "security", "benevolence" and "self-orientation" are the values that are considered the most important by prospective teachers.

The research done by Aktepe and Yel (2009) demonstrated that the values that were considered the most important by primary education teachers were "national security", "family security", "being healthy", "real friendship", "honesty", "equality", and "self-respect". The least important values, found in the same research, were "being wealthy", "social power", "authority", "being ambitious", "an exciting life", and "enjoyment".

The research conducted in five different universities by Yilmaz and Yildizbas (2012) found that prospective pre-school teachers preferred the value of "honesty" the most and the value of "social skills" the least. In a research study conducted in South Korea with pre-school teachers, it was found that the teachers considered "emotionality" and "affection" highly important whereas they considered "universalism", and "moral values"

Table 4. Pre-school teachers' self-values on the basis of marital status.

Values	Marital status	N	Mean	SD	t	df	p
Accepting one's share in life	1. Married	175	3.34	2.26	4.02	276	0.00*
	2. Single	103	2.27	1.92	-	-	-
Honesty	1. Married	175	5.30	1.34	3.09	276	0.00*
	2. Single	103	4.75	1.53	-	-	-
Politeness	1. Married	175	4.34	1.55	2.58	276	0.01*
	2. Single	103	3.84	1.54	-	-	-
A peaceful world	1. Married	175	5.61	1.44	-3.28	276	0.00*
	2. Single	103	6.13	0.89	-	-	-
National security	1. Married	175	5.34	1.06	-2.54	276	0.01*
	2. Single	103	5.66	0.93	-	-	-
Setting one's own target	1. Married	175	4.75	1.61	-2.82	276	0.00*
	2. Single	103	5.28	1.29	-	-	-
Self-respect	1. Married	175	5.32	0.96	-2.22	276	0.02*
	2. Single	103	5.59	0.96	-	-	-
Courage	1. Married	175	3.10	1.83	-2.45	276	0.01*
	2. Single	103	3.66	1.81	-	-	-

*p<0.05

Table 5. Pre-school teachers'self-values on the basis of having children.

Values	Having or not having children	N	Mean	SD	t	df	p
Being tolerant	1. Yes	119	5.03	1.31	-3.10	276	0.00*
	2. No	159	4.50	1.47	-	-	-
The meaning of life	1. Yes	119	4.88	1.25	-2.01	276	0.04*
	2. No	159	4.54	1.45	-	-	-
The world of beauty	1. Yes	119	4.06	1.43	-2.43	276	0.01*
	2. No	159	3.61	1.59	-	-	-
Accepting one's share in life	1. Yes	119	4.05	1.72	-8.01	276	0.00*
	2. No	159	2.11	2.16	-	-	-
Paying for the benevolence	1. Yes	119	3.83	1.18	-3.90	276	0.00*
	2. No	159	3.21	1.38	-	-	-
A variable life	1. Yes	119	2.19	1.86	2.97	276	0.00*
	2. No	159	2.80	1.55	-	-	-

p*<0.05

important at low levels (Lee et al., 2012). The research done by Sigurdardottir and Einarsdottir (2016) demonstrated that the values that were considered the most important by pre-school teachers were "care",

"respect" and "discipline". In an another research, Balat-Uyanik et al. (2012) report that parents believe that their children should acquire "honesty", "responsibility", "respect", "happiness" and "justice" in pre-school education institutions as the most important universal values.

In the research conducted by Ercetin (2000) as different from this research, the value of "social power" was found to be one of the values preferred most by school principals. The fact that all those research studies had been conducted at different stages of education, at different periods of time and in different geographical regions may be regarded as the cause of differences in findings. Unlike in this research, in the research conducted by Yilmaz (2009), the importance attached to the value of "independence" (self-control) is higher in the case of teachers with 1 to 5 years' experience. Research performed by Celik and Cagdas (2010), on the other hand, showed that seniority did not lead to a significant difference in pre-school teachers' empathetic tendencies.

Clearly, pre-school teachers' self-values differ on the basis of seniority, marital status and whether or not they have any children. According to seniority, pre-school teachers' self-values differ significantly in the values of "the meaning of life", "courage", "social order", "social recognition", "mature love", "national security", "independence", and "politeness". Thus, teachers with 1 to 10 years' experience attach more importance to "the meaning of life", those with 21 years or more experience to the values of "courage", "social order", "social recognition", "mature love", "national security", "independence" and "politeness".

As their work experience increases, teachers consider the values of "social order", "social recognition", "mature love", and "politeness" more important. This situation may stem from the effect of their increased seniority on internalising their occupational roles. Another cause may be that, along with growing age and increasing work experience, teachers want a more regular life and that, because they are in maturity period, they attach more importance to such spiritual values as recognition, loving and being loved (Levinson, 1988; Onur, 1995). In research conducted by Yilmaz (2009), the importance attached to the value of "independence" (self-control) is higher in the case of teachers with 1 to 5 years' experience. Research performed by Celik and Cagdas (2010), on the other hand, showed that seniority did not lead to a significant difference in pre-school teachers' empathetic tendencies.

Pre-school teachers' self-values also differ significantly according to marital status. The married teachers consider "honesty", "politeness", and "accepting one's share in life" more important while the single ones consider "a peaceful world", "national security", "self-respect", "setting one's own target" and "being courageous" more important. That the married teachers

attach more importance to "accepting one's share in life" may stem from the fact that they internalise the responsibilities and duties imposed by being married and being a spouse, and from the fact that most of the pre-school teachers are females (Erkan et al., 2002); thus, they adopt their gender-based roles in society.

It was shown in this research that single teachers consider the universal values and national security, they are self-controlled, and they struggle for their targets. Similar to the findings obtained in this research, the research conducted by Yilmaz (2009) shows that the values of "self-respect (self-control)" and "a peaceful world" are at higher levels in single teachers. It was also demonstrated in the same research that marital status did not create a difference in the value of "accepting one's share in life" (traditionalism).

