



CRITICAL THINKING DISPOSITION LEVELS OF THE RELIGIOUS CULTURE AND ETHICS TEACHER CANDIDATES (THE SAMPLE OF MANISA CELAL BAYAR UNIVERSITY, FACULTY OF THEOLOGY LAST YEAR STUDENTS)

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Abstract

The first aim of this study is to try to find out the levels of the dispositions and skills of critical thinking in the students who were in their last year of education at the department of Religious Culture and Ethics (RCE) Education. The second aim is to reveal if there were any changes in the levels of critical thinking dispositions and skills of the students at the end of these four years of Religious Culture and Ethics education. For this purpose, at the end of the eighth semester a Turkish Adaptation of the California Critical Thinking Disposition Scale (TACCTDS) was applied to teacher candidates. Besides, through open ended questions, the students were asked to evaluate themselves. The same scale had been applied to the students at the beginning of the first semester, as well. The computer-mediated evaluation of the analysis of the research data was conducted through SPSS 25.0 package software. According to TACCTDS results, the scores of all candidates were observed to be medium level in all subcategories except for *truth seeking*, whereas it is not, according to the answers of the open-ended questions. Because the results of the open-ended questions indicate that the teacher candidates had better skills of critical thinking in accordance with different variables. The difference between the critical thinking disposition levels of the teacher candidates at the beginning of the first and at the end of the eighth semester was aimed to be determined through TACCTDS results and it was observed that there was a slight decline in all the subcategories except for *analytical*. Despite this decline, the scores in all subcategories were observed to be still on the medium level in accordance with several different variables, except for *truth seeking*. However, in their answers to the open-ended questions, they claimed to have the skills of *truth seeking*, *open-mindedness*, *self-esteem* and *curiosity* in high numbers.

Key words: Critical Thinking, Religious Culture and Ethics (RCE) Education, The Teacher Candidates of RCE, Turkish Adaptation of California Critical Thinking Disposition Scale.

I. INTRODUCTION

Critical thinking is a way of thinking that brings together components such as cognitive and affective attitudes, abilities and intellectual values which have individually been focused on and defined in several different ways. Known for their studies upon the issue, Paul and Elder define critical thinking as a process which is carried out “by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them” (Paul, Elder, 2001). As a result of a research upon the issue which was conducted with the participation of scholars from different fields, it was reported that critical thinking is a “purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based. Critical thinking is essential as a tool of inquiry. As such, critical thinking is a liberating force in education and a powerful resource in one’s personal and civic life” (Critical Thinking: The Delphi Report, 1990, 13). The above-mentioned research argues that critical thinking contains both affective dispositions and cognitive skills and listed these affective dispositions as: truth seeking, reaching correct information, interpretation, establishing cause and effect relationships, questioning, identifying the problem, analysis, bringing the pieces together, reaching conclusions by making correct assumptions, evaluation; cognitive skills as independent thinking, distinguishing self-centered thinking, fair thinking, respecting different perspectives, understanding the relationship between emotions and thoughts, being unprejudiced, delaying the judgment, developing a courage to question, well-intentioned and honest thinking, being determined to think and trusting the skill of thinking (Critical Thinking: The Delphi Report, 1990, 11).

Paul and Elder argue that critical thinking owns standards such as “accuracy, clarity, relevance, logical sufficiency, precision, depth, significance, fairness, breadth” (Elder, Paul, 2002) and intellectual traits such as “intellectual humility, intellectual courage, intellectual empathy, intellectual integrity, intellectual perseverance and intellectual fair-mindedness” (Elder, Paul, 1998) and they explain each of these in detail. As can be observed in these and similar studies, critical thinking is not only a mental process, but it is rather a way of thinking with several different components which is conducted in accordance with certain criteria of normative nature (Cuypers, 2004, 77).

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Like for any field and stage of education, critical thinking is a fundamental objective in religious education as well. It is a crucial approach, skill and a personality trait for any developmental phase. The importance of enhancing critical thinking skills, with regards to religious education, can be listed as below:

1. As Hare points out, revealing and developing students' potentials through religious education is an ethical right just as much as through general education. William Hare argues that human beings are endowed with certain potentialities that other living creatures lack, and his/her being educated so as to develop these distinctive powers is a moral right for the individual and a moral basis for the legitimacy of critical thinking (Hare, 1999).
2. Improving students' abilities of critical thinking is also an obligation for the sake of the respect that we should have for them since each individual has been created perfectly and equipped with distinctive qualities. Each individual is unique and their personalities, thoughts, emotions priceless. Respecting an individual requires the acknowledgement of the fact that s/he has equal moral rights which, in turn, contains the rights to be treated honorably, to make independent decisions and evaluations and to think critically. Accordingly, critical thinking teaches the students to be respectful to each others' personalities and thoughts, to be tolerant, unprejudiced and free-thinking etc. Through a similar perspective, Cuypers argues that critical thinking can be advocated on the moral basis as an educational ideal and that the autonomy lies on the basis of the principle of respect for others. Siegel, also, suggests that critical thinking and rational autonomy are parts of the same educational ideal and, through this frame of mind, he argues that critical thinking encompasses both rationality and autonomy. This means that a critical thinker acts and makes decisions independently, free from external restraints (Cuypers, 2004, 81, 82).
3. In terms of religious education, the development of the students' critical thinking skills is also requirement due to our responsibility towards them, because it is our duty to guide and assist the student in the process of self-realization. In order for an individual to be able to address the divine message and to be able to take responsibility in the advancement of his environment, society and universe, they will especially need self-development first, which will be enabled with the help and education towards them. Just like for a raw mine to become a jewelry through removing it from the ground and going through several stages like cleaning, melting etc., human beings as well require external assistance to achieve self-realization. Moreover, since we are responsible for each other, it is also our duty and mission professionally to contribute to an individual's cognitive, affective, psychomotor, personality, morality, religious development skills which will in turn contribute to their critical thinking process.
4. In terms of religious education, the development of students' critical thinking skills is also necessary because of our respect and responsibility towards the Almighty Creator, who creates and equips every individual with distinctive powers and entrusts us with their development.
5. In terms of religious education, the development of students' critical thinking skills will in turn contribute to the development of love, respect, tolerance and peace in society. This is due to the fact that critical thinking requires listening to others, having an open attitude in dialogue and discussion, developing empathy, evaluating events and facts from different perspectives, tolerance etc.
6. Students need flexibility and certain skills to be able to harmonize with new things. The development of critical thinking skills in the process of religious education will help them in this matter.
7. It is crucial to improve the quality of general and field specific education due to the importance of educated human power for the economic and social development; determinative power of knowledge on the development of economic, social and cultural fields; and the rate of transition towards becoming a knowledge-based society being proportional with the investment on knowledge and information. One of the determinants of quality of education is the acquirement and development of critical thinking (Âşık Ev, 2012, 6). For this reason, care should be given to the development of critical thinking in religious education like in any level and field of education.
8. Developing students' critical thinking skills will replace rote religious education and contribute towards a religious education, which should actually be the default type of education, that requires using one's mind, thinking, researching, questioning, getting accurate and reliable information, making correct inferences, evaluating correctly, comprehending different



interpretations of religion with different perspectives. (For more information on the importance of critical thinking in religious education, see. Âşık Ev, 2012).

Critical thinking, as mentioned before, is among the basic goals of education in any field and at all stages, as well as religious education. When the relevant literature is reviewed, it has been suggested that a number of factors are effective on the necessity and importance of developing critical thinking skills in students and beside the ones that are listed above, the following are also emphasized: rote-learning system is applied in most classrooms and, as a consequence, students almost lose their abilities to express a thought on an issue, explain and advocate it; students cannot apply what they know as they solve a problem and accordingly they are not respected in these classroom as individuals with intellectual independence and not treated as such; the need for a critical form of moral education in pluralistic societies; the conception that students are led to an uncertain future and are faced with compliance problems within the business world which goes through a rapid change (Hare, 1999, 85); the necessity to sustain and develop a democratic social culture; contemporary information explosion and pollution; the positive relationship between critical thinking and school success; the need to be free from prejudices and fanaticism (Aybek 2006); the individual's need for the skills of critical thinking to be able to manage one's life within a global, post-modern world.

These valid grounds for the inclusion of critical thinking in objectives of religious education and more generally on all fields of educational objectives are indeed the elements and values that constitute the critical thinking. Educational programs at all levels and in all fields should plan the education process so as to help the students acquire and develop these qualities, abilities and skills.

There are many studies conducted on critical thinking in Turkey and abroad but not many studies can be found on the issue specifically on religious education¹. The studies on critical thinking in the field of education began to be conducted only recently². As this article is too comprehensive, these studies are not discussed in detail but are only mentioned.

