

## EXAMINATION OF THE RELATIONSHIP BETWEEN THE TENDENCY OF CRITICAL THINKING AND THE ATTITUDE TOWARDS TEACHING CONTROVERSIAL ISSUES

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### ABSTRACT

The aim of this research is to determine the power of social studies preservice teachers' critical thinking tendencies to predict their attitudes towards teaching controversial issues. The research was designed according to the relational screening model of quantitative research methods. The sample of the research consisted of 204 social studies preservice teachers studying in the spring semester of the 2018-2019 academic year. Statistics were collected with the help of the Questionnaire for Social Studies Preservice Teachers Scale and Marmara Critical Thinking Trends Scale. In statistics analysis for independent group t-test, one-way ANOVA, Kruskal Wallis-H test and simple linear regression analysis were analysed. As a result of the research, it was found that there was a significant difference between the groups in terms of classroom and general academic average variables of preservice teachers' attitude towards teaching controversial topics, and the variables of critical thinking disposition of interest towards social problems. No significant difference was found of preservice teachers in the variables of gender, age, family monthly income, monthly income, quality of place with family, interest in social problems and the number of books read per month and on the other hand, there was no significant difference of preservice teachers between the variables of gender, age, grade, general academic average, family monthly income, monthly income, quality of place with family and number of books read. In the research, it was determined that the preservice teachers' critical thinking tendencies significantly predicted 20% of their attitudes towards teaching controversial issues.

**Keywords:** Critical thinking tendency, preservice teachers, controversial issues.

## INTRODUCTION

The twenty-first century is a period of technological developments that change human life in socio-economic, cultural and political terms. All these changes and developments have also led to the development of new perspectives in the understanding of citizenship. Education plays an important role in ensuring social transformation in all communities living on earth. Social studies course has an important role in order to fulfil the role of education to provide the student with the necessary knowledge, skills and values in order to educate effective citizens. Nowadays, in order to be effective citizens in the society they live in, critical thinking skill is one of the most important skills they need (Tümkiye and Aybek 2008).

In today's society, education programs have a priority place in raising individuals. In this respect, in the specific objectives of the curriculum of the social studies course of 2018, it is aimed to educate students who have critical thinking skills as individuals who know how to reach correct and reliable information at the end of education and training. At the same time, one of the 27 basic skills that the social studies course curriculum aims for students to gain is critical thinking skill (MEB, 2018).

It is necessary to bring real life to school in order to teach these skills to the students. There are a number of important issues to be taken as a basis for bringing real-life to school. These issues consist of current, social, political and economic controversial issues of that period or past. Of course, these issues can be related both to the environment in which the school is located, to the whole country and to the world. It can be handled such topics like world wars, economic crises, terror, political systems, ethnic issues, globalization, freedom of thought, secularism, environmental pollution, global warming. The school should fulfil its duty of preparing students for life and raising them as an effective and productive, questioning citizen by presenting these and similar controversial topics to the students in social studies courses and making them comment on these issues and generate ideas (Seçgin, 2009).

Controversial topics are a very useful and effective tool for educating individuals who have developed thinking skills and are inquisitive. The social studies course should use this functional and effective tool in the best way in education. At this point, there is a need to determine the relationship between social studies preservice teachers' critical thinking dispositions and their attitudes towards teaching controversial subjects.

Controversial issues are expressed as the fact that many people think differently on a topic or a problem and their ideas are contradictory (Yılmaz, 2012). In addition, controversial issues are defined as a reflective dialogue between students or between students and teachers about a subject with disagreement (Harwood and Hahn, 1990). As Washington and Humphries (2011) noted research shows that the main reason for teachers to deal with controversial issues in their classes is their belief that students must deal with controversial problems in order to be effective participants in a democratic society (Hess, 2002; Hess and Posselt, 2002; Rossi, 1995; Waterson, 2009).

Active citizens in a democratic society are expected to be conscious individuals on controversial issues. Indeed, the importance of controversial issues in citizenship education has been highlighted by the National Council for Social Studies (NCSS, 2016). Teachers point out that such issues are both a useful stimulus for students' participation in class and class discussion, and provide an excellent opportunity to develop some skills (knowledge, assessment, asking perceptual questions, empathy, etc.) that will be useful in adult life (Stradling, 1984). Given its potential benefits, teaching controversial issues appears to be at an important point in education.