The self-values held by pre-school teachers differ significantly according to whether or not they have children. Accordingly, teachers with children consider the values of "being tolerant", "the meaning of life", "the world of beauty", "accepting one's share in life", and "paying for the benevolence" more important than teachers having no children do. This situation may be the result of the fact that parenthood roles and feelings influence pre-school teachers' perspectives of life, and their responsibilities in and expectations from life. Yet, in contrast to this research, the research conducted by Celik and Cagdas (2010) revealed that the number of children owned by pre-school teachers did not lead to significant differences in their empathetic tendencies.

Pre-school teaching is a profession that needs high motivation, self-sacrifice, and complete self-acquaintance (Day and Leitch, 2001). Owing to the fact that pre-school teachers are the people to set role models and that children of this period learn by imitation, those teachers should ask themselves the question "what self-values should I have as an educator and with which self-values should I set a model to my students?" and thus they should revise their self-values.

To support children in attaining a healthy personality development and in order for pre-school teachers to become aware of such fundamental values as affection, respect, tolerance, peace, cooperation, sharing, solidarity, creativity, justice, equality, responsibility and aesthetics, and in order to instil those values in those children through activities, the teachers should be offered theoretical and applied education in the form of pre-service and in-service training in values education jointly by the Ministry of Education and by universities (Dunn, 2003; Giovacco-Johnson, 2011; Suh and Traiger, 1999). Thus, their interaction and professional development may be assured. Rodgers and Scott (2008) point out that occupational identity is a dynamic process that constantly develops through interaction with others.

Numerous studies point to the need for pre-service and in-service training values in education for teachers

(Brady, 2011; Crow, 2007; Lovat et al., 2011; Mergler and Spooner-Lane, 2012; Rodgers and Scott, 2008; Tokdemir, 2007; Yalar and Yanpar Yelken, 2011; Yildirim, 2009). In a similar way, Demirel (2009) found that elementary school teachers' self-efficacy beliefs in themselves were high in character education, but their self-efficacy beliefs in other teachers were low. Empirical studies in values education, which has gained importance recently in our country, should be performed. Repetition of similar studies on different samplings is important in terms of the generalizability of the research results. Further studies are needed to investigate the relationship between pre-school teachers self-values and other variables.

CONFLICT OF INTERESTS

The author has not declared any conflicts of interests.

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Full Length Research Paper

The mediating role of scientific attitudes in the relationship between teacher candidates' scientific epistemological beliefs and approaches to scientific research

Hasan Hüseyin ŞAHAN

Department of Science Education, Balıkesir University, Turkey.

The study aims to analyze scientific attitudes' effect on the relationship between teacher candidates' scientific epistemological beliefs and their approach to scientific research. The research model of the study is relational survey, a type of descriptive model. The study group is comprised of 647 pre-service teachers from Balıkesir University Necatibey, Faculty of Education. "Scientific Epistemological Beliefs Scale", "Attitudes to Scientific Research Scale", and "Academic Motivation Scale" were used for data collection. Mediation analysis was conducted to answer the research questions of the study. The major finding of the study was that scientific epistemological belief affects academic motivation levels, and attitudes towards scientific research act as partial mediators in this relation. That is, a direct relationship was found between prospective teachers' scientific epistemological beliefs and academic motivation levels. In addition, epistemological beliefs have revealed indirect attitudes towards scientific research and academic motivation level.

Key words: Pre-service teacher, epistemological beliefs, attitude, motivation, mediating role.

INTRODUCTION

The meaning of knowledge and how to access it has been much debated since the early ages. As knowledge has become increasingly more important, the viewpoint on knowledge and science is changing. Epistemology is a branch of philosophy inquiring into the nature, source, and boundaries of knowledge (Deryakulu, 2004; Cevizci, 2005; Aksan, 2006). Scientific epistemology has also dwelled on what science is. The formation of knowledge, significance of scientific knowledge, process of accessing and interpreting it are all about epistemological beliefs (Deryakulu, 2004). Beliefs are an ongoing web of emotions formed by an aspect of one's own feelings, and perceptions and definitions (Eren, 1998). Epistemological belief, on the other hand, is the personal interpretations of how one learns and teaches knowledge. It is how individuals interpret information, set standards, and decide on an appropriate course of action (Siegel and Ryan, 1984; Hofer and Pintrich, 2002; Deryakulu and

Bıkmaz, 2003). Schommer relates epistemological beliefs to the nature and acquisition of knowledge (1990).

Growing emphasis has been placed on research on epistemology, personal epistemology, and epistemological beliefs since 1990s (Schommer, 1990; Hofer and Pintrich, 1997). According to Aypay (2011), epistemological beliefs affect the teaching-learning processes, yet Başbay (2013) asserts that students' beliefs about knowledge shape their academic performance and knowledge acquisition. It is observed that beliefs have an important role in people's lives, influencing their behaviors and attitudes. Schommer-Aikins and Hutter (2002) found that daily decisions taken by individuals are affected by epistemological beliefs. Thus, there is a strong correlation between individuals' attitudes and beliefs (Fishbein and Ajzen, 1975). In brief, literature points to the influence of epistemological beliefs on attitudes, which are believed to be unobservable tendencies leading to observable behaviors. Thus, they can be used as an intervening variable when examining phenomena (Kağıtçıbaşı, 1992). The related literature provides evidence that people's beliefs, attitudes, and behaviors are related (Koballa and Crawley, 1985), and pre-service teachers' beliefs and attitudes towards the education they received from instructors influence their future behaviors in teaching learning environments (Osborne et al., 2003). Such effects of attitudes, which are defined by Pajares (1992) as the sum of beliefs about a situation or subject, have led the researchers to inquire into individual's behaviors and learning outcomes. Related research manifests that both scientific attitude and beliefs are important predictors affecting the teaching process, and that these predictors are in a chain relation. According to Başaran (1978), scientific attitude is the researcher's ability to interpret the problems, phenomena, and situations encountered based on rational data, freed from one's own feelings as much as possible (Demirbaş and Yağbasan, 2006).

