

DOI: 10.7596/taksad.v7i3.1545

Citation: Uluçınar, U., & Aypay, A. (2018). An Evaluation of the Relationship between Pre-service Teachers' Critical Thinking Dispositions and Democratic Values in Terms of Critical Pedagogy. *Journal of History Culture and Art Research*, 7(3), 1-17. doi:<http://dx.doi.org/10.7596/taksad.v7i3.1545>

An Evaluation of the Relationship between Pre-service Teachers' Critical Thinking Dispositions and Democratic Values in Terms of Critical Pedagogy*

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Abstract

The purpose of this study was to investigate the relationship between critical thinking dispositions and democratic values among pre-service teachers. Accordingly, we examined whether pre-service teachers' critical thinking dispositions predicted the presence of democratic values. We emphasized the role of critical consciousness in the development of an understanding of democracy with respect to individual educational experiences with the assumption that people who think critically are more likely to have democratic values. The study group consisted of pre-service teachers from six departments within the Faculty of Education at a public university in Turkey. The data were collected using the Critical Thinking Dispositions Instrument, which was developed by researchers; the Pre-Service Teachers Democratic Values assessment, which was developed by Selvi (2006) and a Personal Information Form. The data were analyzed using descriptive statistics, Product-Moment Correlations and Multiple Regression Analysis Techniques. The findings indicated a significant correlation between critical thinking dispositions and democratic values among pre-service teachers. In addition, the critical dispositions of pre-service teachers predicted democratic values. Therefore, it may be useful for pre-service teachers to engage in activities that enhance critical thinking and awareness of democratic values.

Keywords: Pre-service teachers, Critical thinking, Democratic values, Critical pedagogy.

* Bu çalışma ikinci yazarın danışmanlığı altında Eskişehir Osmangazi Üniversitesi Eğitim Bilimleri Enstitüsü bünyesinde gerçekleştirilen Yüksek Lisans tezinden üretilmiştir. Ayrıca, 21. Eğitim Bilimleri Kurultayı'nda sözlü bildiri olarak sunulmuştur.

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Introduction

This paper examines the relationship between critical thinking dispositions and democratic values among pre-service teachers. Accordingly, we investigated whether pre-service teachers' critical thinking dispositions predicted the presence of democratic values. We emphasized the role of critical consciousness in the development of an understanding of democracy with respect to individual educational experiences with the assumption that people who think critically are more likely to have democratic values. Democratic values are an important component of the events, contexts and relationships that individuals experience socially. In societal structures in which individuals are interconnected, these values are necessary for both the functioning of the individual and society. The challenge in such relationships is that many of these values have been not internalized. This situation is problematic and can be addressed via the use of values education. Such education is necessary for the presence and maintenance of democracy (Davis, 2010).

In particular, formal education plays an important role in the development of democratic values. Primarily, democratic teachers must have attitudes and values such as equity, justice, liberty etc. In this context, education is essential for a culture of democracy and its proliferation within schools. The presence of a democratic culture within the school system affects the attitudes and values of students and teachers (Şahin-Fırat, 2010). Because teachers play an active role within the classroom setting, they are often regarded as role models by their students. Thus, if students are to be educated about democratic values, then teachers themselves must imbue these democratic attitudes and values such as being fair, humanist, open to communication, consistent, equal, open to innovations, showing respect to difference and shared decision making (Kesici, 2008). To obtain democratic ideals, environments that incentivize such values must be prepared for students. In such a democratic setting, the presence of democratic attitudes and values among teachers can develop students' ability to think critically, communicate effectively, cope with inequality, demonstrate values of cooperation and solidarity, engage empathically and show respect for diversity (Güleç & Balçık, 2009).

According to Smith (2009), the purpose of democratic education is to enable students to not only develop their cognitive abilities but to also help them to think and behave critically. Thus, to train students to be good citizens, educators must find and apply life forms in which democracy is internalized and integrated in realizing the purpose of democracy. However, such a democratic education must focus on consciously transforming students such that they imbue democratic attitudes and behaviors rather than teaching complex and dynamic principles or enhancing students' knowledge of political systems. In addition, teachers have a critical responsibility in transforming democracy from an idealized theory to a reality-based practice. Thus, teachers must cultivate such values within themselves to create environments in which students are willing to participate. Their task behaviors in classroom activities may be useful in developing democratic values, skills, and knowledge. In addition, students should engage in real discourse about challenges or issues. Such discussions may contribute to students taking responsibility for their own work in classroom activities and in developing critical thinking skills.