When the relevant literature is examined, it is possible to see the researches on controversial issues (Avaroğulları, 2015; Byford, Lennon and Russell, 2009; Clabough, Philpott, McConkey and Turner, 2010; Clarke, 2005; Çopur, 2015; Dean and Joldoshaieva, 2007; Deniz, 2018; Dube, 2009; Ersoy, 2013; Hand ve Levinson, 2012; Hanurawan and Waterworth, 2011; Harwood and Hahn, 1990; Healey, 2012; Hess, 2001; Holden and Hicks, 2007; Koldas, 2018; Larson, 1999; Levinson, 2006; Mazzolini and Maddison, 2002; McBee, 1996; Mhlauli, 2011; Misco and Patterson, 2007; Neal, 2013; Oulton, Dillon and Grace, 2004; Öztürk, 2017; Payne and Gainey 2003; Philpott, Clabough, McConkey and Turner, 2011; Khishfe, 2012; Seçgin, 2009; Smith and Lennon, 2011; Soley, 1996; Solomon, 1992; Tatar, 2019; Tuncer, 2018; Yılmaz, 2012; Zembylas and Froso, 2012) and on critical thinking (Adams, Stover and Whitlow, 1999; Akar, 2007; Akbıyık, 2002 Bökeoğlu and Yılmaz, 2005; Can and Kaymakçı, 2015; Çığrı Yıldırım, 2005; Çubukçu, 2006; Deniz and Kaptan, 2011; Doğanay, Akbulut-Taş and Erden, 2007; Emir, 2012; Gibson, 2013; Grosser and Lombard, 2008; Hamurcu, Gunay and Akamca, 2005; Korkmaz, 2009; Kurum, 2002; Leaver-Dunn, Harrelson, Martin and Wyatt, 2002; Loken, 2005; Narin and Aybek, 2010; Özdemir, 2005; Öztürk and Ulusoy, 2008; Scott, Markert and Dunn, 1998; Semerci, 2003; Şen, 2009; Thompson, 2001; Tümkaya, 2011; Tümkaya and Aybek, 2008; Türnüklü and Yeşildere, 2005; Yücel, 2018). However, there is no study in the literature that indicates the level of critical thinking disposition predicting attitudes towards teaching controversial subjects. In this context, the aim of this study is to determine the factors that affect the attitudes of social studies preservice teachers towards teaching critical thinking and their attitudes towards teaching controversial subjects and to determine the power of the preservice teachers of critical thinking attitudes towards teaching controversial subjects.

#### **METHOD PRESERVICE**

In this section, information about research design, universe and sample, statistics collection tools, statistics collection process and statistical analysis are presented.

#### **RESEARCH DESIGN**

The research was designed on the basis of relational survey model, one of the quantitative research methods. The relational screening model, which has two types, namely comparison and correlation, is a research model for determining the existence of change between two and more variables and / or the strength of the relationship (Karasar, 1995). In this research, both types of relational screening model were utilized because

both predictive analyses were needed and whether there was a statistically significant difference between the scale scores compared to the independent groups.

### POPULATION AND SAMPLING

The population of the study consisted of 288 social studies preservice teachers studying in the spring term of the 2018-2019 academic year in the education faculty of a state university in the Aegean region. Appropriate sampling method was used as sampling method. Appropriate sampling is defined as the sampling of individuals who are willing to participate voluntarily in the immediate environment, easy to access. (Ekiz, 2009). In this respect, statistics were collected from 213 social studies preservice teachers on the basis of volunteering principle. 9 forms that were inaccurate, incomplete, invalid, filled or extreme value were excluded from the study and analyses were conducted on 204 forms. Table 1 presents information about the demographic variables of the social studies preservice teachers who have participated in this research.

**Table 1.** Demographic Information

Variables	Features	f	%
Gender	Female	124	60.8
	Male	80	39.2
Age	18-19	36	17.6
	20	49	24.0
	21	50	24.5
	22	38	18.6
	23 years old and more	31	15.2
Class	1st Class	52	25.5
	2nd Class	53	26.0
	3rd Class	49	24.0
	4th Class	50	24.5
Academic Grade Point Average	0 - 2.49	63	30.9
	2.50 - 2.99	72	35.3
	3.00 and more	69	33.8
Monthly Income of the Family	0-2000 TL	66	32.4
	2001-3000 TL	66	32.4
	3001and more TL	72	35.3
Preservice teachers' Monthly Income	0-500 TL	103	50.5
	501-1000 TL	75	36.8
	1001 and more TL	26	12.7
Quality of the place you live with the family	Village	42	20.6
	Town	47	23.0
	City	62	30.4
	Metropolis	53	26.0
Interest in Social Problems	Not much interested	33	16.2
	Reasonable interested	101	49.5
	Much interested	70	34.3
Number of Books Read per Month	0	34	16.7
	1	72	35.3
	2	65	31.9
	3 and more	33	16.2
	Total	204	100