Many studies focus on the relation between epistemological beliefs and different variables (learning strategies, gender, self-efficacy, higher-order cognitive skills, learning style, academic achievement, motivation, self-efficacy perception, metacognitive skills, critical thinking, etc.) (Aksan and Sözer, 2007; Başbay, 2013; Biçer et al., 2013; Bendixen and Rule, 2004; Dahl et al., 2005; Kapucu and Bahçıvan, 2015; Lin et al., 2013; Meral and Çolak, 2009; Kızılgüneş et al., 2009; Özkal et al., 2010). Wigfield and Eccles (2000), Eccles et al. (1983) and Buehl and Alexander (2005) proposed that students' competency beliefs and achievement values are based on their perceptions of task difficulty. Students may use their beliefs about knowledge in a particular domain to determine the difficulty of acquiring knowledge in that or a related domain, which may influence their motivation. Motivation refers to individuals' desire to act or behave in a particular manner (Weiner, 1992). Paulsen and Feldman's (1999) study revealed statistically significant relations between dimensions of epistemological beliefs

(that is, simple knowledge, quick learning, and fixed ability) and motivational constructs (that is, task value, self-efficacy, intrinsic-goal orientation, extrinsic-goal orientation, test anxiety, and control of learning). Designing a model of possible associations between students' beliefs, achievement motivation, and learning outcomes, Buehl (2003) assumed that epistemological beliefs increase students' achievement, motivation, and cognitive processing (strategy use). The rationale behind the model is that they are somewhat connected with their achievement and academic performance because of the effect of students' motivation, cognitive processing, and tactics in the learning situation (e.g., effort and persistence). Murphy et al. (2002) concluded that dimensions of epistemological beliefs tend to be differentially related to students' motivation (Buehl et al., 2002). Thus, a relation, direct or indirect, seems to exist between motivation and epistemological beliefs, which can be defined as significant learner characteristics facilitating or obstructing academic cognition, motivation, and learning (Pintrich, 2002; Wyre, 2007).

Understanding how and with which variables scientific epistemological belief relates is important in shaping the characteristics of the individual that a program aims to train.

In brief, studies focusing on the relation between scientific epistemological belief and motivation (Buehl and Alexander, 2005; Chen and Pajares, 2010; Hofer, 1999; Kızılgüneş et al., 2009; Liang et al., 2010; Lin et al., 2013; Paulsen and Feldman, 1999), and between scientific epistemological belief and attitude (Fishbein and Ajzen, 1975; Kapucu and Bahçıvan, 2015; Öztürk, 2016) exist in the related literature, yet it seems that no study has dealt with the relation among the three variables.

The present study intends to analyze the mediating effect of pre-service teachers' attitude to scientific research on the relation between their scientific epistemological beliefs and academic motivation levels.

METHODOLOGY

Research design

The study adopted a descriptive model: relational survey because it focuses on related relations. The study group is comprised of 647 first year and fourth year pre-service teachers receiving education at Balıkesir University, Necatibey Faculty of Education. The data was collected in the Fall semester of 2015-2016 academic year.

Data collection tools

Data was collected by three instruments: 'Scientific Epistemological Beliefs Scale' developed by Pomeroy (1993) and adapted to Turkish by Deryakulu and Bıkmaz (2003), 'Attitude to Scientific Research Scale' developed by Korkmaz et al. (2011), and 'Academic Motivation Scale' developed by Bozanoğlu (2004).

Scientific epistemological beliefs scale

The scale was developed by Pomeroy (1993) to be used in primary,

secondary, and higher education institutions. It aims to determine the scientific epistemological belief levels of the participants. The original scale had 50 items and three dimensions: (a) traditional scientific approach, (b) traditional science education approach, and (c) non-traditional science approach.

The validity and reliability tests of the scale were run by Deryakulu and Bıkmaz (2003) on Turkish students. The original scale, which is comprised of 50 items, were translated into Turkish. Some items were amended to ensure clarity in terms of cultural context. Then, item equivalence was assured between English and Turkish forms, and the scale was administered to 204 class teachers by the researcher. As a result of the first step of factor analysis run to compute the construct validity, 20 items were removed because of having either too low or too high factor loadings, and the test was re-run on the remaining 30 items. The Cronbach Alpha internal consistency coefficient of the 30-item scale was calculated as 0.91. The new scale emerged as a two-end instrument, reflecting the respondent's science attitude. The 22 items reflecting a traditional science approach were positively coded, and 8 items reflecting the non-traditional approach were negatively coded. In this phase, the Cronbach Alpha internal consistency coefficient was computed as 0.72.

Attitude to scientific research scale

The scale, developed by Korkmaz et al. (2011), aims to determine participants' attitudes towards scientific research and is comprised of 68-items. For reliability analysis, explanatory and confirmatory factor analysis was performed, along with item discrimination powers. For the construct validity, Kaiser-Meyer-Olkin (KMO) and Bartlett analyses were performed, and the following results were found: KMO= 0.862; Bartlett test value χ^2=13680,357; sd=2278 (p=0.000). As, in behavioral science, KMO value above 0.60 is accepted as sufficient to run factor analysis (Büyüköztük, 2002), the researcher proceeded with factor analysis of the 68-item scale.

To test the discriminant validity of the scale, *Varimax orthogonal rotation technique was utilized and factor loading were examined.* Accordingly, a total of 38 items with item loadings below 0.30, whose loadings diverge on different factors at similar levels, were removed from the scale, and the analyses were performed again with the remaining items.

Ultimately, the remaining 30 factors seemed to belong to four groups of factors. The final form of the scale with 30 items produced the KMO value of 0.874, and Bartlett Test values of χ^2=6773,126; sd=435; p<0.000.

The content of the items was analyzed to name the four main factors. Accordingly, 8 items were gathered under the factor called 'Unwillingness to help the researchers (F1)'; 9 items under 'Negative attitude towards researchers (F2)', 7 items under 'Positive attitude towards researchers (F3)', and 6 items under 'Positive attitude towards researchers (F4)'.

The confirmatory factor analysis, which was run without any limitation on the number of factor loadings, yielded the following fit indices: [χ^2 (d=399, N=372) = 816,14, p<0.01, RMSEA< 0.053, S-RMR= 0.047, GFI= 0.90, AGFI= 0.85, CFI= 0.95, NNFI= 0.95, IFI= 0.94]. The observed values on the scale in χ^2/d<3; 0<RMSEA<0.05; 0≤SRMR≤ 0.05; 0.97≤NNFI≤1; 0.97≤CFI≤1; 0.95≤GFI≤1; 0.90≤AGFI≤1 and 0.95≤IFI≤1 intervals showed a perfect fit, and in 4<χ^2/d<5; 0.05<RMSEA<0.08; 0.05≤S-RMR≤0.1; 0.95≤NNFI≤0.97; 0.95≤CFI≤0.97; 0.90≤GFI≤0.95; 0.85≤AGFI≤0.90 and 0.90≤IFI≤0.95 intervals showed an acceptable fit (Kline, 2005; Şimsek, 2007).