¹ Some of the studies conducted on critical thinking, in the fields other than religious education: John Patrick (1986). *Critical Thinking In The Social Studies*, Eric Digest, No. 30, Indiana; M. Carrol Tama (1989). *Critical Thinking: Promoting It in the Classroom*. Eric Digest. ERIC Clearinghouse on Reading and Communication Skills Bloomington IN.; *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction, The Delphi Report*. The California Academic Press 1990, www.insightassessment.com.; J. C. Harris ve C. Eleser (1997). *Developmental Critical Thinking: Melding Two Imperatives*, Journal of Developmental Education, Vol. 21, No. 1; V. Supon (1998). *Penetrating the Barriers to Teaching Higher Thinking*, The Clearing House, Vol.71, No. 5; J. L. Highbee and P. L. Dwinell (1998). *Thinking Critically. Research and Teaching in Developmental Education*, Vol. 14, No. 2; William Hare (1999). *Critical Thinking As An Aim Of Education*, Edited by Roger Marples, The Aims of Education, Routledge, London, UK; Richard Paul, and Linda Elder, (2002). *Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life*, FT Press.; Richard Paul, and Linda Elder, Doğan Kökdemir (2003). *Belirsizlik Durumlarında Karar Verme Ve Problem Çözme [Decision Making and Problem Solving Under Uncertainty]*, Unpublished PhD Dissertation, Ankara University ISS; S.M. Özdemir (2005). "Üniversite Öğrencilerinin Eleştirel Düşünme Becerilerinin Çeşitli Değişkenler Açısından Değerlendirilmesi" [Assessing University Students' Critical Thinking Skills For Some Variables], *The Journal of Turkish Educational Sciences*, Vol 3, Issue 3; Bırsel Aybek (2006). *Konu ve Beceri Temelli Eleştirel Düşünme Öğretiminin Öğretmen Adaylarının Eleştirel Düşünme Eğilimi ve Düzeyine Etkisi [The Influence of Subject-Based and Skill-Based Critical Thinking Teaching on The Critical Thinking Disposition Levels of the Teacher Candidates]*. Unpublished PhD Dissertation, Adana: Çukurova University. ISS; S. Sadi Seferoğlu (2006). *Cenk Akbıyık, Eleştirel Düşünme Ve Öğretimi [Critical Thinking and Its Teaching]*, H.U. Journal of Faculty of Education, 30; İ. Gürkaynak, F. Üstel, S. Gülgöz (2008). *Eleştirel Düşünme [Critical Thinking]*, ERG Raporları [Educational Reform Initiative Reports]; Özgen Korkmaz (2009). *Öğretmenlerin Eleştirel Düşünme Eğilim ve Düzeyleri [Teachers' Critical Thinking Level and Dispositions]*, Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, Vol 10, Issue 1; Belgin Yıldırım (2010). *Beceri Temelli Eleştirel Düşünme Öğretiminin Öğrenci Hemşirelerde Eleştirel Düşünme Eğitimine Etkisi [The Influence of the Skill-Based Critical Thinking Education on the Critical Thinking Dispositions of Student Nurses]*, İzmir: Ege University ISS; H. İbrahim Yıldırım, Önder Şensoy (2011). *İlköğretim 7. Sınıf Öğrencilerinin Eleştirel Düşünme Eğilimi Üzerine Eleştirel Düşünme Becerilerini Temel Alan Fen Öğretiminin Etkisi [The Effect of Science Instruction Based on Critical Thinking Skills On Critical Thinking Disposition of the 7th Grade Primary School Students]*, Kastamonu Journal of Education, Vol 19, Issue 2, May; N. Zeynep Şenlik, Özlem Balkan, Şule Aycan (2011). *Öğretmen Adaylarının Eleştirel Düşünme Becerileri: Muğla Üniversitesi Örneği. [Critical Thinking Dispositions of Pre-Service Teachers: Muğla University Example]*, C.B.U. Journal of Science, 7:1; Zeynep Çetinkaya, (2011). *Türkçe Öğretmen Adaylarının Eleştirel Düşünmeye İlişkin Görüşlerinin Belirlenmesi [Determination of Turkish Education Teacher Candidates's Views Related to Critical Thinking]*, Ahi Evran Üniversitesi Eğitim Fakültesi Dergisi, Vol. 12, Issue 3, 93-108; Serap Emir (2012). *Eğitim Fakültesi Öğrencilerinin Eleştirel Düşünme Eğilimleri. [Critical Thinking Dispositions of Faculty of Education Students]*, HAYEF Journal of Education, Vol. 17;

² Some of the studies conducted on critical thinking in the field of religious education: D. S. Schipani, *Religious Education Encounters Liberation Theology*, Religious Education Pres Birmingham, Alabama; A. Şahbat (2002). *Din Kültürü ve Ahlak Bilgisi Öğretmen Tutumlarının Öğrencilerin Eleştirel Düşünme Becerilerine Etkisi. [The Influence of the Attitudes of the Religious Culture and Ethics Teachers on the Critical Thinking Skills of the Students]*. Unpublished MA Thesis, Konya: Selçuk University ISS; "Din Öğretiminde Yeni Yöntem Arayışları Uluslar Arası Sempozyum Bildiri ve Tartışmalar" [New Methodological Approaches in Religious Education International Symposium Papers and Discussions] 28-30 2001-İstanbul, MEB [Ministry of National Education], Ankara 2003; S. E. Cuypers, I. Haji (2007). *Authentic Education and Moral Responsibility*, Journal of Applied Philosophy, Volume 24, Issue 1; Halit Ev (2008.). *Türk DKAB Dersi Öğretmenlerinin Pedagojik Yeterlikleri. Seküler Toplumlarda ve Laik Devletlerde Din Dersi Sempozyumu. ["The Pedagogical Sufficiency of RCE Teachers," The symposium of Religion Classes in Secular Communities and Societies]*, Goethe Institute-İstanbul Bilgi University; H. Âşık Ev (2012). *Eleştirel Düşünme ve DKAB Dersleri [Critical Thinking and Religious Culture and Ethics Courses]*, Tibyan Yayıncılık, İzmir; İ. Erdoğan (2012). *DKAB Öğretmen Adaylarının Eleştirel Düşünme Eğilim Düzeyleri Üzerine Bir İnceleme [An Inquiry on the Critical Thinking Disposition Levels of the RCE Teacher Candidates]*, Unpublished MA Thesis, Konya: Necmettin Erbakan University. Karagöz (2012). *15 Yöntem ve 15 Planla Eleştirel Düşünme Uygulamaları (DKAB Dersi Örneği). [Critical Thinking Applications through 15 Methods and 15 Plans (RCE Course Sample)]*. Adana; H. Âşık Ev (2013). *The Significance And Necessity Of Critical Thinking*



1. The Aim of the Study

The first aim of this study is to try to find out the levels of the dispositions and skills of critical thinking in the students who were in their last year of education at the department of Religious Culture and Ethics (RCE) Education (In the new educational system there is a different categorization not as primary and secondary education, as categorized earlier, but as elementary school and high school. However the department's name remained the same, so it is used as such in the article). For this purpose, at the end of the eighth semester a Turkish Adaptation of the California Critical Thinking Disposition Scale was applied to teacher candidates. Besides, through open ended questions, the students were asked to evaluate themselves in terms of the lower levels of critical thinking. The same scale had been applied to the students at the beginning of the first semester, as well. The education the students receive during these four-years-time is designed to contribute to the development of the teacher candidates in a balanced way both in terms of the courses on knowledge and skills of teaching (planning, application, assessment and evaluation) and of extracurricular aspects, while it also focused on the applications triggering the development of critical thinking skills. For this end, appropriate teaching-learning strategies were employed accompanied by proper methods and techniques and the same scale was applied again. The second aim of this study is to reveal if there were any changes in the levels of critical thinking dispositions and skills of the students at the end of these four years of Religious Culture and Ethics education.

Our hypothesis is that the teacher candidates who study at the department of Religious Culture and Ethics Education department have a medium level of critical thinking disposition. No meaningful change in terms of critical thinking disposition has occurred at the end of the four-year bachelor's education. The reason why a meaningful change was not expected is that it would not be enough to apply a conscious program only in a limited number of courses to create such a change. Another reason is that critical thinking skills are skills that should be developed not only during the bachelor's education but at all educational levels. The possibility of reaching a high level of development depends on the fact that the importance of these skills are acknowledged at all levels and fields of education beginning from the pre-school and in all the environments the child interacts with.

2. Restrictions

The study is restricted to the students of MCBU Faculty of Theology, Department of Religious Culture and Ethics Education within the years of 2013-2017. The findings of the study are also restricted to the application of Socio-Demographic Attributes Data Form and a Turkish Adaptation of California Critical Thinking Disposition Scale to the above-mentioned students and to their answers to the open-ended questions concerning how they evaluate themselves on the lower levels of critical thinking. Besides, two other studies focusing on the levels of critical thinking in Religious Culture and Ethics teacher candidates other than our study are found and the comparison of the research findings is restricted to these two studies.