### **STATISTICS COLLECTION TOOLS**

The research statistics were collected by three statistics collection tools. In the personal information section of the participants, which constitute the first statistics collection tool are as following: gender, age, grade, academic grade point average, monthly income of the family, the monthly income of the social studies preservice teacher, the quality of the place you live with the family, the interest in social problems and the number of books read per month. The related variables were formed from situations that could affect the attitudes and critical thinking tendencies of teaching controversial subjects. As the second and third statistics collection tools, it was used the Controversial Issues Scale for Social Studies Preservice teachers developed by Alagöz (2014) and the Marmara Critical Thinking Trends Scale developed by Özgenel and Cetin (2018). The 5-point Likert-type Controversial Questionnaire consists of 34 items and the Marmara Critical Thinking Trends Questionnaire consists of 28 items. The highest score that can be obtained from the Controversial Issues Scale is 170 and the lowest score is 34. The highest score that can be obtained from Marmara Critical Thinking Trends Scale is 140 and the lowest score is 28. The internal consistency coefficient (Cronbach's Alpha) was calculated to determine the reliability of the data collected from the sample group. The internal reliability coefficient of the statistics obtained in this study was 88 for the Controversial Topics Scale and 91 for the Critical Thinking Trends Scale. A reliability coefficient of 70 or higher is generally considered sufficient for the reliability of the test scores (Büyüköztürk, 2016). Another procedure to determine the validity and reliability was to examine the discriminative power of the scales. For each scale to determine the discriminative power of the scales, the t-value of the difference between the attitude and critical thinking disposition scores and the mean of teaching the controversial subjects in the upper and lower groups were calculated. The upper and lower groups were composed of 55 individuals, 27% of all forms, with the respective scores ranked from high to low. A significant difference was observed between the 27% and the upper groups in the scale scores, indicating that the scales were able to distinguish the lower and upper groups. Scales developed with the participation of similar samples (teachers or preservice teachers) were used in the study in order not to adversely affect validity and reliability. Since the volunteer status of the participants also had a role in the validity and reliability (Yıldırım & Şimşek, 2008), statistics were collected only from the volunteers. In order to reach healthy results within the scope of validity and reliability, extreme value forms were also excluded from the analysis.

### **STATISTICS COLLECTION**

The research data were obtained from social studies preservice teachers who participated in the study voluntarily. Before the application, preservice teachers were informed about the purpose, importance of the research and the situations that should be considered while filling the statistics collection tools that statistics collection tools should not include names, confidentiality was the basis of the research, and that the collected statistics would be used only within the scope of the research. All of the statistics collection tools were distributed at the same time to the preservice teachers who volunteered to participate in the research 15

minutes before the undergraduate courses with the permission of the faculty member and collected by the researcher after 20 minutes of practice.

### STATISTICS ANALYSIS

For the analyses, the assumptions of the statistics set were examined and firstly, it was examined whether the pre-service teachers' attitude towards teaching controversial topics and the critical thinking tendency scores showed normal distribution characteristics. For the scores of the preservice teachers from the scales both for the total score and for each variable; Kolmogorov-Smirnov values, skewness and kurtosis coefficients, histogram with normal distribution curve and box – line graph were examined. The significance level of Kolmogorov-Smirnov value was higher than 05 and the skewness and kurtosis values were between -1 and +1, and the statistics set showed normal distribution with the graphs examined. The fact that the statistics showed normal distribution characteristics for both scales and met the other assumptions (homogeneity of variance, etc.) showed that parametric techniques could be used in the analyses. However, non-parametric tests were used in these variables due to the fact that one of the sample groups was less than 30 in the monthly income variable and because the variance was not homogeneous in the scores obtained from the attitude scale towards teaching controversial issues in the variable of interest towards social problems. Descriptive analysis was used to examine the attitudes of social studies preservice teachers towards teaching controversial topics and critical thinking tendency, and t-test was used for independent groups to examine whether there was a significant difference between the groups according to the relevant variables for each scale score, one-way ANOVA, Sidak multiple comparison test and Kruskal-Wallis test; simple linear regression analysis was used to examine the level of critical thinking dispositions to predict attitudes towards teaching controversial subjects. The Sidak test, which is one of the multiple comparison tests that can be selected if the variances are equal and the number of groups to be compared is not equal, is preferred because the necessary assumptions are met. The significance level was accepted as 05 in the interpretation of the statistics.

### RESULTS

In this section, the general distribution of the scores of social studies preservice teachers' attitudes towards teaching controversial subjects and critical thinking tendencies, whether the scores obtained from the scales for each variable make a statistically significant difference between the groups and the critical thinking tendencies of social studies preservice teachers and the findings obtained about the level of predicting their attitudes towards students are presented. Table 2 presents the general distribution of the scores obtained from social studies teacher candidates' attitudes towards teaching controversial subjects and critical thinking disposition scales.