Teachers play a critical role in social change and have important responsibilities within democratic societies. Democratic schools are establishments in which students and teachers work towards equality. These institutions organize meetings where opinions are shared regarding financing, assessment methods and curriculum and in which students, school principals, teachers and families participate (Weinstock, Assor & Broide, 2009). As social change agents, schools fulfill their obligations in two ways. First, schools must establish a social order in the classroom. Second, schools must teach students how to think critically about the society in which they live. Schools enable students to develop skills and attitudes needed in society. Boone (2008) stated that critical pedagogy is an effective tool in understanding the social structure and power of knowledge. He notes that such pedagogy offers ways to help students internalize democratic values and trains them to practice such values. Critical pedagogy helps students to consciously participate

in the democratic process in areas in which social justice and opportunities are not equally distributed. Thus, the classroom becomes an environment in which teachers and students engage in critical dialogue (Boone, 2008). In fact, in this context, critical pedagogy offers activities for democratic education (Edwards, 2010). In addition, constructivist learning environments also contribute to the creation of a democratic climate in the classroom (Bay, Gündoğdu & Kaya, 2010) because they enable participation in classroom activities, discussions on conflicting views, cooperation and the development of critical thinking skills (Akinbobola & Afolabi, 2009; Hmelo-Silver, Chernobilsky & Jordan, 2008; Bleicher, 2011; Fang, Kang & Feng, 2009; Allen, 2008; Aydın & Yılmaz, 2010; Lorenzo, 2009; Wang, Woo & Zhao, 2009; Blaik-Hourani, 2011; Llinares & Valls, 2009; McCarthy-Tucker, 2001; Legg, Adelman, Mueller & Levitt, 2009).

Critical pedagogical education aims to enable students to critically examine events, facts and challenges that are encountered in their daily lives and to properly train students to be critical-thinking democratic citizens. Such training then motivates students to change society through education (Johnson & Morris, 2010). Yamaguchi & Maguth (2005) explained that to be good citizens, students must learn the following fundamental principles: (a) the feeling of responsibility and active participation, (b) awareness of democracy as prevalent within society, and (c) critical thinking abilities. The acquisition of these principles allows students to make decisions efficiently both in and out of the school setting. Many educators have stated that education based critical pedagogy is effective in prompting students to become citizens who are committed to democratic values. This phenomenon has been reflected through educational philosophies and curricular paradigms. Turkey attempted to change the behaviorist philosophy underlying its educational system. In this system, students were considered as individuals who learn as much as they can. This concept that students are merely receptacles of knowledge was regarded as being a mechanical conceptualization of education. Accordingly, in Turkish educational system and curricula, in order to understand the reflections of critical pedagogical education into real classroom environments, it has been made increasingly on emphasis that teachers have thinking critically and loyal to democratic values relating educational experience in classroom. The presence of the relationship between critical thinking dispositions and democratic values relating educational experiences helps to make inferences about the transformation of critical pedagogical education from theory to practice. These inferences also provide an idea the quality of educational curricula and educational experiences in which faculties of education of teacher training institutions aim to be equipped with critical thinking dispositions and loyalty to democratic values in context of critical pedagogical education (Council of Higher Education, 2017).

It lacks the studies which assess and discuss the loyalty to democratic values in classroom in terms of critical pedagogy. So, this study points out the importance about incorporating the understanding of critical pedagogy into Turkish educational systems and teacher training policies.

Freire (2011) made an analogy of this situation with that of a bank teller “educator”: Bank teller educator can’t understand that own exaggerated mission doesn’t provide a real assurance with himself and he must struggle to search life for solidarity for other people. A real communication needs solidarity. Educational model that educator follows both requires communication and avoid it. But, human becomes meaningful when communication is provided. Thus, teachers’ thinking act has quality only when students really think about the World.