The correlation values between the two co-half in the scale comprised of 30 items and 4 factors are 0.598 and 0.760; Sperman Brown reliability coefficients are 0.748 and 0.864; Guttmann Split-Half values are 0.751 and 0.861; Cronbach alpha reliability coefficients are 0.765 and 0.851. As can be seen here, the internal consistency coefficients of the factors, as well as the Cronbach Alpha internal consistency coefficient of 0.83, are high.

Academic motivation scale

Developed by Bozanoğlu (2004), the scale aims to determine the academic motivation level of the participants. It is comprised of 20 items and 3 sub-scales. In the construct validity test, initially 53 items were subject to factor analysis. The items which load the least, or which load on more than one factor so closely that they are indistinguishable, were removed from the analysis, and the analysis was performed again. The remaining 20 items were grouped under three factors, and no item was left out.

In the same way, 30.3% of the totally explained 42.2% variance is explained by the first factor, while the remaining 11.9% was explained by the second (6.9%) and the third factor (5.0%).

After analyzing the variances explained by the factors and the content of the items placed under factors, it was concluded that the scale could be used with factors or as a one-dimensional scale. Thus, the item analyses were performed on factors and overall, separately. Academic Motivation Scale (AMS) is composed of 20 items, all of which are 5-point Likert scale type. All items, but one, were positively scored. Thus, the scoring of one item required reversed rotation. The respondents can get a minimum score of 20 and maximum score of 100 from the scale.

Test-retest method was used to compute the reliability of the scale with 101 participants. The correlation between the two administrations was found to be 0.87. The Cronbach alpha value computed for additional reliability evidence was found between 0.77 and 0.85 in the same group at different times, and between 0.77 and 0.86 in different groups. The Cronbach Alpha value of the scale in this study was found as 0.86.

Data analysis

This study aimed to understand the mediating role of scientific attitude on the relationship between scientific epistemological beliefs and motivations of teacher candidates. It was designed as correlational research. Mediation analysis was conducted through the use of IBM SPSS Statistics 22 software to answer the research question of the study.

RESULTS

Before the mediation analysis, the means, standard deviations and zero-order correlations among the variables were computed (Table 1). The results indicated that predictor and criterion variables were all significantly and positively correlated with each other.

After correlation analysis, the mediation of the effect of scientific epistemological belief on motivation through scientific attitude was computed using process analysis (Table 2). The interpretation was made due to Preacher and Hayes' process analysis (Preacher and Hayes, 2008) whether zero lies within the interval range was checked.

In this case, the true indirect effect 95% is likely to range from 0.0143 to 0.0894. The estimated effect is 0.0464 (lying between these two values). Thus, significant indirect effect was found. Due to the violation of the assumption of normality, bootstrapping was applied (Preacher and Hayes, 2008).

Table 1. Means, standard deviations of and inter-correlations among the criterion, predictor, and mediating variables.

Measure	M	SD	1	2	3
1.Scientific attitude	87.98	14.63	-	0.25**	0.23**
2.Scientific epistemological beliefs	116.97	12.41		-	0.24**
3.Motivation	68.17	12.55			

**p<0.01.

Table 2. Mediation of the effect of scientific epistemological belief on motivation through scientific attitude.

Predictors	b(s.e)	T	F	df	R^2
X	0.05	5.70	32.49	(1,645)	0.06
M	0.05	3.18	-	-	0.09
X	0.04	4.39	28.78	(2,644)	0.09

N= 647, *p<0.05

The results indicated that scientific epistemological belief was a significant predictor of attitude, b= 0.29, SE= 0.07, p< 0.05, and that scientific attitude was a significant predictor of motivation, b= 0.01, SE= 0.05, p<0.05. Scientific epistemological beliefs proved to be a significant predictor of motivation after controlling of the mediator effect, b=0.20, SE= 0.05, p<0.05 (Figure 1). There was a significant indirect effect of scientific epistemological belief on motivation through scientific attitudes, ab= 0.04, BCa CI [0.14, 0.89]. The mediator could account for roughly half of the total effect, P_M= 0.18. Bootstrap estimation was used to test the indirect effect with a sample of 1000 participants. It indicated that the indirect coefficient was significant, b= 0.05, SE= 0.001, 95% CI= 0143, 0894, which suggested the mediating role of scientific attitude. However, the direct effect between scientific epistemological belief and motivation remained significant after the inclusion of mediator. Thus, partial mediation was found. Overall, approximately 33% of the variance in motivation was accounted for by the predictor (R^2= 0.34).

DISCUSSION

The study, which aims to examine the effect of scientific attitudes on the relationship between teacher candidates' scientific epistemological beliefs and approaches to scientific research, revealed that scientific epistemological belief affects academic motivation, and attitude to scientific research affects partial mediation. In other words, it showed that there is a direct relation between pre-service teachers' scientific epistemological beliefs and academic motivation levels, and an indirect relation between epistemological belief and academic motivation, through approach to science. As also demonstrated by Pintrich (2002), epistemological beliefs,

academic cognition, and motivation are such learner qualities can ease or hinder learning. A major finding of the study is that epistemological belief, which refers to the subjective perception of what valid-reliable knowledge is and how it is accessed and produced, affects the motivation level by means of attitude. However, when the effect of the attitude is eliminated, the effect of epistemological belief on motivation prevails, so attitude has a function of partial variable.