3. Method

The research was conducted through descriptive survey model. The present situation is presented as it is, without any changes in this survey model and for this reason data is gathered from resources through certain techniques and analyzed and evaluated in accordance with certain criteria (For further information see: Karasar, 1999; Z. Arslantürk, H. Arslantürk, 2013).

The population of the study is the departments of Religious Culture and Ethics Education, the last students of which graduated at the end of the academic year, 2017-2018, and its sample consists of the students of MCBU Faculty of Theology, the Department of Religious Culture and Ethics Education.

4. Data Collection Tool and Data Analysis

The critical thinking disposition levels of the teacher candidates are revealed through the application of the Turkish Adaptation of California Critical Thinking Disposition Scale (TACCTDS) which was adapted to Turkish by Kökdemir and the open-ended questions that were addressed to them concerning how they evaluated themselves in terms of critical thinking skills (For further information about the Turkish Adaptation of California Critical Thinking Disposition Scale, see Kökdemir, 2003).

For Religious Culture And Ethics Course Teacher. *Turkish Studies*, Volume 8/12 Fall; A. Çekin (2013). Din Kültürü ve Ahlak Bilgisi Öğretmen Adaylarının Eleştirel Düşünme Becerilerinin Bazı Değişkenler Açısından İncelenmesi [The Examination of Critical Thinking Skills of Religious Culture and Ethics Teacher Candidates In Terms of Some Variables], *Review of the Faculty of Divinity of Amasya University*, Vol 1.; H. Aşık Ev (2014). DKAB Öğretmen Adayları ve Eleştirel Düşünme [Religious Culture and Ethics Teacher Candidates and Critical Thinking]. *The Journal of International Social Research*, V. 7, I. 32; N. Karagöz, A. Doğan (2016). Eleştirel Düşünme Bağlamında DKAB Dersi Programlarının Temel Eğitim Yaklaşımı Yapılandırma Uygulanmasının Değerlendirmesi. [In the Context Critical Thinking Requirements of Constructivism, Basic Educational Approach of Religious Culture and Ethics Course Programs]. *Religious Studies*, Vol. 19, Issue 48;



The computer-mediated evaluation of the analysis of the research data was conducted through SPSS 25.0 package software. During the analysis of the data, the following tests were applied in accordance with the qualities of the data and the number of the individuals within the groups that were the objects of study: t test, anova test, chi-square test, Mann Whitney U Test, Kruskal Wallis test, correlation analysis, crosstab (For further information on tests and analyses see: Sofyalıoğlu, Kartal, 2011).

II. FINDINGS

3 of a total of 96 questionnaires were excluded from the analysis upon the examination of the data and 93 questionnaires were analyzed. Among the questionnaires which had been done, 94 of them were observed to be usable. As a result of the matching-up of the questionnaires, 71 students were evaluated through a comparison of their answers.

1. Demographic Data

Among the teacher candidates whose questionnaires were evaluated, 41,9 % were women, 58,1% were men. 45.7% of them were 22 years old constituting the majority. 22,8% of them were 23 and 10,9% of them were 24 years old. The remaining 19.6% were 25 and above. 31,2% were graduates of Anatolian High Schools, Super High Schools, Anatolian Teachers' High Schools; 22,6% graduated from regular High Schools; 22,6% of them were graduates of Anatolian Religious Vocational High School (ARVHS); 12,9% graduated from Religious Vocational High Schools (RVHS). The ratio of the students who graduated from schools like Vocational High Schools and Distance Education High Schools was 10,8%. The university entrance exam scores of the 50.9% of the candidates were between 375 - 390; of the 34,1% between 391 - 400; of the 11% were 401 and above (Table 1).

Table 1: Gender, age, high school, university entrance exam score

Gender		Age					High School					Unv. Ent. Ex.Score		
Woman	Man	22	23	24	25	25above	HS	RVHS	ARVHS	AHS,SHS, ScienceHS,ATHS	Other	375 - 390	391 - 400	401 and above
n:39	n:54	n:42	n:21	n:10	n:13	n:5	n:21	n:12	n:21	n:29	n:10	n:45	n:30	n:8
%	%	%					%					%		
41,9	58,1	45,7	22,8	10,9	14,1	5,5	22,6	12,9	22,6	31,2	10,8	50,9	34,1	11,0

The 11,8% of the mothers of the teacher candidates that joined the study were illiterate; 73,1% of the mothers were literate and graduates of elementary school; 14% of them were graduates of secondary school and High School; 1,1% of them were university graduates. As observed, majority of the mothers of the candidates, with a ratio of 73,1%, were literate and elementary school graduates. As for the educational levels of their fathers, 43% of them were literate and graduates of elementary school; 37,6% of them were graduates of secondary school and High School; 18,3% of them were university graduates. It was observed that, compared to the educational levels of the mothers, the education levels of the fathers were higher (Table 2).

13% of the teacher candidates perceived their parents as authoritarian; 37% as democratic; 31,5% as solicitous and over-protective. In this respect a majority of the candidates, with a ratio of 63%, defined their family structure as non-democratic. 53,8% of the candidates were daytime education (I.) students, 46,2% of them were students of evening education (II.) (Table 2).

Table 2: Educational levels of parents, family structure

	Moth. Ed. n	Moth. Ed. %	Fath. Ed. n	Fath. Ed. %	Family Structure	n	%	Ed. Type			
								I. %	n	II. %	n
İlletearate	11	11,8	1	1,1	Authoritarian	12	13,0				
Literate	9	9,7	4	4,3	Democ.	34	37,0				
Elementr.S	59	63,4	36	38,7	Non-soli.	1	1,1	53,8	50	46,2	43
Sec. S.	9	9,7	19	20,4	Solicitous	5	5,4				
High S.	4	4,3	16	17,2	Protecti.	24	26,1				
Unv.	1	1,1	17	18,3	Other	16	17,4				

54,8% of the teacher candidates defined their economical situations as income equal to expenditures; 26,9%, as income higher than expenditures; 18,3%, as income lower than expenditures. As the residential



status of the candidates were observed, it was seen that the longest place of residence for a majority of 49,5% were cities; of 26,9% were big cities; of 23,7% was country (Table 3).

During their bachelor's education majority of 54,8% of the teacher candidates resided in the dorms of the Religious Affairs Administration; 14%, with family and relatives; 14%, with room-mates; 8,6%, in state-funded dormitories (KYK); 4,3%, in private dormitories; 2,2%, in the dormitories of religious foundations or communities.

Table 3: Economical situations, the place of longest residence, where they resided during education

Econ. Sit.	n	%	Plac. Long. Res.	n	%	Where T. Res. D. Ed.	n	%
Equal	51	54,8	Big city	25	26,9	Family	11	11,8
Inc. higher	25	26,9	City	46	49,5	Relatives	2	2,2
Inc. lower	17	18,3	Country	22	23,7	Room-mates	13	14,0
						KYK	8	8,6
						Private dorm.	4	4,3
						Religious foun.or commun. Dorm.	2	2,2
						Dorms of Rel. Affairs Ad.	51	54,8

2. Difference Analyses

In this part, it was aimed to determine the levels of critical thinking of the teacher candidates in accordance with various variables.

2.1. The Level of Critical Thinking Disposition in Accordance with Gender

When the critical thinking disposition levels of the teacher candidates that participated in the study were observed in accordance with the gender variable (Table 4) (below 40 is considered to be low, between 40-50, to be medium and above 50, to be high) it was seen that the score of both women and men were low in *truth seeking* and *curiosity* subcategories; and that their scores were medium level in the subcategories of *open-mindedness*, *analytical*, *systematic* and *self-esteem*. A score lower than 240 in *critical total* was evaluated as low, above 300 as high and as these numbers were taken into account, critical thinking scores of both genders were medium level (F: 238,176, M: 237,700). As a result of the t test, which was conducted to see if there was a meaningful difference in the average scores of the teacher candidates of different genders in all subcategories, it was observed that there was no meaningful difference and that both genders had close scores to each other in all subcategories. When the scores of the candidates were listed from the highest to the lowest in accordance with the "Gender" variable, it was observed that for both genders the list was as such: "self-esteem, systematic, analytical, open-mindedness, curiosity, truth seeking". Apparently teacher candidates got the highest scores in the subcategory of "self-esteem" and the lowest scores in the subcategory of "truth seeking".