**Table 2.** General Distribution of the Scores of Social Studies Preservice teachers from Controversial Issues (C.I.) and Critical Thinking Tendencies (C.T.T.) Scales

Scale	Number of Participants	Highest Value Can be Obtained	Lowest Value Can be Obtained	Lowest Value	Highest Value	$\bar{X}$	Ss
C.I.	204	170	34	103	170	143.3428	13.888
C.T.T.	204	140	28	80	140	113.8357	12.135

When Table 2 is examined, it is seen that the scores of the social studies preservice teachers in the attitude scale towards teaching controversial issues have an arithmetic mean of 143 and the arithmetic mean of critical thinking tendency scale is 114.

The t-test results for independent samples applied to determine whether social studies preservice teachers' attitudes towards teaching controversial subjects and critical thinking tendency scores differ significantly according to gender are presented in Table 3.

**Table 3.** Independent Group t-Test Outcome to Determine Whether the Controversial Issues and Critical Thinking Tendency Scale scores differ according to gender variable

Scale	Groups	N	$\bar{X}$	Ss	Sh <sub>x</sub>	t-Test		
						t	Sd	P
C.I.	Male	124	143.9670	13.67399	1.22796	.799	202	.425
	Female	80	142.3753	14.24456	1.59259			
C.T.T.	Male	124	113.5184	11.70680	1.05130	.464	202	.643
	Female	80	114.3275	12.82935	1.43436			

When Table 3 is examined, the attitudes of social studies preservice teachers towards teaching controversial issues ( $t_{(202)}=.799, p>.05$ ) and critical thinking tendencies ( $t_{(202)}=.464, p>.05$ ) were statistically significant and accordingly does not seem to create a significant differentiation.

Table 4 shows the results of one-way ANOVA to determine whether social science preservice teachers' attitudes towards teaching controversial issues and critical thinking tendency scores differ significantly according to age variable.

**Table 4.** The outcome of ANOVA to determine whether the Controversial Issues and Critical Thinking Tendency Scale scores differ according to age variable

Scale	Group	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p
C.I.	18-19 years old	36	142.4532	15.97117	Int. Gr.	463.217	4	115.804	.596	.666
	20 years old	49	141.5101	15.13624	I. Gr.	38687.949	199	194.412		
	21 years old	50	144.5802	12.98646						
	22 years old	38	145.5051	11.60291						
	23 years and more	31	142.6264	13.56237						
C.T.T.	18-19 years old	36	112.0833	11.05667	Int. Gr.	550.878	4	.137.719	.934	.445
	20 years old	49	112.4436	13.49665	I. Gr.	29340.785	199	147.441		
	21 years old	50	115.1750	11.31135						
	22 years old	38	116.2891	10.65716						
	23 years and more	31	112.9032	13.96031						

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When the results of one-way ANOVA regarding the total scores of the participants' attitudes towards teaching controversial issues and critical thinking tendency scales according to the age variable were examined (Table 4), it was seen that there was no significant difference between the groups regarding the attitudes towards teaching controversial issues ( $F_{(4-199)}=.596, p>.05$ ) and critical thinking tendency ( $F_{(4-199)}=.445, p>.05$ ) scores.

The results of the one-way ANOVA about whether the total scores obtained from the attitude and critical thinking tendency scales towards teaching controversial issues according to the grade variable show a significant difference between the groups are presented in Table 5.

**Table 5.** The outcome of ANOVA to determine whether the Controversial Issues and Critical Thinking Tendency Scale scores differ according to the Grade variable

	Gr.	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p	$\eta^2$
C.I.	1st grade	52	143.7030	14.49396	Int. Gr.	1561.936	3	520.645	2.770	.043*	.04
	2nd grade	53	138.9006	15.38978	I. Gr.	37589.230	200	187.946			
	3rd grade	49	144.9316	11.70841	Total	39151.166	203				
	4th grade	50	146.1200	12.76097							
C.T.T.	1st grade	52	112.5370	11.59859	Int. Gr.	771.403	3	257.134	1.766	.155	
	2nd grade	53	111.6521	12.26269	I. Gr.	29120.260	200	145.601			
	3rd grade	49	114.7140	10.75525	Total	29891.662	203				
	4th grade	50	116.6400	13.46766							

\*In favour of 4th grade

When the results of one-way ANOVA are analysed (Table 5), it is seen that there is a significant difference between the groups regarding the scores of controversial issues ( $F_{(3-200)}=2.770, p<.05$ ) of social studies preservice teachers. According to Sidak multiple comparison test results, there is a significant difference between 2nd and 4th grade in favour of 4th grade. The statistically significant difference ( $\eta^2 = .04$ ) between the groups in the controversial issues scores were found to have a moderate effect size. There was no significant difference between the groups in terms of critical thinking tendencies ( $F_{(3-200)}=1.766, p>.05$ ).