Freire stated that those who support the banking education model hope to overload students with information. Instead, Freire posited that teachers must help students to recognize problems in the world and to transform ideas about the world from theory to practice. Emancipating education requires cognitive acts rather than the transfer of information to students. Thus, the aim of education should be to assist students to think critically about problems that they face in the world, to clarify the nature of reality and to enhance understanding about the roles that humans have. If individuals are devoid of a critical understanding of reality and do not comprehend reality in its entirety, they cannot appreciate it fully.

Indeed, to truly understand reality, one's current perspectives on reality must change. By separating and isolating components, students end up having a general view about the context, which enables them to reach a clear understanding of the world (Freire, 2011).

Research has supported the necessity for critical thinking and consciousness within the educational process of transforming democratic culture from theory to practice. To achieve this transformation, teachers must act as role models during the educational process by imbuing democratic attitudes and values. Teachers who think critically are disposed to being curious, open to ideas, thinking suspiciously, questioning the reasons in a problem or event, seeking to truth in a classroom. Additionally, teachers who critically think likely to more have sensibility, awareness, empathy, adoption, common sense and assumptions than other teachers (Serin, 2013). On the other hand, democratic teachers likely to place more importance on students' rights of education, freedom and solidarity during student interaction in learning-teaching process (Selvi, 2006). Accordingly, the purpose of this study was to determine whether pre-service teachers who think critically attribute more importance to democratic values. Thus, we divided our primary question into several smaller questions, which are as follows:

- 1- To what extent critically thinking pre-service teachers have?
- 2- What is the level of pre-service teachers' democratic values with respect to the educational experience?
- 3- Is there a significant relationship between pre-service teachers' critical thinking dispositions and democratic values with respect to the educational experience?
- 4- What dispositions in critical thinking and how much contribute to develop democratic values regarding educational experiences of pre-service teachers?

Critical thinking and democratic values addressed in this study centers on critical pedagogy. Reflections of critical pedagogy about both of them has been discussed. To increase the loyalty to critical thinking dispositions and democratic values in preservice teachers means improvisation and continuity of critical pedagogy education. With the results revealed, both critical thinking and democratic values as two components of critical pedagogy has been tested empirically. Thereby, theoretical discussions of critical pedagogy about them in classroom or formal learning environments in the literature has been supported and it has been thought that it will contributes to studies performed qualitatively or quantitatively.

Design

Research Method

This study is a correlational study that aims to determine the relationship between democratic values with respect to educational experience and the critical thinking dispositions of pre-service teachers.

Study Group

The study sample included pre-service teachers enrolled at the school of education at a public university in Turkey. The study group consisted of 481 pre-service teachers from 6 departments. Demographic data for the study group was presented in Table 1.

Gender	Frequency (n)	Percentile (%)
Female	350	64.5
Male	131	24.1
Total	481	100.0

Department	Frequency (n)	Percentile (%)
Elementary Mathematics Teaching	96	20.0
Elementary Science Teaching	80	16.6
Classroom Teacher Education	102	21.2
Religion and Moral Education	63	13.1
Psychological Counseling and Guidance	59	12.3
Computer Education and Instructional Technologies	81	16.8
Total	481	100.0

Class Level	Frequency (n)	Percentile (%)
1.	155	28.5
2.	126	23.2
3.	144	26.5
4.	56	10.3
Total	481	100.0

The study group consisted of 305 females (64.5%) and 131 males (24.1%). Of the sample, 96 students were in Elementary Math Teaching (20%), 80 students were in Elementary Science Teaching (16.6%), 102 students were in Primary Education (21.2%), 63 students were in Education of Religion and Morality (13.1%), 59 students were in Guidance and Psychological Counseling (12.3%), and 81 students were in Computer and Instructional Technologies (16.8%).

Data Collection Instruments

Data were obtained using the “Critical Thinking Dispositions Scale”, the “Pre-service Teachers Democratic Values Scale” and a “Personal Information Form”

Critical Thinking Dispositions Scale: The Critical Thinking Dispositions Scale was developed by the authors, and the first version was based on the most emphasized variables in critical thinking dispositions (Ennis, 1996; Siegel, 1988; Facione, Facione & Sanchez, 1994; Perkins, Jay & Tishman, 1993; Irani, Rudd, Gallo, Ricketts, Friedel & Rhoades, 2007; Chen, Cheng, Liu & Tsai, 2009; Park & Kwon, 2007).