Table 4: Critical thinking disposition in accordance with gender, group statistics

Truth S.		Open-mind.		Analytical		Systematic		Self-esteem		Curiosity		Critical t.	
W n:	M n:	W	M	W	M	W	M	W	M	W	M	W	M
39	54												
Mean		Mean		Mean		Mean		Mean		Mean		Mean	
34,64	33,16	39,37	38,78	40,25	41,62	42,17	41,82	45,64	45,27	36,08	37,02	238,17	237,70

The research results were compared with two different studies that were conducted with the participation of the teacher candidates from the department of Religious Culture and Ethics Education. The first study is the one conducted by Erdoğan, on 813 first, second, third and fourth-year students from the Department of Religious Culture and Ethics Education at Atatürk, Dicle, Dokuz Eylül, Erciyes, İstanbul, Marmara, Ondokuz Mayıs, Necmettin Erbakan ve Uludağ Universities during the academic year, 2011-2012. Within this study the critical thinking scores of the candidates in all subcategories were low in accordance with the gender variable. It was observed that, in Erdoğan's research the scores of the candidates in all subcategories were remarkably low as compared to our study, except for the subcategory of *truth seeking*. For example, in Erdoğan's study, the scores for the subcategory of *open-mindedness* were as such: "F:28,57; M: 30,50"; while the scores in our study for the same subcategory were as such "F: 39,37; M: 38,78". It was also observed that in Erdoğan's study the scores for the subcategory of *self-esteem*, again, were as such: "F: 27,61; M: 28,31"; however in our research the scores were as such "F: 45,64; M: 45,27" (Erdoğan, 2012, 81).

The second study to which our research results were compared, was a study which was conducted on 273 students who were registered to Faculty of Theology (43%) and to the Faculty of Education, Department of Religious Culture and Ethics Education (57%) at Atatürk, Dicle, İnönü, Ondokuz Mayıs ve



Uludağ Universities (there is no information about which year the students were at). According to the research results of the above-mentioned study, the scores for all of the subcategories of the RCE teacher candidates were medium level, except for the subcategory of *truth seeking*, which was evaluated as low (Coşkun, 2013: 154).

2.2. Critical Thinking Disposition Levels in Accordance with Age

No meaningful difference between the critical thinking disposition levels of the teacher candidates that participated into the research in terms of the age variable was observed. Although there was no meaningful difference, in terms of the relationship between them, it was observed that in the subcategory of *truth seeking* "the scores of the teacher candidates of all ages were low except for 26 and 28 year-old candidates (Table 5). In the subcategory of *open-mindedness*, "21, 22, 25, 26, 28 and 30-year-old candidates had a score of medium level; 23 and 33-year-old candidates had score on the border of the medium level; scores of the rest were low". In the subcategory of *analytical* "all of the candidates had a score of medium level except for 33-year-olds". In the subcategory of *systematic* "it was observed that candidates of all age groups had a score of medium level with 21, 28 ve 30-year-old candidates on the border of high". In the subcategory of *self-esteem* "21, 26, 28 and 30-year-old candidates had high scores, and the others had medium scores". In the subcategory of *curiosity* "28-year-old candidates had high scores; 21 and 30 year-old candidates had medium scores; 26-year-old candidates had a score which is close to medium level; the scores of the rest were low. As one looks at the *critical total* "21, 26 and 30-year-old candidates had medium level scores; 28-year-old candidates had a score on the border of high level; the scores of the rest were low (Table 5).

Table 5: Critical thinking disposition in accordance with ages

Age	n	Truth S. Mean	Open-m. Mean	Analytical Mean	Systematic Mean	Self-est. Mean	Curiosity Mean	Crit. total Mean
21	1	37,50	44,00	42,00	50,00	60,00	41,42	274,92
22	42	33,10	39,12	40,50	41,77	44,52	36,12	235,15
23	21	35,00	38,29	41,90	41,36	45,95	35,48	238,01
24	10	32,58	37,81	41,07	42,88	42,50	37,14	234,00
25	13	33,43	39,29	39,91	40,76	46,53	36,70	236,65
26	2	38,12	40,33	45,50	42,77	50,00	37,85	254,59
28	1	47,50	42,66	46,00	50,00	60,00	52,85	299,02
30	1	28,75	44,66	41,00	50,00	60,00	40,00	264,41
33	1	30,00	38,00	38,00	40,00	40,00	37,14	223,14
Tot.	92	33,75	38,98	40,96	41,93	45,48	36,50	237,63

In Erdoğan's research, all of the age groups in all subcategories had low scores, except for the scores of 17-20-year-old candidates in the subcategory of *truth seeking*. The score of the above-mentioned age group in the above-mentioned subcategory was medium level in our study and it was observed that the rest of the candidates had low scores (Erdoğan, 2012, 82-83). No research findings can be found in terms of the age variable in Coşkun's research since the focus of this study was critical thinking disposition levels in terms of only variables such as gender and high schools from which the candidates graduated.

2.3. The Level of Critical Thinking Disposition in Accordance with the High School from Which the Candidates Graduated

When the relationship between the critical thinking dispositions of the teacher candidates and the high school they graduated from was considered, it was observed that all the teacher candidates scored low in the subcategory of *truth seeking*. In the subcategory of *open-mindedness* graduates of Religious Vocational High Schools had medium level scores (40.611); graduates of Anatolian, Super, Anatolian Teachers' Vocational High Schools and others had scores on the border of medium level; graduates of Anatolian Religious Vocational High Schools and regular high schools had low scores. In the subcategory of *analytical* the scores of all candidates were medium level except for the graduates of Anatolian Religious Vocational High Schools. It was observed that in the subcategories of *systematic* and *self-esteem* all candidates had scores of medium level; in the subcategory of *curiosity* the scores of the graduates of Religious Vocational High Schools were on the border of medium level, and the scores of the graduates of regular High School, Anatolian Religious Vocational High Schools, Anatolian, Super and Anatolian Teachers' Vocational High Schools were low. When the *critical total* was taken into consideration, it was seen that all high school types scored medium level, except for regular high schools and ARVHS (Table 6).

Anova test was applied to see if there was a meaningful difference in the students' levels of critical thinking in accordance with the types of the high schools they graduated from and as a result no meaningful difference was observed in the average critical thinking scores of the students in all subcategories. With respect to this, students who graduated from different types of High Schools were observed to have similar



critical thinking dispositions. Although there was no meaningful difference, as the relationship between them was examined, it was seen that the lowest scores belonged to the graduates of regular high schools and ARVHS, except for the subcategory of *curiosity*. In the subcategory of *curiosity* the lowest scores belonged to the graduates of ARVHS and then Distance Education High Schools, Super, Science and ATVHS, respectively. When scores in different subcategories were listed from the highest to the lowest, the following results are reached:

The Subcategory of Truth seeking: "Other (Vocational High Schools, Distance Education High School, ...) RVHS, Anatolian High School, Super High School, Science High School, Anatolian Teachers' Vocational High School, Regular High School, ARVHS".

The Subcategory of Open-mindedness: RVHS; AHS, SuperHS, ScienceHS, ATVHS; Other; Regular High School; ARVHS".

The Subcategory of Analytical: "AHS, SuperHS, ScienceHS, ATVHS; Other; RVHS; Regular High School; ARVHS".

The Subcategory of Systematic: "RVHS; AHS, SuperHS, ScienceHS, ATVHS; Other; Regular High School; ARVHS".

The Subcategory of Self-esteem: "Other; AHS, SuperHS, ScienceHS, ATVHS; RVHS; Regular High School; ARVHS".

The Subcategory of Curiosity: "RVHS; Other; Regular High School; AHS, SuperHS, ScienceHS, ATVHS; ARVHS".

Obviously the lowest scores in all subcategories belonged to the graduates of ARVHS (Table 6).

Table 6: Critical thinking disposition in accordance with the high school from which the teacher candidates graduated

Graduated HS	n	Truth S. Mean	Op.-min. Mean	Analytical Mean	Systematic Mean	Self-est. Mean	Curiosity Mean	Crit. total Mean
HS	21	32,99	38,57	41,44	41,52	44,04	37,25	235,84
RVHS	12	34,36	40,61	41,91	43,05	45,00	38,57	243,51
ARVHS		32,97	37,80	38,10	41,44	43,33	34,77	228,43
AHS,SHS, ScienceHS,ATHS,	17	33,87	39,48	42,17	42,18	47,41	36,30	241,44
Other	6	36,19	39,33	42,10	42,09	47,50	37,85	245,08

As the high school from which the teacher candidates graduated was not among the variables in Erdoğan's research, there were no research findings on the matter in this study. In Coşkun's research the high school from which the teacher candidates graduated was one of the two variables and concerning the issue, but it is only asserted that "with regard to the research findings it was concluded that the critical thinking dispositions of RCEE teacher candidates showed no difference in accordance with the high school from which they graduated" (Coşkun, 2013, 158).

2.4. Critical Thinking Disposition Levels in Accordance with University Entrance Exam Scores

Correlation analysis was conducted to examine the relationship between the university entrance exam scores of the teacher candidates and the scores they got in the subcategories of the TACCTDS, and as a result of the analysis it was observed that the university entrance exam scores were in correlation with the scores of the subcategory of *self-esteem* ($p=0,002$). According to this, the score in the subcategory of *self-esteem* got higher as the score of the university entrance exam increased. A similar kind of rise was also observed in the scores of the subcategory of *systematic* (Table 7).