Attitudes play a prominent role in learning scientific research methods because training individuals with a researcher's attitude lies in the root of scientific research (Saracaoğlu, 2008). Since attitudes are qualities that can change through time, it is regarded important that pre-service teachers should acquire a positive attitude to scientific research (Kürşad, 2015; Önen, 2011; Öztürk, 2016). Kapucu and Bahçivan (2015) found a significant positive correlation between scientific epistemological beliefs of Turkish high-school students and attitudes to physics. Similarly, Schruba (2008) found that university students' attitude to science significantly correlates with self-efficacy in learning biology, and Fulmer (2014) found that it correlates with attitude to science. The study carried out by Kızılgüneş et al. (2009) revealed a significant correlation between students' epistemological beliefs and learning outcomes. A study conducted by Ravindran et al. (2005) revealed that there is a significant relation between pre-service teachers' epistemological beliefs, learning objectives, and learning processes. Similarly, some studies provided evidence that epistemological beliefs influence students' academic performance (Holschuh, 1998; Tsai, 1998). The findings demonstrate that scientific epistemological beliefs correlate with attitudes positively.

The finding that scientific epistemological belief affects academic motivation levels is in line with that of other studies. Paulsen and Feldman (1999) demonstrated that
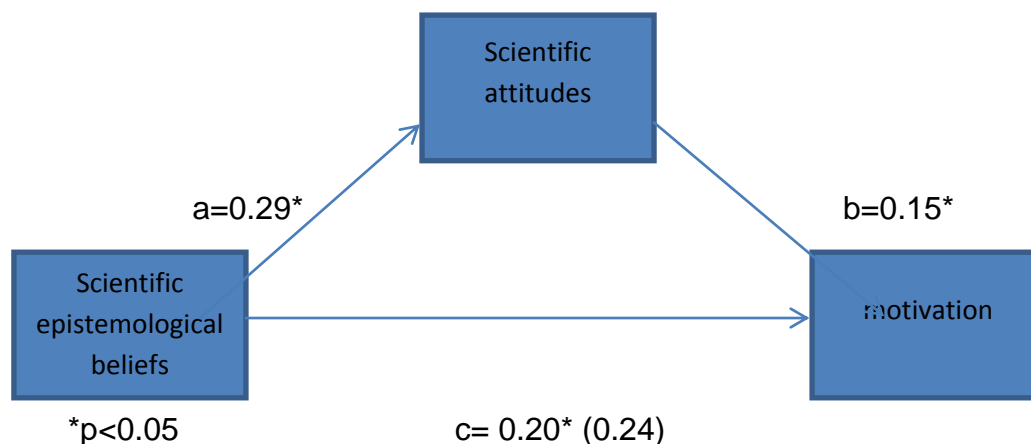
Figure 1. Standardized regression coefficients for the relationship between scientific epistemological belief and motivation as mediated by scientific attitudes. The standardized coefficient between scientific epistemological belief and motivation, controlling for scientific attitudes is in parentheses.

epistemological beliefs and motivation are positively correlated; learners who believe that the ability to learn can be improved tended to be goal orientated, appreciate the learning tasks, have control over their learning, and feel confident to learn, unlike the learners who simplistically believe that learning is an unchanging ability. Buehl (2003) showed evidence that epistemological beliefs increase students' motivation to achieve and enhance cognitive skills. Similarly, Murphy et al. (2002) carried out a study with 255 eight-grade students and 195 ninth-grade students, revealing that different dimensions of epistemological beliefs are differentially related to students' motivation. Kızılgüneş et al. (2010) claimed that epistemological beliefs influence learning approach directly, and learning approach and achievement indirectly through their direct effect on achievement motivation. Research conducted by Chen and Pajares (2010) demonstrated that epistemological beliefs have direct and indirect effects on academic motivation. A similar result was found in Buehl and Alexander's (2005) research, which yielded that students' Epistemological belief levels and motivation levels are in a linear relationship. Lin et al. (2013) conducted a similar study and the correlation coefficients in their study pointed to a certain relation between scientific epistemological beliefs and motivation to learn science. In conclusion, a positive relation seems to exist between scientific epistemological beliefs and motivation.

Gaining pre-service teachers a positive approach to scientific research is important as they will train students with similar attitudes in the future. Thus, it will help develop pre-service teachers' scientific approach and increase motivation towards scientific research. Within this framework, it seems critical to prepare settings and processes conducive to develop scientific approaches and increase motivation to research in the teacher training process. In addition, research can be conducted

to evaluate instructors, who have a significant role in equipping pre-service teachers with certain skills, as regards similar dimensions. The sample of this study is restricted to a group of pre-service teachers that are undergoing training in a single university in Turkey. Therefore, utmost care should be taken when generalizing the findings of the study. Finally, further qualitative research can be conducted to have a deep insight into the impact of pre-service teachers' attitude to scientific research on the relation between their scientific epistemological beliefs and academic motivation levels.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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Educational Research and Reviews

Full Length Research Paper

The relations among musical instrument performance self-efficacy, self-esteem and music performance anxiety in pre-service music teachers

Demet Girgin

Department of Music Education, Faculty of Necatibey Education, Balikesir University, 10100, Balikesir, Turkey.

This study investigated the relations among pre-service music teachers' musical instrument performance self-efficacy, music performance anxiety and self-esteem. This study was designed as a correlative survey, and was conducted with a total of 527 pre-service music teachers. The data were collected by using the Musical Instrument Performance Self-Efficacy Scale, the Coopersmith Self-Esteem Inventory and the Kenny Music Performance Anxiety Scale. Correlation and regression analyses were used in analyzing the data. The study findings showed the following results; there was an inverse low level significant relation between the musical instrument performance self-efficacy and the self-esteem levels of pre-service music teachers; there was a positive medium level significant relation between the musical instrument performance self-efficacy and the music performance anxiety levels of pre-service music teachers; there was an inverse medium level significant relation between the self-esteem levels and the music performance anxiety levels of pre-service music teachers.

Key words: Instrument education, pre-service music teacher, musical instrument performance self-efficacy, self-esteem, musical performance anxiety.

INTRODUCTION

Educating people and getting them to conform to social realities are closely associated with the education of teachers (Kılıç, 2017; Gürşimşek, 1998). This means that teacher education should be strongly emphasized in national education policies. This opinion is supported by the considerable amount of research on pre-service teachers (Çevik, 2011; Kılıç, 2014; Fajet et al., 2005; Gitlin et al., 1999).