The results of one-way ANOVA about whether the total scores obtained from the attitude and critical thinking tendency scales towards teaching controversial issues according to the variable of the academic mean difference between the groups are presented in Table 6.

**Table 6.** The outcome of ANOVA to determine whether the Controversial Issues and Critical Thinking Tendency Scale Scores Differ According to the Academic Average Variable

	Gr.	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p	$\eta^2$
C.I.	0 - 2,49	63	138,1836	14,52233	Int. Gr.	2449,089	2	1224,544	6.706	.002*	.06
	2,50 - 2,99	72	146,0429	13,88410	I. Gr.	36702,077	201	182,597			
	3 and more	69	145,2360	12,09026	Total	39151,166	203				
C.T.T.	0-2,49	63	111,3456	13,70111	Int. Gr.	571,256	2	285,628	1.958	.144	
	2,50-2,99	72	115,1516	11,27681	I. Gr.	29320,406	201	145,873			
	3 and more	69	114,7361	11,28046	Total	29891,662	203				

\*2,50 – 2,99 and 3 and more in favour

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When Table 6 is examined, it is seen that there is a significant difference between the groups regarding the scores of controversial issues ( $F_{(2-201)}=6.706$ ,  $p<.05$ ) of social studies preservice teachers. According to Sidak multiple comparison tests, there is a difference that is statistically significant in favour of 2.50 - 2.99 academic average between 0 - 2.49 and 2.50 - 2.99, and statistically significant in favour of 3 and more groups between 0 - 2.49 and 3 and more. The statistically significant difference between the groups in the controversial issues scores was found to have a medium effect size ( $\eta^2 = .06$ ). There was no significant difference between the groups in terms of critical thinking tendencies ( $F_{(2-201)}=1.958$ ,  $p>.05$ ).

The results of one-way ANOVA about whether the total scores obtained from the attitude towards teaching controversial issues and critical thinking tendencies scale towards teaching controversial subjects according to the family monthly income variable are presented in Table 7.

**Table 7.** The outcome of ANOVA to determine whether the Controversial Issues and Critical Thinking Tendency Scale Scores Differ According to the Family Monthly Income Average Variable

Scale	Group	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p
C.I.	0-2000 TL	66	144.9645	13.48232	Int. Gr.	277.365	2	138.683	.717	.489
	2001-3000 TL	66	142.9726	13.31687	I. Gr.	38873.800	201	193.402		
	3001 and more TL	72	142.1957	14.79033	Total	39151.166	203			
C.T.T.	0-2000 TL	66	115.1157	11.68082	Int. Gr.	298.482	2	149.241	1.014	.365
	2001-3000 TL	66	114.2703	13.04342	I. Gr.	29593.180	201	147.230		
	3001and more TL	72	112.2639	11.66793	Total	29891.662	203			

When Table 7 is examined, it was found that there was not a significant difference between the groups of social studies preservice teachers regarding the controversial issues ( $F_{(2-201)}=.717$ ,  $p>.05$ ) and critical thinking tendencies ( $F_{(2-201)}=1.014$ ,  $p>.05$ ) scores.

The results of Kruskal Wallis-H Test conducted on whether the total scores obtained from the attitude towards teaching controversial issues and critical thinking tendency scales towards teaching controversial issues according to the variable of the monthly income of prospective teachers show a significant difference between the groups are presented in Table 8.

**Table 8.** The outcome of the Kruskal Wallis-H Test for Determining Whether the Differences of Controversial Issues and Critical Thinking Tendency Scale Scores According to the Monthly Income Variable of the Preservice teacher

Score	Groups	N	$\bar{X}$ rank	$\chi^2$	fd	p
C.I.	0-500 TL	103	99.73	.712	2	.700
	501-1000 TL	75	107.07			
	1001 and more TL	26	100.31			
	Total	204				
C.T.T.	0-500 TL	103	106.50	4.062	2	.131
	501-1000 TL	75	104.51			
	1001 and more TL	26	80.85			
	Total	204				

When Table 8 is examined, it is seen that there is no significant difference between the groups regarding the scores of controversial issues ( $p > .05$ ) and critical thinking tendencies ( $p > .05$ ).

The results of the one-way ANOVA about whether the total scores obtained from the attitudes towards teaching controversial issues and the critical thinking tendency scales differ according to the quality of the place of residence with the family are presented in Table 9.