Table 7: Critical Thinking Disposition in Accordance with the University Entrance Exam Score

Unv.Ent. Ex.Score	n	Truth S. Mean	Open- mind. Mean	Analytical Mean	Systematic Mean	Self-esteem Mean	Curiosity Mean	Crit. total Mean
382 and lower	32	33,80	39,60	40,72	41,44	44,06	37,63	237,27
383 and above	56	33,37	38,48	40,94	42,20	46,69	35,73	237,44

In Erdoğan's research the academic success of the teacher candidates was examined as a variable instead of university entrance exam scores and it was observed that as the success rate got higher, the level of critical thinking disposition decreased (Erdoğan, 2012, 82-83).

2.5. The Level of Critical Thinking in Accordance with the Educational Level of the Parents

T test was conducted to calculate the critical thinking scores of the teacher candidates in accordance with the educational levels of their mothers and statistically no meaningful difference was observed. Although there was no meaningful difference, as their relationship was examined, it was observed that the children of *literate* mothers had lower scores in all subcategories and critical total compared to the children of



the mothers who were classified as *illiterate* and as *other* in terms of their educational levels. Another remarkable issue was that the scores of the children of the *illiterate* mothers were the highest in the subcategories of *analytical* and *systematic* and the second highest in the subcategories of *open-mindedness*, *curiosity*, and *critical total*.

While the scores of all of the candidates were low in the subcategory of *truth seeking*, the higher the educational level of the mother, the higher their disposition of *truth seeking* got. In the subcategories of *open-mindedness*, *analytical* and *systematic* the scores of the children of the mothers in all educational levels except for *literate* mothers were medium level. In the subcategory of *self-confidence* the scores of the children of the mothers of all educational levels were medium level but the scores of the children of the literate mothers were lower than the rest. In *Curiosity* the scores of the children of the mothers with secondary school or higher educational levels were medium level and the scores of the rest were lower. As the *Critical total* was considered, it was observed that the critical thinking disposition scores of the children of the mothers who were literate and graduates of primary school were low; the scores of the children of the mothers who were illiterate, graduates of secondary school and higher educational institutions were medium level (240 and above) (Table 9).

As the scores of the teacher candidates, in accordance with the variable of the educational level of the father, was considered, it was seen that in the subcategory of *truth seeking* all the scores were low. The highest score in *truth seeking* belonged to the children of the fathers who were high school graduates. In *open-mindedness*, the scores of the candidates, whose fathers were literate and with lower educational levels and were high school graduates, were low and rest were medium level. The highest score in this subcategory belonged to the children of the fathers who were graduates of secondary school. In the subcategories of *analytical* and *systematic* the scores of the children of the fathers who were literate and with lower educational status were low and the rest were medium level. The highest scores in *analytical* belonged to the children of the fathers who were graduates of secondary school and the highest scores in *systematic* belonged to the children of the fathers who were graduates of primary school. In the subcategory of *curiosity*, the scores of all the candidates were low, and in *self-esteem* the scores were medium level. As the *critical total* was considered, it was seen that the scores of the children of the fathers who were graduates of primary and secondary school were medium level, of the fathers who were university graduates were on the border of the medium level, and of the rest were low. The highest scores in *curiosity*, *self-esteem* and *critical total* belonged to the candidates whose fathers were primary school graduates. Apparently, the highest scores in the subcategories of *analytical*, *systematic*, *self-esteem* and *curiosity* and in *critical total* were the scores of the children of the fathers who were primary school graduates (Table 9).

Anova analysis was conducted to determine whether the critical thinking dispositions of the teacher candidates were any different in terms of its subcategories in accordance with the educational level of the father (Table 9) and a meaningful difference was observed in the subcategory of *analytical* in accordance with the educational level of the father ($p=0,042$). According to this, there was a difference between literate and lower educational levels and primary school level and between literate and lower levels and secondary school level in the subcategory of *analytical*. As the arithmetic average of these groups were taken into consideration, it was observed that the ones whose fathers were primary school graduates had higher arithmetic averages than the rest, and the ones whose fathers were literate and with lower educational levels had the lowest values.

Table 9: Critical thinking disposition in accordance with the educational levels of the parents

Moth. Ed.	n	Truth S. Mean	Open-mind. Mean	Analytical Mean	Systematic Mean	Self-esteem Mean	Curios. Mean	Crit. total Mean
İlleterat	11	33,18	39,96	42,72	42,52	45,45	37,01	240,86
Literate	9	31,76	35,38	37,76	37,88	41,66	32,69	217,16
Elem.S. and above	59	33,73	39,00	41,04	42,42	45,93	36,53	238,67
	14	35,79	40,76	41,85	42,22	45,71	39,28	245,63
Fat. Ed.								
Literate and lower	5	30,00	34,40	34,60	36,86	39,00	33,14	208,00
Elem. S	36	33,33	39,13	43,00	43,04	46,66	37,51	242,70
Sec. S.	19	33,77	40,52	40,90	42,74	45,78	36,92	240,67
HS	16	35,16	37,37	39,55	39,73	45,00	35,17	232,00
Unv.	17	34,55	40,05	40,39	42,41	44,70	36,83	238,96



In Erdoğan's research, it was observed that the scores of the teacher candidates in all the subcategories of critical thinking in accordance with the variable of "the educational levels of the parents" were low. As the relationship between them was taken into consideration, the highest scores belonged to the children of the mothers who were university graduates, in the subcategories of *truth seeking* (38,82), *open-mindedness* (30,30), *analytical* (25,61), *systematic thinking* (30,95), whereas the lowest scores in the subcategory of *self-esteem* also belonged to these candidates (25,55). In the above-mentioned research, it was observed that all of the highest scores were lower than all of the scores in the same variables in our research, except for the scores in the subcategory of *truth seeking* in accordance with the variable of the educational level of the mother. In Erdoğan's study, it was observed that the scores of the children of the fathers who were secondary school graduates were the highest in the subcategories of *truth seeking*, *open-mindedness*, *curiosity*, *maturity* and in *critical total*; and the children of the fathers who had MA degrees were observed to have the highest scores in the subcategories of *analytical* and *systematic* (Erdoğan, 2012, 93-95).

2.6. Critical Thinking Disposition in Accordance with the Family Structure

When the scores received in the subcategories of the TACCTDS in accordance with the variable of the family structures of the candidates were examined, it was seen that the children of all the families received low scores (below 40 points) in the subcategory of *truth seeking*. Although there is no statistically meaningful difference according to the Anova test results, when their interrelationship was taken into consideration, it was seen that the candidates who defined their family structure as "indifferent" got the highest scores in *truth seeking* and *analytical*, whereas the ones who defined their families as "over-caring" received the lowest. In *truth seeking* the list from the highest score to the lowest was as such: "indifferent, democratic, protective, authoritarian, other, over-caring". In *open-mindedness* it was observed that the scores were medium level and on the border of the medium level; in terms of the relationship between them, the highest score belonged to the candidates who had "other" family structure, and the lowest, to the ones who had "authoritarian and over-caring" families. In the subcategory of *analytical*, all the candidates had medium level scores except for the ones with "over-caring" family structure. The highest score in this subcategory again belonged to the candidates with "indifferent" families (Table 9).

In the subcategory of *systematic* the scores of the candidates were medium level and close to each other except for the ones with "indifferent" families. When the subcategory of *self-esteem* was observed, it was seen that the scores of the candidates with "authoritarian" families were on the border of the high level, of the ones with "democratic" families were close to high level, of the rest were medium level. The listing from the highest to the lowest is as such: "authoritarian, democratic, protective, other, over-caring, indifferent". In *curiosity* all the candidates scored low. It was observed that in *critical total*, candidates with "democratic" and "other" families had a medium level of critical thinking disposition, and the rest had low levels of disposition (Table 9).

Table 9: Critical thinking disposition in accordance with the family structure

Fam. Struc.	n	Truth S. Mean	Open-mind. Mean	Analytical Mean	Systematic Mean	Self-est. Mean	Curiosity Mean	Crit. total Mean
Authoritar.	12	32,39	38,16	39,95	41,66	50,00	36,19	238,37
Democ.	34	34,36	39,32	42,34	42,35	46,47	36,83	241,69
Non-soli.	1	37,50	38,66	47,00	37,77	40,00	22,85	223,80
Sollicitous	5	30,89	38,16	36,15	42,16	41,00	38,00	226,37
Protecti.	24	34,07	38,58	40,16	41,62	43,75	35,78	233,97
Other	16	34,37	40,29	41,11	42,01	43,12	38,12	239,04

In Erdoğan's research meaningful differences were observed in the subcategory of *truth seeking* between "democratic" and "protective" families in favor of "protective; in *open-mindedness*, between "democratic" and "over-caring", in favor of "over-caring"; in *analytical* between "democratic" and "other", in favor of "other"; in *curiosity* between "democratic" and "indifferent", in favor of "indifferent"; in *self-esteem* between "democratic" and "protective", in favor of "protective"; in *critical total* between "democratic" and "protective and authoritarian", in favor of "protective and authoritarian" (Erdoğan, 2012, 104-106).