Teacher education programs are known to have similar features in all the world's nations. These programs try to improve knowledge in three fundamental areas: field knowledge, pedagogical formation and general culture (Ayas, 2009). As in other countries, music teacher education is part of teacher training in Turkey.

In Turkey, pre-service music teachers assume the title of music teacher after four years of undergraduate music teacher education. When pre-service teachers graduate, they can teach general music education in elementary, middle and high schools. Pre-service teachers take many field courses as part of their educational curricula. One of

such course is instrumental education. Pre-service music teachers are taught more than one instrument within the scope of individual instrument (violin, viola, cello, etc.), piano and school instrument (recorder, guitar) courses in their department.

For this reason, individual instruments were considered in this study. As it is known, instrumental education has always played a significant role in music education and pre-service music teachers' education. The many studies of this subject in the literature can be regarded as evidence of this (Haston and Leon-Guerrero, 2008). Instrumental education is based on organized one-to-one contact that has been likened to a master and apprentice approach to teaching musical instruments (Jorgensen, 2000).

However, instrumental education is considered a challenging process. Instrumental education intrinsically requires students to practice a great deal. It also requires highly motivating students to perform routine exercises and studies. High musical instrument performance self-efficacy may ensure that pre-service teachers are more motivated to practice their instruments (Schunk, 1995). The literature suggests that teachers' self-efficacy affect students' self-efficacy, motivation and achievement positively (Ashton and Webb, 1986).

Teachers with self-efficacy can also be more effective, and have higher professional satisfaction (Barnes, 1999; Betoret 2009). Considering this information, it can be stated that strong musical instrument self-efficacy helps pre-service music teachers to learn their musical instruments better and affect the development of their students' self-efficacy and their professional satisfaction with teaching.

Accordingly, this study examined the relations among pre-service music teachers' musical instrument performance self-efficacy, music performance anxiety and self-esteem, whether self-esteem and musical performance anxiety predict musical instrument performance self-efficacy.

METHODOLOGY

Participants

This study was conducted with 527 pre-service music teachers in their first, second, third or fourth years in Uludag University , Abant Izzet Baysal University, Adnan Menderes University, Balikesir University, Mehmet Akif Ersoy University, Mugla Sitki Kocman University, Ondokuz Mayis University, Trakya University and Yüzüncü Yil University education faculties during the 2014 to 2015 academic year in Turkey. Of the participants, 61.9% were female and 38.1% were male. Their mean age (M_{age}) was 20.2.

Data collection instruments

The musical instrument performance self-efficacy scale

The Musical Instrument Performance Self-Efficacy Scale (MIPSS), which was developed by Girgin (2015), was used in this study to measure the musical instrument performance self-efficacy levels of pre-service music teachers. In the process of developing the scale, Girgin (2015) found that it has three sub-dimensions, namely, self-efficacy, self-inefficacy and psychological indicators. Girgin (2015) found the Cronbach alpha value for the entire scale is 0.72. The Cronbach alpha values for the scale's sub-dimensions are 0.86 for self-efficacy, 0.76 for self-inefficacy and 0.61 for "psychological indicators." The scores range from 1="strongly disagree" to 5="strongly agree" for the items on this five-point Likert-type scale. The MIPSBS has 20 items. Therefore, the highest and lowest possible scores are 100 and 20, respectively. A high score on the entire scale indicates a high level of musical instrument performance self-efficacy. This scale's reliability was found to be .86 in this study.

The Coopersmith self-esteem inventory

The Coopersmith Self-Esteem Inventory (C-SI), which was developed by Coopersmith (1967) and adapted to Turkish by Pişkin (1996) was used. The Turkish version of the scale was used in this study to determine the self-esteem levels of pre-service music teachers. The C-SI is intended to measure people's personal assessments of their self-worth in their social, academic, familial and individual lives.

Coopersmith found the test-retest reliability coefficient of the inventory to be 0.88 at a 5-week interval and 0.70 at a 3-year interval. C-SI has been revised several times since it was developed. There are two versions of the scale, a 25-item short form and a 58-item long form. The 58-item long form was used in this study. The inventory consists of 58 questions. Among these questions, eight lie items, which are not included in the total score, are inserted in the inventory to measure the consistency of the participants' responses. They simply repeat other items on the form. For the lie scale items, scales with a consistency of 5 or more were not included in the assessment.

The inventory's response choices are "like me" and "not like me" and are scored 2 and 1, respectively. The highest self-esteem score of the 58 questions is 100 because 8 questions are the lie items. The scale consists of four sub-dimensions, namely, 'general self-esteem', 'social self-esteem', 'self-esteem concerning family and home' and finally, 'academic self-esteem'. A high score on the scale indicates high self-esteem. The long form of the inventory that comprises 58 questions was used in this study. The KR-20 reliability coefficient of the inventory was determined to be 0.87.

The Kenny music performance anxiety scale

The Kenny Music Performance Anxiety Scale (K-MPAS), which was developed by Kenny et al. (2004), and adapted to Turkish by Tokinan (2013). This study used the Turkish version to determine pre-service music teachers' music performance anxiety levels. The K-MPAS was revised in 2009, and the revised version has 40 questions in 12 sub-factors that are divided into the following three categories:

(1) Early relationship (transfer of the anxiety through generations; familial empathy)
(2) Psychological vulnerability (depression/hopelessness, controllability, trust, constant performance anxiety)
(3) Related performance situations (related somatic anxiety, fear/terror (negative perception), thinking before and after the performance, self-control/control by others, opportunity value, memory reliability).

The Turkish form of the inventory consists of 25 questions on 5 factors based on the analysis of the data that was obtained from

Table 1. Descriptive statistics of the studied variables.