In the development of this scale, items were written to assess the following dimensions: questioning, truth-seeking, open mindedness, inquisitiveness and objectivity. While preparing the items, we referenced several scales and a literature review (Good, 2011; Stanovic & West, 1997; Erwin, 1983; Paulhus & Reid, 1991; Troidahl & Powell, 1965; Epstein & Meier, 1989). Factor analysis results indicated that the scale consisted of 6 dimensions and explained 59,034% of the variance. The dimensions accounted for 24.84 %, 8.93 %, 7.42 %, 6.38 %, 5.87 % and 5.58 % of the variance, respectively. The overall reliability coefficient was found to be 0.81. The Critical Thinking Dispositions Scale is composed of 19 items, of which 17 are positively framed, and 2 are negatively framed. One of dimensions of critical thinking dispositions, *questioning* includes pre-services teachers have belief that learning usually occurs through analyzing information, thought that questioning the reasons in a problem is an effective tool to solve it, etc. Suspicious thinking tells us they have a thought that they don't need to hurry up answering questions which is difficult to solve, being objective in doing assessment, etc. *Intellectual curiosity* states that pre-service teachers like reading complex texts, follow the innovations occurred in science, etc. *Natural curiosity* comprises statements such as "they enjoy working many activities" and "being curious is one of my strongest characteristics". *Open mindedness* means listening and understanding conflicting views that people have, etc.

The scale was rated using a Likert-type Scale, which ranged from (1) "Never", (2) "Seldom", (3) "Sometimes", (4) "Frequent" to (5) "Always".

Pre-service Teachers' Democratic Values Scale: The Pre-service Teachers' Democratic Values Scale was developed by Selvi (2006), and validity and reliability analyses were also performed by this author. The factor analysis results of this study showed that the scale is composed of 3 dimensions with an eigen value higher than 1. This result was similar to the findings of Selvi. The reliability of the scale in this study was 0.862. The reliability coefficients for the subscales of the Pre-service Teachers' Democratic Values Scale ranged from .542 to .857. One of dimensions of democratic values, rights of education is about students' needs at schools, providing students with necessary opportunities, etc. The democratic value of solidarity during student interactions explains whether pre-service teachers likely to place importance on students collaborate, creating communication and cooperation among teacher-students. Freedom dimension indicates to what extent pre-service teachers emphasize sitting at any desk they want, taking an exam whenever they want, etc. The scale was rated using a Likert-type Scale, which ranged from (1) "Too little", (2) "Little", (3) "Moderate", (4) "Quite" to (5) "Very much" agreed on statements.

Data Analysis

To determine the level of pre-service teachers' critical thinking dispositions and democratic values, *Descriptive Statistics* were used. Additionally, to determine whether there were significant relationships between pre-service teachers' critical thinking dispositions and democratic values, we used *Pearson Product-Moment Correlations*. To determine whether pre-service teachers' critical thinking dispositions predicted democratic values and to what extent pre-service teachers' critical thinking dispositions explain their democratic values *Multiple Regression Analysis* was used. In the analysis, critical thinking dispositions were the independent variable, and democratic values were the dependent variable. In multiple regression analysis, all the independent variables were entered into simultaneously model using "enter" method.

Findings

Results for the level of pre-service teachers' critical thinking dispositions are presented in Table 2.

Table 2: Frequencies, Means and Standard Deviations for Pre-service Teachers' Critical Thinking Dispositions (471)

	Mean	Standard Deviation
Questioning	3.60	0.45
Suspicious thinking	4.23	0.50
Intellectual curiosity	3.43	0.67
Truth-seeking	4.04	0.69
Natural curiosity	3.86	0.75
Open mindedness	3.13	0.55
Total	3.72	0.38

Table 2 shows that pre-service teachers had the highest means for suspicious thinking ($X=4.23$) and truth-seeking ($X=4.04$), and the lowest means for open-mindedness ($X=3.13$) and questioning ($X=3.60$). Accordingly, the findings indicated while pre-service teachers sometimes think open-mindedly, they frequently likely to display questioning, suspicious thinking, intellectual curiosity, natural curiosity, truth-seeking dispositions.

In Table 3, the results for the level of pre-service teachers' democratic values are presented.