2.7. Critical Thinking Disposition Level in Accordance with Economic Situation

When the critical thinking disposition levels of the candidates were taken into consideration in accordance with their economical situations, it was seen that the scores of all the candidates were low in the subcategory of *truth seeking*, but that the children of the families with "lower incomes" were more inclined to seek for truth. In the subcategory of *open-mindedness* the children of the families in which "income was lower than the expenses" had medium level scores and the scores of the others were close to medium level. In the subcategories of *analytical* and *systematic* all of them received medium level scores. In the subcategory of *self-*



esteem all the candidates received medium level scores; however the scores of the children of the families in which “income was higher than the expenses” were close to high level. According to the Anova test results a statistically meaningful difference was observed in the subcategory of *curiosity* ($p=0,013$). With respect to this, it was observed that the scores of the children with families in which “income was lower than the expenses” were medium level, and of the rest were low. In other words, the *curiosity* score of the ones with lowest income was the highest, whereas the score of the ones with highest income was the lowest in the same subcategory (Table 10).

When *critical total* was taken into consideration, it was observed that the children of the families in which “income was lower than the expenses” had medium level scores, and the others had low level scores. The scores of the children with families in which “income was lower than the expenses” were higher than the others in all subcategories except for *self-esteem*, and in the subcategory of *self-esteem*, they came in the second place after the scores of the children with families in which “income was higher than the expenses”.

Table 10: Critical thinking disposition in accordance with economic situation

Economic Situation	n	Truth S. Mean	Open-min. Mean	Analytic. Mean	Systemat. Mean	Self-este. Mean	Curiosity Mean	Crit.tot. Mean
Equal	51	33,69	38,43	40,83	42,43	43,03	36,98	235,42
Inc. higher	25	32,44	38,27	40,81	39,74	48,80	33,44	233,52
Inc. lower	17	36,03	41,92	42,05	43,83	47,64	40,26	251,76

In Erdoğan’s research no meaningful difference was observed between the variable of economical situation and critical thinking disposition and all the scores of the candidates in all subcategories were observed to be low (Erdoğan, 2012, 98-99).

2.8. Critical Thinking Disposition Level in Accordance with the Longest Place of Residence

As the critical thinking disposition levels of the teacher candidates were observed in accordance with the longest place of residence, it was seen that the scores of all the candidates were low in the subcategories of *truth seeking* and *curiosity*; medium level in the subcategories of *analytical*, *systematic* and *self-esteem*. The candidates who lived in the big cities had medium level scores in the subcategory of *open-mindedness*, who lived in cities had scores that were close to the border of medium level in the same subcategory, and who lived in the country had low scores. All the candidates had the highest score in the subcategory of *self-esteem*. As the *critical total* was taken into consideration, it was observed that the ones who lived in the country and big cities scored on the border of the medium level, and who lived in the cities scored low (Table 11). The scores were listed from the highest to the lowest in the subcategories of *truth seeking*, *analytical*, *systematic* and *critical total* as such: “country, big cities, cities”. The listing was as such in the subcategory of *open-mindedness*: “big cities, cities, country”. In the subcategory of *self-esteem*, as such: “country, cities and big cities, even”. In the subcategory of *curiosity*, as such: “cities, big cities, country”.

Table 11: Critical thinking disposition level in accordance with the longest place of residence

Long. Plac. Res.	n	Truth S. Mean	Open-mind Mean	Analytic. Mean	Systematic Mean	Self-est. Mean	Curiosity Mean	Crit. total Mean
City	46	32,96	38,92	40,67	41,85	45,86	36,82	237,10
Country	22	35,87	38,11	41,79	42,21	45,00	36,23	239,23
Big city	25	33,46	40,02	41,08	41,96	45,00	36,63	238,18

In Erdoğan’s research, a meaningful relationship was observed between the critical thinking dispositions of the teacher candidates and the place in which they resided for the longest period of time: in the subcategory of *analytical* and *self-esteem* between “towns” and “big cities”, in favor of “towns”; in the subcategory of *maturity* between “towns” and “city” and “big city”, in favor of the ones who lived in towns; in *critical total* between “towns” and “cities”, in favor of the ones who lived in towns. However; all the scores were still observed to be low (Erdoğan, 2012, 99-101).

2.9. Critical Thinking Disposition Level in Accordance with the Variable of Where and with Whom They Resided During Their Undergraduate Education

In order to determine whether there was a meaningful difference in critical thinking dispositions of the teacher candidates in accordance with the variable of where and with whom they lived during their undergraduate education, anova test was conducted and it was observed as a result of the test that there was no meaningful difference in any of the subcategories of critical thinking and in the total score averages (Table 12). With respect to this, the teacher candidates who lived in different places during their undergraduate education had similar critical thinking dispositions. As the scores of critical thinking were observed in accordance with where and with whom the candidates stayed, it was seen that all the candidates had low scores in the subcategory of *truth seeking*. The listing of the scores from the highest to the lowest is as



such: “State-funded dormitories, the dorms of the Religious Affairs Administration, private dorms, room-mates, on one’s own at a house, in the dorms of religious foundations or communities”. It was observed that in the subcategory of *open-mindedness* the scores of the candidates who lived on their own at a house, in the state-funded dorms and the dorms of RAA were medium level, who lived in private dorms were on the border of the medium level and the scores of the rest were low. In this subcategory, the scores were listed from the highest to the lowest as such: “on one’s own at a house, state-funded dorms, private dorms, dorms of the religious foundations and communities, with family, with room-mates, with relatives”. In *analytical* the scores of the candidates were low except for the ones who stayed with room-mates and relatives whose scores were medium level. The scores were listed from the highest to the lowest as such: “dorms of the religious foundations and communities, private dorms, with family, on one’s own at a house, state-funded dorms, with relatives, with room-mates”.

In the subcategory of *systematic* all the candidates had medium level scores, except for the ones who stayed with room-mates and at the dorms of the religious foundations and communities. The scores were listed from the highest to the lowest as such: “with relatives and on one’s own at a house, even, with family, state-funded dorms, dorms of RAA, private dorms, dorms of the religious foundations and communities, with room-mates”. In *self-esteem* the candidates who stayed with their relatives and on their own at a house had high scores, the ones who stayed at the dorms of the religious foundations and communities had the lowest scores, and the rest had medium level scores. The scores were listed from the highest to the lowest as such: “with relatives, on one’s own at a house, private dorms, dorms of RAA, state-funded dorms, with family, with room-mates, the dorms of the religious foundations and communities”. It was observed that in the subcategory of *curiosity* all the candidates received low scores except for the one’s who lived on their own at a house whose scores were medium level. The scores were listed from the highest to the lowest as such: “on one’s own, state-funded dorms, dorms of RAA, dorms of the religious foundations and communities, with family, with room-mates, private dorms”. As the *critical total* scores were taken into consideration, it was seen that the scores of the candidates who stayed on their own at a house, at state-funded dorms, the dorms of RAA and private dorms were medium level and the scores of the rest were low. The scores were listed from the highest to the lowest as such: “on one’s own at a house, state-funded dorms, dorms of RAA, private dorms, with family, with relatives, dorms of religious foundations and communities, with room-mates” (Table 12).

Table 12: Critical thinking disposition levels in accordance with where and with whom they lived

Where and with whom Res. D. Ed	n	Truth S. Mean	Open-mind Mean	Analytical Mean	Systematic Mean	Self-est. Mean	Curiosity Mean	Crit. Total Mean
Family	11	30,74	38,29	42,61	43,63	41,36	34,93	231,58
Relatives	2	29,37	34,00	38,50	44,44	52,50	30,00	228,81
Room-mates	13	33,66	36,47	38,29	38,11	39,61	34,72	220,88
One’s own	2	33,12	45,66	41,50	44,44	50,00	40,00	254,73
KYK	8	35,08	39,75	41,37	43,45	46,87	38,21	244,75
Priv. dorm.	4	34,37	39,33	43,47	42,22	48,75	33,21	241,36
Relig.foun. or com. Dorm.	2	32,32	38,57	46,44	38,88	35,00	35,00	226,22
Dorms of Rel. Affairs Ad.	51	34,47	39,65	41,04	42,26	47,25	37,69	242,40
Total	93	33,78	39,03	41,05	41,96	45,43	36,63	237,90

There are no findings in this matter in Erdoğan’s research as the variable of “where and with whom they stayed during their undergraduate education” was not taken into consideration.

2.10. Critical Thinking Disposition in Accordance with the Variable of the Type of Education

T test was conducted to determine if there was a meaningful difference between the average scores of all candidates of different types of education, in all subcategories and critical total scores and no statistically meaningful difference was found. In this respect, both daytime and evening students had similar levels of critical thinking disposition. As the relationship between them was taken into consideration, it was observed that all the candidates had low scores in *truth seeking* and *curiosity*, medium scores in the rest of the subcategories. In terms of which one scored higher than the other, it was observed that evening education students had higher scores in the subcategories of *truth seeking*, *open-mindedness*, *curiosity* and *critical total*; whereas the daytime education students scored slightly higher in the subcategories of *analytical*, *systematic* and *self-esteem* (Table 13).