**Table 9.** The outcome of ANOVA to determine whether the Controversial Issues and Critical Thinking Tendency Scale scores differ according to the quality of the place of residence with the family

	Gr.	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p
C.I.	Village	42	144.2315	13.19963	Int. Gr.	457.771	3	152.590	.789	.501
	District	47	142.8809	14.03251	I. Gr.	38693.395	200	193.467		
	City	62	141.4561	14.50559	Total	39151.166	203			
	Metropolis	53	145.2554	13.62754						
C.T.T.	Village	42	116.1667	13.27554	Int. Gr.	394.443	3	131.481	.891	.446
	District	47	112.3392	11.88537	I. Gr.	29497.220	200	147.486		
	City	62	112.9602	12.18835	Total	29891.662	203			
	Metropolis	53	114.3396	11.36072						

When Table 9 is examined, it is seen that there is no significant difference between the groups of social studies preservice teachers' scores regarding the controversial issues ( $F_{(3-200)}=.789, p > .05$ ) and critical thinking tendencies ( $F_{(3-200)}=.891, p > .05$ ) scores.

The results of the Kruskal Wallis-H Test and one-way ANOVA were presented in Table 10 and Table 11, respectively, to determine whether the total scores obtained from the scales of attitude towards teaching controversial issues and critical thinking tendencies according to the variable of interest in social problems show significant differences between the groups.

**Table 10.** The outcome of the Kruskal Wallis-H Test to Determine Whether the Score of the Controversial Issues Scale Differences According to the Variation of Interest in Social Problems

Score	Groups	N	$\bar{X}$ rank	$\chi^2$	fd	P
C.I.	Not much interested	33	99,09	4.007	2	.135
	Reasonable interested	101	95,76			
	Much interested	70	113,83			
	Total	204				

When Table 10 is examined, it is seen that there is no significant difference between the groups regarding the controversial issues scores of social studies preservice teachers ( $p > .05$ ).

**Table 11.** The outcome of ANOVA to determine whether the Critical Thinking Tendencies Scale scores differ according to the variable of interest in social problems.

	Gr.	N	$\bar{X}$	PD	Var. S.	Ss	Fd	MS	F	p	$\eta^2$
C.T.T.	Not much interested	33	111.6429	11.40846	Int. Gr.	1412.099	2	706.049	4.983	.008*	.05
	Reasonable interested	101	112.0326	11.76633	I. Gr.	28479.564	201	141.689			
	Much interested	70	117.4710	12.31825	Total	29891.662	203				

When Table 11 is examined, it is seen that there is a significant difference between the groups in terms of the critical thinking tendency ( $F_{(2-201)}=4.983$ ,  $p<.05$ ) scale scores of preservice social studies teachers. According to the results of Sidak multiple comparison tests, it is seen that there is a statistically significant difference between reasonable interested and much-interested groups in favour of much-interested groups. It was found that the statistically significant difference between the groups in the critical thinking tendency scores had a medium effect size ( $\eta^2 = .05$ ).

The results of one-way ANOVA about whether the total scores obtained from the attitude towards teaching controversial issues and critical thinking tendency scales according to the number of books read monthly show a significant difference between the groups are presented in Table 12.

**Table 12.** ANOVA Outcome to Determine if the Controversial Issues and Critical Thinking Tendency Scale scores differ according to the number of books read per month

	Gr.	N	$\bar{X}$	SS	Var. S.	Ss	Fd	MS	F	p
C.I.	0	34	143.8990	15.13148	Int. Gr.	768.481	3	256.160	1.335	.264
	1	72	140.7745	12.72940	I. Gr.	38382.684	200	191.913		
	2	65	144.9391	13.85759	Total	39151.166	203			
	3 and more	33	145.2292	14.82415						
C.T.T.	0	34	114.4126	11.74813	Int. Gr.	50.476	3	16.825	.113	.953
	1	72	113.4543	12.51788	I. Gr.	29841.187	200	149.206		
	2	65	113.5344	11.37688	Total	29891.662	203			
	3 and more	33	114.6667	13.55237						

When Table 12 is examined, it is found that there is no significant difference between the groups of social studies preservice teachers regarding the controversial issues ( $F_{(3-200)}=1.335$ ,  $p>.05$ ) and critical thinking tendencies ( $F_{(3-200)}=.113$ ,  $p>.05$ ) scores.

Table 13 shows the results of simple linear regression analysis for the prediction of attitude points towards teaching controversial issues according to the critical thinking tendencies variable.

**Table 13.** Results of Simple Linear Regression Analysis for Prediction of Social Entrepreneurship

	B	Sh.	$\beta$	R	$R^2$	Adj. $R^2$	t	p	F	r	E.D.E
Simple	85.390	8.256		.445	.198	.194	10.343	.000	49.833*	T.K.	.445*
E.D.E.	.509	.072	.445				7.059	.000		N	204

\* $p=.000$

As can be seen in Table 13, it was found that the critical thinking tendencies variable predicted the attitude towards teaching controversial issues statistically significant ( $R=.44$ ,  $R^2=0.20$ ;  $p<.05$ ). The variable of critical thinking tendencies explains approximately 20% of the total variance of the attitude towards teaching controversial issues.