Variable	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
MIPSS	1.00	5.00	3.09	0.62	-0.090	0.203
Self-efficacy (SE)	1.00	5.00	3.08	0.81	-0.08	-0.44
Self-inefficacy(SI)	1.00	5.00	3.35	0.85	-0.04	-0.47
Psychological indicators (PI)	1.00	5.00	2.84	0.75	0.12	-0.36
C-SI	1.00	2.00	1.28	0.16	0.46	-.0.62
General Self-esteem (GSE)	1.00	2.00	1.29	0.18	0.57	-0.49
Social Self-esteem(SSE)	1.00	2.00	1.22	0.20	0.87	0.13
Home/Family self-esteem (HFSE)	1.00	2.00	1.25	0.23	0.84	0.03
Academic-school self-esteem (ASSE)	1.00	2.00	1.40	0.24	0.28	-0.58
K-MPAS	0.00	6.00	3.42	1.18	-0.081	-0.441
Negative performance perception (NPP)	0.00	6.00	3.41	1.31	-0.12	-0.54
Psychological vulnerability (PSV)	0.00	6.00	3.64	1.15	-0.28	-0.16
Somatic anxiety (SA)	0.00	6.00	2.52	1.75	0.17	-0.95
Self-control (SC)	0.00	6.00	2.71	1.83	0.19	-1.01
Physiological vulnerability (PHV)	0.00	6.00	3.38	1.97	-0.18	-1.14

n=527.

696 students during its Turkish adaptation. The sub-dimensions of the inventory are negative performance perception, psychological vulnerability, somatic anxiety, self-control and physiological vulnerability.

Tokinan (2013) found the Cronbach alpha reliability coefficient of the inventory to be 0.89. The scores range from 0="strongly disagree" to 6="strongly agree" on a seven-point Likert-type scale. The highest and lowest possible scores on the entire scale are 150 and 0, respectively. A high score indicates a high level of music performance anxiety. This scale's Cronbach alpha 550reliability coefficient was found to be .93 in this study.

Data analysis

The arithmetic averages and standard deviation values of the pre-service music teachers are presented in this study as the descriptive statistics for their scores on MIPSS, C-SI and K-MPAS. A correlation analysis was performed to determine the relations among musical instrument performance self-efficacy belief, self-esteem and music performance anxiety. A stepwise multiple regression analysis was conducted to determine how self-esteem and music performance anxiety predict musical instrument performance self-efficacy.

FINDINGS

The findings of the research are presented below.

Descriptive statistics

The descriptive statistics that were obtained from MIPSS, C-SI and K-MPAS are shown in Table 1. It can be concluded from Table 1 that the musical instrument performance self-efficacy belief (M=3.09) and self-esteem (M=1.28) averages of the pre-service music teachers were moderately high, and their average level of music

performance anxiety (M=3.42) was in moderate level.

Findings of the correlation analysis

The significant relations among MIPSS, C-SI and K-MPAS were tested with a Pearson correlation coefficient, and the results are shown in Table 2.

As Table 2 indicates, an inverse low level significant relation was found between the musical instrument performance self-efficacy and the self-esteem levels of pre-service music teachers (r=-0.279; p<0.01). A positive medium level significant relation was found between the musical instrument performance self-efficacy beliefs and the music performance anxiety levels of pre-service music teachers (r=0.511; p<0.01). An inverse medium level significant relation was found between the self-esteem levels and the music performance anxiety levels of pre-service music teachers (r=-0.383; p<0.01).

The highest correlation between K-MPAS and the sub-dimensions was; K-MPAS and Negative Performance Perception (NPP) (r=0.972; p<0.01). The highest correlation between C-SI and the sub-dimensions was; C-SI and General Self-Esteem (GSE) (r=.926; p<0.01). The highest correlation between MIPSS and the sub-dimensions was; MIPSS and Self-Efficacy (SE) (r=.849; p<0.01). The highest correlation between C-SI and K-MPAS was; C-SI and Psychological Vulnerability (PSV) (r=-.480; p<0.01). The highest correlation between MIPSS and K-MPAS was; MIPSS and K-MPAS (r=511; p<0.01).

Finally, the highest correlation between MIPSS and C-SI was; Self-Inefficacy (SI) and Academic-School Self-Esteem (ASSE) (r=-348; p<0.01).

Table 2. Correlations among the variables.

Variable	K-MPAS	2	3	4	5	6	7	8	9	10	11	12	13
2-NPP	0.972 (**)	-	-	-	-	-	-	-	-	-	-	-	-
3-PSV	0.868 (**)	0.747 (**)	-	-	-	-	-	-	-	-	-	-	-
4-SA	0.667 (**)	0.622 (**)	0.497 (**)	-	-	-	-	-	-	-	-	-	-
5-SC	0.673 (**)	0.632 (**)	0.488 (**)	0.534 (**)	-	-	-	-	-	-	-	-	-
6-PHV	0.701 (**)	0.665 (**)	0.509 (**)	0.524 (**)	0.534 (**)	-	-	-	-	-	-	-	-
7- C-SI	-0.383 (**)	-0.342 (**)	-0.480 (**)	-0.151 (**)	-.0100 (*)	-0.102	-	-	-	-	-	-	-
8-GSE	-0.382 (**)	-0.339 (**)	-0.476 (**)	-0.160 (**)	-0.100 (*)	-0.115 (**)	0.926 (**)	-	-	-	-	-	-
9-SSE	-0.107 (*)	-0.113 (**)	-0.086 (*)	-0.217 (**)	0.041	0.054	0.706 (**)	0.554 (**)	-	-	-	-	-
10-HFSE	-0.152 (**)	-0.140 (**)	-0.211 (**)	-0.014	-0.002	0.012	0.684 (**)	0.503 (**)	0.463 (**)	-	-	-	-
11-ASSE	-0.455 (**)	-0.414 (**)	-0.474 (**)	-0.284 (**)	-0.244 (**)	-0.287 (**)	0.637 (**)	0.476 (**)	0.265 (**)	0.258 (**)	-	-	-
12MIPSS	0.511 (**)	0.509 (**)	0.411 (**)	0.402 (**)	0.350 (**)	0.343 (**)	-0.279 (**)	-0.242 (**)	-0.113 (**)	-0.077	-0.401 (**)	-	-
13-SE	0.347 (**)	0.326 (**)	0.293 (**)	0.311 (**)	0.276 (**)	0.275 (**)	-0.092 (*)	-0.064	0.015	0.037	-0.283 (**)	0.849 (**)	-
14-SI	0.410 (**)	0.427 (**)	0.327 (**)	0.248 (**)	0.219 (**)	0.225 (**)	-0.330 (**)	-0.282 (**)	-0.211 (**)	-0.151 (**)	-0.348 (**)	0.812 (**)	0.477 (**)
15-PI	0.472 (**)	0.489 (**)	0.351 (**)	0.371 (**)	0.310 (**)	0.279 (**)	-0.347 (**)	-0.343 (**)	-0.169 (**)	-0.162 (**)	-0.314 (**)	0.538 (**)	0.092 (*)