Table 13: Critical Thinking Disposition in Accordance with the Type of Education

Ed. Type	Truth S.	Open-min.	Analytical	Systematic	Self-est.	Curiosity	Crit. total	
n	Mean	Mean	Mean	Mean	Mean	Mean	Mean	
I.	50	32,63	38,47	41,39	42,18	46,00	35,73	236,41
II.	43	35,12	39,68	40,65	41,72	44,76	37,67	239,62

3. The Relationship Between The Subcategories Of Critical Thinking And Open-Ended Questions And Demographic Variables

How the candidates evaluated themselves in the subcategories of critical thinking was asked to the teacher candidates through open-ended questions and their answers were analyzed in this section.

3.1. The Relationship between Gender and the Subcategories of Critical Thinking (Open-ended Questions)

As the subcategories of critical thinking were assessed through open-ended questions and each subcategory was evaluated through a scale between 1 and 3, the relationships between the above-mentioned subcategories and demographic variables were examined through a Chi-Square test. As a result of this analysis, no meaningful difference was observed between gender and the above-mentioned subcategories. Although there was no meaningful difference between gender and the subcategories of critical thinking according to the results of the Chi-Square test, the following conclusions were drawn as the relationship between them was taken into consideration.

It was observed that 87,5% of the female teacher candidates claimed to have the skill of *truth seeking*; 3,1% claimed to have the skill on the medium level; 9,4% claimed to lack the above-mentioned skill whereas 76,7% of the male candidates claimed to have the skill; 18,6% of them claimed to have the skill on the medium level, and 4,7% claimed to lack the above-mentioned skill (Table 14).

91,4% of the female teacher candidates claim to have the skill of *open-mindedness*; 8,6 of them claimed to have the skill on the medium level. There were no female candidates who thought to lack the skill of open-mindedness. 73,8% of the male candidates claimed to have the skill of *open-mindedness*; 21,4% of them claimed to have the skill on the medium level and 4,8% claimed to lack the above-mentioned skill (Table 14).

58,8% of the female candidates claimed to have the *analytical* skills; 20,6% of them claimed to have this skill on the medium level; and 20,6% claimed to lack the above-mentioned skill, whereas 71,1% of the male candidates claimed to have this skill; 18,4 of them claimed to have the skill on the medium level, and 10,5% of them claimed to lack the above-mentioned skill (Table 14).

54,5% of the female candidates claimed to have the *systematic* skills; 24,2% of them claimed to have it on the medium level; and 21,2% claimed to lack the above-mentioned skill, whereas 42,5% of the male candidates claimed to have the skill; 27,5% of them claimed to have it on the medium level, and 30,0% claimed to lack the above-mentioned skill (Table 14).

78,8% of the female candidates claimed to have the skill of *self-esteem*; 18,2 of them claimed to have it on the medium level; and 3,0% claimed to lack the above-mentioned skill, whereas 75,0% of the male candidates claimed to have the skill, and 7,5% of the candidates claimed to lack the above-mentioned skill (Table 14).

82,4% of the female candidates claimed to have the skill of *curiosity*; 8,8% of them claimed to have it on the medium level; and 8,8% claimed to lack the above-mentioned skill, whereas 72,5% of the male candidates claimed to have the skill; 25,0% of them claimed to have it on the medium level, and 2,5% claimed to lack the above-mentioned skill (Table 14).

54,3% of the female candidates claimed to have the skill of *maturity*; 31,4 of them claimed to have it on the medium level; and 14,3% claimed to lack the above-mentioned skill, whereas 70,3% of the male candidates claimed to have the skill; 21,6% of them claimed to have it on the medium level, and 8,1% claimed to lack the above-mentioned skill (Table 14).

Table 14: Open-ended questions critical thinking disposition in accordance with gender

Gender	Truth S.	Open-min.	Analytical	Systematic	Self-est.	Curiosity	Maturity
W. n=28							
Have skill	87,5%	91,4%	58,8%	54,5%	78,8%	82,4%	54,3%
Med.-level	3,1%	8,6%	20,6%	24,2%	18,2%	8,8%	31,4%
Lack skill	9,4%	0,0%	20,6%	21,2%	3,0%	8,8%	14,3%
M. n=33							
Have skill	76,7%	73,8%	71,1%	42,5%	75,0%	72,5%	70,3%
Med.-level	18,6%	21,4%	18,4%	27,5%	17,5%	25,0%	21,6%
Lack skill	4,7%	4,8%	10,5%	30,0%	7,5%	2,5%	8,1%



3.2. The Relationship Between Age and the Subcategories of Critical Thinking (Open-ended Questions)

Teacher candidates were divided into two groups as “23 years of age and below” and “24 years of age and above” and the relationship of these age groups with the subcategories of critical thinking was examined. 81,5% of the candidates who were 23 years old and below claimed to have the skill of *truth seeking*, 11,1% of them claimed to have it on the medium level and 7,4% of them claimed to lack the above-mentioned skill, whereas 81,0% of the ones who were classified as 24 years old and above claimed to have the skill, 14,3% of them claimed to have it on the medium level, and 4,8% of them claimed to lack the above-mentioned skill (Table 15). 85,2% of the candidates who were 23 years old and below claimed to have the skill of *open-mindedness*, 11,1% of them claimed to have it on the medium level and 3,7% of them claimed to lack the above-mentioned skill, whereas 73,9% of the ones who were classified as 24 years old and above claimed to have the skill, 26,1% of them claimed to have it on the medium level. There were no candidates in this age group to claim to lack the above-mentioned skill (Table 15).

65,4% of the teacher candidates who were 23 years old and below claimed to have the *analytical* skills, 17,3% of them claimed to have it on the medium level and 17,3% of them claimed to lack the above-mentioned skill, whereas 65,0% of the ones who were classified as 24 years old and above claimed to have the skill, 25,0% of them claimed to have it on the medium level, and 10,0% of them claimed to lack the above-mentioned skill (Table 15). 46,2% of the teacher candidates who were 23 years old and below claimed to have the systematic skills, 21,2% of them claimed to have it on the medium level and 32,7% of them claimed to lack the above-mentioned skill, whereas 52,4% of the ones who were classified as 24 years old and above claimed to have the skill, 38,1% of them claimed to have it on the medium level, and 9,5% of them claimed to lack the above-mentioned skill (Table 15).

Although there was no statistically meaningful difference between the variable of age and the subcategory of *self-esteem*, it was observed that the older one got the less self-esteem s/he had. 82,7% of the teacher candidates who were 23 years old and below claimed to have the skill of *self-esteem*, 15,4% of them claimed to have it on the medium level and 1,9% of them claimed to lack the above-mentioned skill, whereas 61,9% of the ones who were classified as 24 years old and above claimed to have the skill, 23,8% of them claimed to have it on the medium level, and 14,3% of them claimed to lack the above-mentioned skill (Table 15). 71,7% of the teacher candidates who were 23 years old and below claimed to have the skill of *curiosity*, 20,8% of them claimed to have it on the medium level and 7,5% of them claimed to lack the above-mentioned skill, whereas 90,5% of the ones who were classified as 24 years old and above claimed to have the skill, 9,5% of them claimed to have it on the medium level (Table 15). There were no candidates in this age group to have claimed to lack the above-mentioned skill. Here as opposed to the skill of self-esteem, it was observed that the older the candidates got, the more they claimed to have the skills of curiosity.

62,3% of the teacher candidates who were 23 years old and below claimed to have the skill of *maturity*, 24,5% of them claimed to have it on the medium level and 13,2% of them claimed to lack the above-mentioned skill, whereas 63,2% of the ones who were classified as 24 years old and above claimed to have the skill, 31,6% of them claimed to have it on the medium level, and 5,3% of them claimed to lack the above-mentioned skill (Table 15). With respect to this, although there was no meaningful difference, it was observed that the older the candidates got, the more they claimed to have the above-mentioned skill.