## CONCLUSION AND DISCUSSION

According to the conclusion of the research, it can be said that the attitudes and critical thinking tendency of the sample group participating in the research towards teaching controversial issues are high. In support of the results, there are researches indicating that preservice teachers and teachers find teaching controversial issues useful (Byford, Russell and Lennon, 2009; Çopur, 2015; Hanurawan and Waterworth, 2011; Koldas, 2018; Mhlauli, 2011; Oulton, Dillon and Grace, 2004; Öztürk, 2017; Philpott, Clabough, McConkey and Turner, 2011; Seçgin, 2009; Soley, 1996; Tuncer, 2018; Yılmaz, 2012). As pointed out by Byford, Lennon and Russell (2009) and Ersoy (2013), attitudes are one of the important factors affecting students' participation in the discussion process. However, as seen in Tatar's (2019) research, controversial issues are covered by the neglected curriculum in terms of the objectives, content, learning and teaching processes of the school programs, and controversial issues are not adequately included in the lessons. Preservice teachers' attitudes towards teaching controversial issues are high, the fact that controversial issues can be used in acquiring the controversial issues in the Ministry of National Education curriculums, but there is not a course to meet the needs of such a subject during the undergraduate period and teachers do not consider themselves and their colleagues sufficient in teaching controversial issues (Clabough, Philpott, McConkey ve Turner, 2010; Clarke, 2005; Çopur, 2015; Deniz, 2018; Holden ve Hicks, 2007; Misco ve Patterson, 2007) it becomes necessary to make the controversial issues qualified in the curriculums and to provide training to the preservice teachers and teachers for their use in the lessons. In critical thinking, Akar (2007), Can and Kaymakçı (2015), Grosser and Lombard (2008), Türnüklü and Yeşildere (2005) and Yücel (2018) found that preservice teachers' critical thinking levels were not sufficient. Deniz and Kaptan (2011), Korkmaz (2009), Kurum (2002), Özdemir (2005) and Şen (2009) determined that preservice teachers were at a moderate level in terms of their critical thinking skills. Differences from our conclusion can be considered as the reason why the cultural environment does not prepare individuals to use their critical thinking abilities, as Grosser and Lombard (2008) stated.

In the research, it was observed that the gender variable did not create a statistically important difference both in attitudes towards teaching controversial issues and in critical thinking tendencies. Similarly, Tuncer (2018) found no important difference in the gender variable in the context of controversial issues. However, Seçgin (2009), who works on a similar topic, concluded that male preservice teachers were more positive in teaching controversial issues than female preservice teachers. Yılmaz's (2012) research found that the gender of the participants was effective in assessing whether the curriculum was sufficient to address controversial and taboo issues. In Öztürk's (2017) research, the opinions of social studies teachers about teaching controversial issues differ significantly according to gender. Ersoy (2013) found that female preservice teachers were less likely to participate in the discussion than male preservice teachers on sensitive issues where social consensus was difficult. Larson (1999) and Mazzolini and Maddison (2002) also identified differences in participation in the debate between men and women. Similarly to the results we reached in critical thinking tendencies, Akar (2007), Korkmaz (2009), Leaver-Dunn, Harrelson, Martin and Wyatt (2002), Loken (2005), Narin and Aybek

(2010), Özdemir (2005), Semerci (2003), Şen (2009), Thompson (2001) did not find a significant difference according to gender in their research. However, Bokeoglu and Yılmaz (2005), Çığrı Yıldırım (2005), Çubukcu (2006), Doğanay, Akbulut-Taş and Erden (2007), Emir (2012), Hamurcu, Günay and Akamca (2005) found significant differences according to gender in their research. Can and Kaymakçı (2015) and Tümkaya (2011) found that there were significant differences in gender in some sub-dimensions of critical thinking tendency. These different results, both in the context of controversial issues and in critical thinking tendencies, can be attributed to the meanings attributed to the gender roles of the research environment.

As a result of the research, it was also found that the age variable did not make a statistically significant difference in the attitudes of the preservice social studies teachers towards teaching controversial issues and the tendency of critical thinking. In the context of critical thinking skills, Sen (2009) found that the age variable did not affect the preservice teachers' critical thinking skills. However, it was found that there were significant differences in age in the studies of Bökeoğlu and Yılmaz (2005), Doğanay, Akbulut-Taş and Erden (2007), Emir (2012), Kurum (2002), Öztürk and Ulusoy (2008). As mentioned in the first finding, the cultural environment factor may be among the reasons for these different results (Grosser and Lombard, 2008).