Table 3: Frequencies, Means and Standard Deviations on the Level of Pre-service Teachers' Democratic Values (479)

	Mean	Standard Deviation
Freedom	3.95	0.62
Rights of Education	4.65	0.44
Solidarity	4.41	0.48
Total	4.34	0.41

Table 3 shows that pre-service teachers' means were highest for rights of education ($X=4.65$) and solidarity ($X=4.41$) and were lowest for freedom ($X=3.95$). Accordingly, the findings indicated while pre-service teachers extremely emphasize freedom, they likely to place very much importance on rights of education and solidarity.

In Table 4, the relationships between critical thinking dispositions and the democratic values of pre-service teachers are presented.

Table 4: Correlations Between Critical Thinking Dispositions and Democratic Values of Pre-service Teachers

	Solidarity	Rights of education	Freedom	Total democratic values
Questioning	.27(**)	.18(**)	.18(**)	.26(**)
Suspicious thinking	.34(**)	.35(**)	.16(**)	.34(**)
Intellectual curiosity	.22(**)	.19(*)	.16(**)	.21(**)
Truth-seeking	.33(**)	.32(**)	.16(**)	.32(**)
Natural curiosity	.28(**)	.20(**)	.17(**)	.26(**)
Open-mindedness	.08	-.01	.01	.29
Total critical thinking	.40(**)	.31(**)	.22(**)	.38(**)

**0.01, *0.05

The results of the correlation coefficients among the study variables were presented in Table 4. Correlations in general positive and low among the variables at .01 level. Open-mindedness has no significant relationship with any of the variables while suspicious thinking, had a positive and medium level relationships with solidarity and rights of education, truth seeking, had a positive and medium level relationships with solidarity and rights of education, and critical thinking had a positive and medium relationships with the same variables.

The data indicated that there were significant positive relationships between “Questioning”, one of the critical thinking dispositions, and the democratic values of “Solidarity” ($r=.27$), “Rights of Education” ($r=.18$) and “Freedom” ($r=.18$). Thus, as pre-service teachers’ questioning dispositions increased, they placed more importance on solidarity, rights of education and freedom.

The results also showed significant positive relationships between “Suspicious thinking”, one of the critical thinking dispositions, and the democratic values of “Solidarity” ($r=.34$), “Rights of education” ($r=.35$) and “Freedom” ($r=.16$). Thus, as pre-service teachers’ suspicious thinking dispositions increased, they were likely to place more importance on solidarity, rights of education and freedom.

The results further indicated significant positive relationships between “intellectual curiosity”, one of the critical thinking dispositions and the democratic values of “Solidarity” ($r=.22$), “Rights of Education” ($r=.16$) and “Freedom” ($r=.16$). Thus, as pre-service teachers’ intellectual curiosity dispositions increased, they were likely to emphasize solidarity, rights of education and freedom.

Significant positive relationships were found between “Truth-seeking”, one of the critical thinking dispositions, and the democratic values of “Solidarity” ($r=.33$), “Rights of Education” ($r=.32$) and “Freedom” ($r=.16$). Thus, as pre-service teachers’ truth-seeking dispositions increased, they were likely to emphasize solidarity, rights of education and freedom.

Significant positive relationships were found between “Natural curiosity”, one of the critical thinking dispositions, and the democratic values of “Solidarity” ($r=.28$), “Rights of Education” ($r=.20$) and

“Freedom” ($r=.17$). Thus, as pre-service teachers’ natural curiosity increased, they valued the importance of solidarity, rights of education and freedom more highly.

Significant positive relationships were found between “Total critical thinking dispositions” and the democratic values of “Solidarity” ($r=.40$), “Rights of Education” ($r=.31$) and “Freedom” ($r=.22$). Thus, as pre-service teachers’ critical thinking dispositions increased, they were likely to place more importance on solidarity, rights of education and freedom values.

To determine to what extent critical thinking dispositions explain the variance in the pre-service teachers’ democratic values, multiple regression analysis was performed. The overall score was analyzed, followed by an analysis of the separate democratic values dimensions.