**p<0.01 (Note; K-MPAS=Kenny Music Perrformance Anxiety Scale; NPP= Negative Performance Perception; PSV= Psychological Vulnerability ; SA= Somatic Anxiety; SC= Self-Control; PHV= Physiological Vulnerability; C-SI= The Coopersmith Self-Esteem Inventory; GSE= General Self-Esteem; SSE= Social Self-Esteem; HFSE= Home/Family Self-Esteem; ASSE= Academic-School Self-Esteem; MIPSS= The Musical Instrument Performance Self-Efficacy Scale; SE= Self-Efficacy; SI=Self-Inefficacy;PI=Psychological Indicators).

Findings of regression analysis

To explore whether the gender, self-esteem levels and music performance anxiety levels of pre-service teachers predict the musical instrument performance self-efficacy, a multiple regression analysis was conducted. The results are shown in Table 3.

As Table 3 shows, the regression model used the musical instrument performance self-efficacy belief as the dependent variable, and the independent variables –gender, self-esteem and music performance anxiety – were found to be significant ($F_{(3;523)}$ = 65,524, p<0.05). A medium level (R= 0.523) multiple correlation coefficient was obtained among gender, music performance anxiety, self-esteem and the musical instrument performance self-efficacy beliefs of pre-service music teachers. No auto correlation was found among the independent variables. In multiple regression analysis, the fact that there is autocorrelation between independent variables can cause inaccurate results and modeling.

Therefore, correlation analysis is used to determine whether there is autocorrelation between independent variables (Ünver and Gamgam, 1996). The regression analysis assumption that no autocorrelation existed among the independent variables was proven. The results of the study indicated that gender, music performance anxiety and self-esteem levels account for 27% of the pre-service music teachers' musical instrument performance self-efficacy beliefs. It was determined that gender has no significant effect on the musical instrument performance self-efficacy of pre-service music teachers (p>0.05) according to the regression coefficients. It was also determined that self-efficacy and music performance anxiety affect the musical instrument performance self-efficacy of pre-service music teachers (p<0.05).The variable that primarily affects musical instrument performance self-efficacy levels is music performance anxiety (β=0.459) according to the standardized beta coefficients.

The effect size of the adjusted R square calculated in the stepwise analysis is determined by Cohen's f2. This value was found to be high (Ellis, 2010), indicating that the result obtained from the regression analysis was significant. In other words, this value shows that music performance anxiety and self-esteem significantly increase musical instrument self-efficacy.

DISCUSSION

The objective of this study was to determine the relations among pre-service music teachers' musical instrument performance self-efficacy beliefs, music performance anxiety and self-esteem, whether self-esteem and musical performance anxiety predict musical instrument

Table 3. Regression analysis.

Unstandardized coefficients standardized coefficients					
Variable	B	Std. Error	Standardized Beta	t	Sig.
(Constant)	2.743	0.243	-	11.297	0.000
Gender	0.08	0.049	0.063	1.656	0.098
K-MPAS	0.241	0.022	0.459	11.126	0.000
C-SI	-0.396	0.159	-0.101	-2.49	0.013

$F_{(3;523)}$=65,524; p=0.000; R=0.523; Adjusted R Square=0.269; f 2 =0.34.

performance self-efficacy and the effect of gender on these relations.

The results of the study indicated that an inverse low level significant relation existed between musical instrument performance self-efficacy and the self-esteem levels of pre-service music teachers. This result of the study is unlike those of other studies in the literature. In literature, it is stated that there is a significant correlation between self-efficacy and self-esteem (Bacchini and Magliulo, 2003).

The results also showed that a positive medium level significant relation existed between musical instrument performance self-efficacy and the music performance anxiety levels of pre-service music teachers. This result is also unlike those of other studies in literature, which found that anxiety had a negative, significant correlation with self-efficacy (Brown and Morrissey, 2004; Lucchetti et al., 2003). This may be due to the fact that these concepts can come up with different results according to cultures. (You had requested what are these? I had explained next sentence) For example, Topoğlu (2014) stated that culture plays a distinctive role in music performance anxiety. Studies of the correlations between these concepts have generally been conducted in the West. This may be due to cultural differences. According to author, the reasons for this situation and which correlations between these concepts occur in different cultures can be examined.

Other result of the study indicated that an inverse medium level significant relation existed between the self-esteem levels and the music performance anxiety levels of pre-service music teachers. This inverse interaction between anxiety and self-esteem agreed with the results of a study by Taylor and Del Pilar (1992) on the relations among self-esteem, anxiety and alcohol use. The literature includes many study results that support the negative correlation between self-esteem and anxiety (Ma et al., 2014).

Another finding of the study was that the most influential variable on the musical instrument performance self-efficacy of pre-service teachers was music performance anxiety. The results also revealed that the gender of pre-service music teachers had no significant effect on their musical instrument performance self-efficacy. This finding was consistent with the findings of studies in other disciplines in the literature. Reisoğlu et al. (2013) found that the self-esteem levels of pre-service teachers do not differ concerning gender in their study that examined the relation among the self-esteem and emotional intelligence levels of 2,200 pre-service teachers and problematic internet usage. Munford (1994) also revealed that self-esteem levels did not differ regarding gender on the relations among depression, gender, self-esteem, social class, race and identity in a study that was conducted with 146 university students.

Music is a performance-based skill. As stated earlier, it can be stated that strong musical instrument self-efficacy beliefs help pre-service music teachers to learn better in instrumental education as in other fields and positively affects both the development of their students' self-efficacy and their professional satisfaction with teaching. Various researches support this result (Çevik, 2010; Çevik, 2011). For these reasons, it is necessary to determine the variables that help pre-service music teachers develop strong musical instrument performance self-efficacy. This study is crucial in this respect.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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