In the classroom variable, while there was no statistically significant difference between the groups in terms of critical thinking tendencies of social studies preservice teachers, there was a statistically significant difference in the attitudes towards teaching controversial issues in favour of the 4th grade between the 2nd and 4th-grade groups. However, in the study of Seçgin (2009) and Tuncer (2018), no significant difference was found in the class variable in the context of controversial issues. In critical thinking skills, Akar (2007), Çubukcu (2006), Deniz and Kaptan (2011), Ozturk and Ulusoy (2008), Scott, Markert and Dunn (1998) and Tümkaya (2011) found that class variable made a significant difference in critical thinking. Korkmaz (2009) concluded that the education received in the faculty of education did not contribute sufficiently to the critical thinking tendencies and levels. Various variables such as school culture, teacher attitudes, and implicit program (Cemiloğlu, 2006; Peterson and Deal, 2002) may be among the causes of these different results.

In the study, it was concluded that there was no statistically serious difference between the groups in terms of critical thinking tendency of social studies preservice teachers according to the academic grade point variable. The attitudes towards teaching controversial issues were statistically a significant difference in favour of 2.50 - 2.99 academic average between 0 - 2.49 and 2.50 - 2.99, and in favour of 3 and more groups between 0 - 2.49 and 3 and more. In the context of critical thinking tendencies, Emir (2012) could not find a serious difference in terms of critical thinking tendency of the faculty of education students compared to academic achievement. However, Adams, Stover and Whitlow (1999), Öztürk and Ulusoy (2008), Tümkaya (2011) determined that students' critical thinking tendencies increased as their success level increased. In the research conducted with 9th class pupils in a different sample group (Akbiyık, 2002), it was found that general academic achievement was effective in critical thinking tendencies. When the results obtained from the grade and academic grade

variable are evaluated together, it can be interpreted that the undergraduate education of the sample group has a weak effect on the critical thinking tendencies.

It was observed that the monthly income of the family and the monthly income of the preservice teachers did not make a statistically significant difference in the attitudes and critical thinking tendencies of the preservice social studies teachers about teaching controversial issues. Tuncer's (2018) study found no significant difference in the family income level variable. However, Ersoy (2013) found that preservice teachers coming from families with low socio-economic income had problems in expressing themselves in the discussion and taking the right to speak. In terms of critical thinking skills, Akar (2007) and Özdemir (2005) found that family income did not make a significant difference in support of our results. In Şen's (2009), Tümkaya's and Aybek's (2008) researches were not found any significant difference regarding the income status of university students. Gibson (2013) states that family income is not a predictor variable in the model of critical thinking. On the other hand, Kurum (2002) concluded that family income was effective in critical thinking. It was also observed that the variable of the quality of the place of living with the family did not have a significant effect on the attitudes and critical thinking tendencies of the social studies preservice teachers towards teaching controversial issues. Similarly, in Öztürk's (2017) research, the views of social studies teachers on teaching controversial issues do not differ significantly according to the place where they work. However, in Ersoy's research (2013) it was found that preservice teachers coming from small settlements had problems in expressing themselves and taking the right to speak. On the other hand, in support of our findings in critical thinking skills, Özdemir (2005) found that the place of birth does not make a significant difference in the preservice teachers' having critical thinking skills. However, in Doğanay, Akbulut-Taş and Erden (2007), Öztürk and Ulusoy's research (2008), a significant difference was found according to the place of residence.

Another result obtained from the study is that there is no significant difference between the groups in the attitudes towards teaching controversial issues in the variable of interest to social problems. However, it was found that there was a statistically significant difference in terms of critical thinking disposition scores in favour of the very interested group between the reasonable interested and very interested groups. In the context of the controversial issues, it has been found that the participation of the participants in the discussions on the subjects of interest is higher (Ersoy, 2013; Hess, 2001).

As a result of the research, it was seen that the number of books read monthly did not have a significant effect on the attitudes and critical thinking tendencies of social studies preservice teachers towards teaching controversial issues. In the context of critical thinking, Şen (2009) did not observe any significant difference among the groups according to the frequency of reading books and newspapers during the research.

According to another conclusion of the research, it was seen that the critical thinking tendency variable predicted the attitude towards teaching controversial issues statistically significant. The variable of critical

thinking tendencies explains approximately 20% of the total variance of the attitude towards teaching controversial issues. In Seğgin's research (2019), it was determined by preservice teachers that teaching controversial issues is most important for thinking skills. According to Öztürk's (2017) study, it is found that it is most necessary to develop critical thinking skills according to social studies teachers. Harwood and Hahn (1990) also argue that students' critical thinking skills can be improved by teaching critical thinking. Yücel's (2018) research also found that the controversial issues included in the courses contributed positively to critical thinking skills. Similar to the contribution of critical thinking to the attitude towards teaching controversial issues, it is seen that including controversial issues in the lessons contributes to critical thinking. These findings show that these two concepts feed each other mutually.

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