Table 5: Multiple Regression Analysis Results with respect to the Prediction of Level of Pre-service Teachers’ Critical Thinking Dispositions on Total Democratic Values ($n=481$)

Variable	Unstandardized Beta	Standard Error	Standardized Beta	t	p
(Constant)	2.745	.189		14.501	.000
Questioning	.023	.055	.025	.411	.681
Suspicious Thinking	.115	.050	.141	2.321	.021
Intellectual curiosity	-.031	.045	-.051	-.697	.486
Truth-seeking	.049	.044	.082	1.121	.263
Open-mindedness	-.092	.044	-.124	-2.083	.038
Total	.330	.163	.306	2.022	.044

$R=.426$; $R^2=.181$; $F=.17.032$; $p<.000$

Dependent : Democratic Values Total Points

As presented in Table 5, pre-service teachers’ suspicious thinking, open-mindedness and critical thinking dispositions predicted democratic values with respect to educational experience ($R= .426$; $R^2= .181$; $p<.05$). First, pre-service teachers’ suspicious thinking dispositions ($\beta=.141$; $p=.021$) positively predicted total democratic values. Second, pre-service teachers’ open-mindedness dispositions ($\beta= -.124$; $p=.000$) negatively predicted total democratic values. Finally, pre-service teachers’ total critical thinking dispositions ($\beta= .306$; $p=.044$) positively predicted total democratic values. However, pre-service teachers’ questioning, intellectual curiosity and truth-seeking dispositions did not predict total democratic values ($p>.05$). The findings indicated that critical thinking dispositions explain 18 % of the variance in democratic values regarding educational experience.

Table 6 shows the results of the multiple regression analysis for the ability of pre-service teachers’ critical thinking dispositions on the democratic value of solidarity.

Table 6: Multiple Regression Analysis Results on Solidarity

Variable	Unstandardized Beta	Standard Error	Standardized Beta	t	(p) p
(Constant)	2.42	.219		11.046	.000
Questioning	.026	.064	.025	.413	.679
Suspicious thinking	.124	.057	.130	2.158	.031
Intellectual curiosity	-.034	.052	-.047	-.646	.519
Truth-seeking	.057	.051	.082	1.127	.260
Open-mindedness	-.070	.051	-.081	-1.363	.173
Total	.399	.189	.318	2.116	.035

R=.436, R²=.190, F=18.069, p<.000

Dependent Variable: Solidarity

As presented in Table 6, pre-service teachers' suspicious thinking and total critical thinking dispositions predicted the democratic value of solidarity ($R = .426$; $R^2 = .181$; $p < .05$). First, pre-service teachers' suspicious thinking dispositions ($\beta = .130$; $p = .031$) predicted the democratic value of solidarity. In addition, pre-service teachers' total critical thinking dispositions ($\beta = .318$; $p = .05$) predicted the democratic value of solidarity. However, questioning, intellectual curiosity, open-mindedness and truth-seeking dispositions did not significantly predict the democratic value of solidarity ($p > .05$). The findings indicated that critical thinking dispositions explain 19 % of the variance in the democratic value of solidarity regarding educational experience.

Table 7 presents the results from the multiple regression analysis of the ability of pre-service teachers' critical thinking dispositions to predict the democratic value of rights of education.

Table 7: Multiple Regression Analysis Results on Rights of Education

Variable	Unstandardized Beta	Standard Error	Standardized Beta	t	p
(Constant)	3.183	.203		15.652	.000
Questioning	-.012	.059	-.012	-.195	.846
Suspicious thinking	.199	.053	.227	3.721	.000
Intellectual curiosity	-.058	.049	-.088	-1.201	.230
Truth-seeking	.097	.047	.152	2.067	.039
Open-mindedness	-.092	.048	-.116	-1.932	.054
Total	.207	.175	.179	1.179	.239

R=.413; R²=.171; p<.000

Dependent Variable: Rights of Education

As presented in Table 7, pre-service teachers' suspicious thinking and truth-seeking dispositions predicted the democratic value of right to an education ($R=.413$; $R^2=.171$; $p<.05$). First, pre-service teachers' suspicious thinking dispositions ($\beta=.227$; $p=.000$) predict positively the rights of education in democratic values. Finally, pre-service teachers' truth-seeking dispositions ($\beta=.152$; $p=.039$) positively predicted the democratic value of right to an education. However, questioning, intellectual curiosity, open-mindedness and total critical thinking dispositions did not predict the democratic value of the right to an education. The findings indicated that pre-service teachers' critical thinking dispositions explained 17 % of the variance in the right to an education with respect to educational experience.

Table 8 indicates that the results of the multiple regression analysis with respect to the ability to predict pre-service teachers' critical thinking dispositions on the democratic value of freedom.

Table 8: Multiple Regression Analysis Results on Freedom

Variable	Unstandardized Beta	Standard Error	Standardized Beta	t	p
(Constant)	2.635	.307		8.571	.000
Questioning	.053	.089	.039	.594	.553
Suspicious thinking	.023	.081	.019	.291	.771
Intellectual curiosity	-.002	.073	-.003	-.033	.973
Truth-seeking	-.007	.071	-.008	-.099	.921
Open-mindedness	-.115	.072	-.102	-1.600	.110
Total	.384	.265	.235	1.448	.148

$R=.244$; $R^2=.060$; $p<.000$

Dependent Variable: Freedom

As presented in Table 8, pre-service teachers' critical thinking dispositions did not significantly predict the democratic value of freedom ($R=.244$; $R^2=.060$; $p>.05$). Findings indicated that pre-service teachers' critical thinking dispositions explained 6 % of the variance in freedom.

Conclusion & Discussions

This research examined the relationship between pre-service teachers' critical thinking dispositions and democratic values.

The level of pre-service teachers' critical thinking dispositions has been examined to determine the extent to which pre-service teachers think critically. The results indicate that while pre-service teachers exhibited high mean scores for suspicious thinking and truth-seeking dispositions, they had lower scores for the questioning and open-mindedness dispositions. The level of pre-service teachers' critical thinking dispositions was at a medium level. Similarly, in Durukan & Maden (2010)'s study, the level of Turkish Language Pre-service teachers' critical thinking dispositions was found to be 3.77, which is consistent with our findings. In addition, Apaydın & Çelik (2010), Beşoluk & Önder (2010), Argon & Selvi (2011), Şen

(2009), Gülveren (2007) and Zayif (2008) found that pre-service teachers' critical thinking dispositions are quite low and are insufficient. This outcome may be related to differences among study samples, the fact that pre-service teachers may not participate in activities that help them to think critically, or the fact that instruction within the faculties of education did not support critical thinking.

The level of pre-service teachers' democratic values was examined to determine to what extent pre-service teachers imbue democratic attitudes and values. Our findings indicated that pre-service teachers placed the highest importance on students' right to an education (e.g., students' needs at schools, providing students with necessary opportunities etc.), followed by the democratic value of solidarity during student interactions (e.g., students collaborate, creating communication and cooperation among teacher-students). Pre-service teachers placed the least amount of importance on students' freedom (e.g., sitting at any desk they want, taking an exam whenever they want, etc.). This outcome might be due to the belief that allowing such student autonomy might interfere with the general order in the classroom. The level of pre-service teachers' total democratic values was higher than the average value. Previous studies on pre-service teachers' democratic values support the findings from this study (Yılmaz, 2011; Akın & Özdemir, 2009; Oğuz, 2011; Yazıcı, 2011).

In addition, the findings from this study showed positive relationships between the dimensions of critical thinking and the dimensions of democratic values. However, open-mindedness was not significantly associated with democratic values. Indeed, the fact that an individual exhibits openness towards different points of view, events or situations does not mean that he/she will always have democratic attitudes and values. Acun, Demir & Göz (2010) found a significant relationship ($r=0.31$) between citizenship and the critical thinking skills of pre-service teachers. This result supports our findings. As individual's critical thinking dispositions increase, they display more democratic attitudes and values. Therefore, the development of critical thinking skills enables the internalization of democratic values and has a favorable impact on democratic school cultures, the presence of democratic environments and positive critical participation (South Africa Dept. of Education, 2002; Jacobowitz & Sudol, 2010; Weinstein, 1991; Sternberg & Norris, 2011).

Critical thinking dispositions explained much of the variance in democratic values. Suspicious thinking, open-mindedness and general critical thinking dispositions significantly were found to predict democratic values. It may be stated that these dispositions contribute to important democratic values. Interestingly, our findings showed that open-mindedness negatively predicted democratic values. In addition, pre-service teachers' total critical thinking dispositions positively predicted democratic values. Guyton (1988) found that in the correlation between critical thinking and political participation, critical thinking was positively associated with personal control, political proficiency, and democratic attitudes. Our results showed that the correlation coefficient between critical thinking and democratic values was .42 and that critical thinking predicted 31% of the variance in democratic attitudes. Additionally, critical thinking accounted for 45.62% of the variance in democratic attitudes. Thus, critical thinking may be necessary for the development of students who have democratic attitudes in environments in which they discuss different opinions, ideas and perspectives and who are able to address challenges to democratic values (Glaser, 1985; Şişman, Güleş & Dönmez, 2010; Banda, 1981).

Pre-service teachers' critical thinking dispositions predict the democratic value of solidarity. Pre-service teachers' suspicious thinking and total critical thinking dispositions were found to significantly predicted solidarity. Thus, as suspicious thinking and total critical thinking dispositions increase, teachers are more likely to value solidarity. Other studies in the literature are consistent with this finding. Active learning, project-based teaching and discussion methods, such as those based on constructivist theory, have recently been used in Turkey as an approach to develop critical thinking (Dam & Volman, 2004) because it creates settings in which students and teachers allow cooperate within the classroom. Such an

environment based on a constructivist understanding plays an important role in creating a democratic setting (Bay, Gündoğdu & Kaya, 2010). Tolerance, solidarity, critical thinking and independence are only possible in a culture that promotes healthy relationships. A cooperative culture based on solidarity increases student-teacher interactions in school. Conscious awareness is needed to realize such values within a democratic school culture, and teachers and principals must work to create effective schools (Psunder, 2009). In a democratic school culture, students learn to think critically and communicate with others as well as to respect values (Veugelers, 2007). Veugelers stated that for students to internalize democratic values, they must be involved in effective education in which they can participate in society and engage in educational practices based on critical pedagogy. In this context, students must perceive democracy as a political system and a life style. Pedagogical education with a critical understanding is necessary for students to become independent, humanistic, cooperative, responsible and free. A democratic setting is the foundation for reflective practice and allows for the development of conscientization (Nikolakaki, 2011).

Pre-service teachers' critical thinking dispositions predict levels of the democratic value of rights to an education. It was found that pre-service teachers' suspicious thinking and truth-seeking dispositions significantly predicted levels of the democratic value rights to an education. In this context, critical thinking is an important element upon which individuals conclude that the rights of students, e.g., having desirable education conditions, acquiring appropriate knowledge and skills, having the ability to benefit from opportunities both in and out of school, and having access to opportunities that contribute to personal and social developments, are important. In addition, an education based on critical thinking contributes to awareness of the challenges, troubles and deficiencies within an educational system. This finding is consistent with the literature. According to Giroux (2007), an education based on critical thinking must address the knowledge and skills students need to learn, including how to make decisions and assessments. In addition, critical thinking activities that stipulate the democratic change desired in this process require the presence of knowledge and skills among students (Cited in Edwards, 2010). Critical pedagogy requires inquiry, analysis, debate, as well as cognitive and rational activity based on action. These activities are primarily based on reason-result and true-false belief fundamentals (Neumann, 2011). Thus, schools may contribute to the formation of a more democratic structure and learning culture. Vibert, Portelli, Shields & Larocque (2002) argued that critical education plays a role in democratic education by developing critical thinking, while critical education practices are grounded in democratic education. Consequently, for students, profound and educational experiences may be gained through critical education practices. Critical pedagogy serves as a means by which to think about race, class, gender, and sexuality, as well as to understand social differences, reach democratic ideals, address the political dimensions in education and to enhance instruction on social justice. In the philosophy of critical education, this context is the space in which the state of being exists in action or *praxis*, as Freire stated (Freire, 2010).

Consistent with these results, it may be that instructional approaches that develop critical thinking may be used in educational experiences at the university level for pre-service teachers. School of education curricula may be designed to develop critical thinking dispositions and democratic values. In addition, seminars, conferences and active social clubs may be organized and supported at schools of education. One of the most important experience in students' developing critical thinking and democratic experiences may be studying real social and educational problems of society Dewey long ago indicated, such experiences may help in the training of highly critical, participatory, cooperative, and conscientious teachers who are sensitive to societal problems. Such strategies would promote the development of prospective teachers with a thorough understanding of society.

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