Table 15: Open-ended questions critical thinking disposition in accordance with age

Age	Truth S.	Open-min.	Analytical	Systematic	Self-est.	Curiosity	Maturity
23 and lower							
Have skill	81,5%	85,2%	65,4%	46,2%	82,7%	71,7%	62,3%
Med.-level	11,1%	11,1%	17,3%	21,2%	15,4%	20,8%	24,5%
Lack skill	7,4%	3,7%	17,3%	32,7%	1,9%	7,5%	13,2%
24 and above							
Have skill	81,0%	73,9%	65,0%	52,4%	61,9%	90,5%	63,2%
Med.-level	14,3%	26,1%	25,0%	38,1%	23,8%	9,5%	31,6%
Lack skill	4,8%	0,0%	10,0%	9,5%	14,3%	0,0%	5,3%

3.3. The Relationship between the Subcategories of Critical Thinking and the High School from Which the Candidates Graduated (Open-ended Questions)

As suggested earlier, the relationships between the subcategories of critical thinking disposition and demographic variables were evaluated with Chi-Square test and it was found out as the result of the analysis that there was no meaningful difference between the above-mentioned subcategories and the variable of *the*



high school from which the candidates graduated. Although there was no meaningful difference, the following conclusions were drawn as the answers to the open-ended questions concerning the relationship between the high school from which the candidates graduated and the subcategories of critical thinking disposition were examined in the light of Mann Whitney U Test:

The candidates who claimed to have the skill of *truth seeking* in highest numbers were the graduates of RVHS with a percentage of 43,44, the graduates of AHS, SuperHS, ScienceHS, ATVHS had the second place. The listing of the numbers of the candidates who claimed to have the above-mentioned skill from the highest to the lowest can be made, in accordance with the High Schools from which they graduated, as such: "RVHS; AHS, SuperHS, ScienceHS, ATVHS; other; High School; regular High School and ARVHS" (Table 16). The candidates who claimed to have the skill of *open-mindedness* in highest numbers were the graduates of regular High Schools followed by "AHS, SuperHS, ScienceHS, ATVHS; RVHS; ARVHS; other High Schools," respectively. Again, the listing of the numbers of the candidates who claimed to have the analytical skills from the highest to the lowest can be made, in accordance with the High Schools from which they graduated, as such: "ARVHS; the numbers of the regular High School graduates and the graduates of the other High Schools were the same; AHS, SuperHS, ScienceHS, STVHS; RVHS". The candidates who claimed to have the systematic skills in highest numbers were the graduates of ARVHS, followed by AHS, SuperHS, ScienceHS, ATVHS; regular High School; RVHS and the graduates of other High Schools. The listing of the numbers of the candidates who claimed to have the skill of *self-esteem* from the highest to the lowest can be made, in accordance with the High Schools from which they graduated, as such: "other High Schools; regular High School; ARVHS; AHS, SuperHS, ScienceHS, ATVHS; RVHS". The candidates who claimed to have the skill of *curiosity* in highest numbers were the graduates of "AHS, SuperHS, ScienceHS, ATVHS; ARVHS; regular High School; RVHS and the other High Schools," respectively. The listing of the numbers of the candidates who claimed to have the skill of *maturity*, the last subcategory, from the highest to the lowest can be made, in accordance with the High Schools from which they graduated, as such: "RVHS; AHS, Super HS, ScienceHS, ATVHS; regular High School; ARVHS and other High Schools" (Table 16).

Table 16: Open-ended questions, critical thinking disposition in accordance with the high schools which the candidates graduated from, mann whitney u test

Graduated HS	n	Truth S. Mean Rank	Open-min. Mean Rank	Analytical Mean Rank	Systematic Mean Rank	Self-est. Mean Rank	Curiosity Mean Rank	Maturity Mean Rank
HS	19	36,89	42,42	36,25	36,76	39,03	37,24	36,97
RVHS	9	43,44	40,33	33,19	34,22	28,50	29,00	39,00
ARVHS	17	35,12	34,21	39,75	39,00	38,27	38,81	36,70
AHS,SHS, ScienceHS,ATHS,	25	38,84	41,19	36,00	38,17	37,13	41,77	37,76
Other	5	38,00	32,00	36,25	31,50	41,42	29,00	27,57

3.4. The Relationship between the University Entrance Exam Score and the Subcategories of Critical Thinking (Open-ended Questions)

The candidates were classified as the ones with university entrance exam score of "382 and below" and "383 and above" and the relationship of these groups with the subcategories of critical thinking was examined. In the subcategory of *truth seeking*, 76,9% of the candidates who scored 382 and below claimed to have this skill, 15,4% of them claimed to have it on the medium level and 7,7% claimed to lack the above-mentioned skill; whereas 83,0% of the candidates who scored 383 and higher, claimed to have the skill, 10,6% claimed to have it on the medium level and 6,4% claimed to lack the above-mentioned skill (Table 17). It was observed that in the subcategory of *truth seeking*, the higher the university entrance exam score is, the more candidates claimed to have the above-mentioned score. In the subcategory of *open-mindedness*, 86,2% of the candidates who scored 382 and below claimed to have this skill, 13,8% of them claimed to have it on the medium level. There no candidates who claimed to lack the skill of open-mindedness in this group. As the candidates who scored 383 and higher were evaluated, it was found that 80,4% of the candidates claimed to have the skill, 15,2% claimed to have it on the medium level and 4,3% claimed to lack the above-mentioned skill (Table 17). It was observed that the lower the exam scores of the candidates, the more candidates claimed to have the skill of *open-mindedness*.

As the relationship between the university entrance exam score and *analytical*, it was found that 66,7% of the candidates who scored 382 and below claimed to have this skill, 16,7% of them claimed to have it on the medium level and 16,7% claimed to lack the above-mentioned skill; whereas 63,0% of the candidates who scored 383 and higher, claimed to have the skill, 21,7% claimed to have it on the medium level and 15,2% claimed to lack the above-mentioned skill (Table 17). In the subcategory of *analytical* as the



score increased, the ratio of having the skill decreased. In the subcategory of *systematic*, 33,3% of the candidates who scored 382 and below claimed to have this skill, 40,7% of them claimed to have it on the medium level and 25,9% claimed to lack the above-mentioned skill; whereas 55,6% of the candidates who scored 383 and higher, claimed to have the skill, 17,8% claimed to have it on the medium level and 26,7% claimed to lack the above-mentioned skill (Table 17). As can be deduced from the results, the higher the entrance exam scores got, the more candidates claimed to have the systematic skills.

As the relationship between university entrance exam score and *self-esteem* was taken into consideration, it was found that 66,7% of the candidates who scored 382 and below claimed to have this skill, 22,2% of them claimed to have it on the medium level and 11,1% claimed to lack the above-mentioned skill; whereas 84,4% of the candidates who scored 383 and higher, claimed to have the skill, 13,3% claimed to have it on the medium level and 2,2% claimed to lack the above-mentioned skill (Table 17). According to the results of the Chi-Square test, it can be argued that there was a critically meaningful relationship between the university entrance exam scores and the skill of *self-esteem* ($p=0,051$). With respect to this, it was observed that as the score increased, the ratio of the candidates who claimed to have the skill also increased. In the subcategory of *curiosity*, 82,1% of the candidates who scored 382 and below claimed to have this skill, 14,3% of them claimed to have it on the medium level and 3,6% claimed to lack the above-mentioned skill; whereas 73,3% of the candidates who scored 383 and higher, claimed to have the skill, 20,0% claimed to have it on the medium level and 6,7% claimed to lack the above-mentioned skill (Table 17). Although there was no statistically meaningful difference, it was observed that the skill of *curiosity* was inversely proportional with university entrance exam scores, and that as the score increased the number of the candidates who claimed to have it decreased. As the subcategory of *maturity* was examined, it was also observed to be inversely proportional. Whereas the candidates who scored 382 and lower claimed to have the skill in higher numbers, the ones who scored 383 and higher were observed to have a lower ratio of claiming to have the skill (Table 17).

Table 17: Open-ended questions, critical thinking disposition in accordance with university entrance exam score and type of education

Unv. Ent. Ex.Score	Truth S.	Open-min.	Analytical	Systematic	Self-esteem	Curiosity	Maturty
382 and lower							
Have skill	76,9%	86,2%	66,7%	33,3%	66,7%	82,1%	65,4%
Med.-level	15,4%	13,8%	16,7%	40,7%	22,2%	14,3%	31,6%
Lack skill	7,7%	0,0%	16,7%	25,9%	11,1%	3,6%	37,5%
383 and above							
Have skill	83,0%	80,4%	63,0%	55,6%	84,4%	73,3%	59,1%
Med.-level	10,6%	15,2%	21,7%	17,8%	13,3%	20,0%	29,5%
Lack skill	6,4%	4,3%	15,2%	26,7%	2,2%	6,7%	62,5%
Ed. Type							
I.							
Have skill	80,5%	80,0%	65,0%	50,0%	84,6%	70,0%	
Med.-level	12,2%	15,0%	20,0%	17,5%	12,8%	25,0%	
Lack skill	7,3%	5,0%	15,0%	32,5%	2,6%	5,0%	
II.							
Have skill	82,4%	83,8%	65,6%	45,5%	67,6%	85,3%	
Med.-level	11,8%	16,2%	18,8%	36,4%	23,5%	8,8%	
Lack skill	5,9%	0,0%	15,6%	18,2%	8,8%	5,9%	

3.5. The Relationship between the Educational Level of the Parents and the Subcategories of Critical Thinking (Open-ended Questions)

The educational levels of the mothers were classified into two as "primary school and below" and "secondary school and above" and its relationship between the subcategories was examined through Mann Whitney U Test. A statistically meaningful difference was found between the educational level of the mother and the subcategory of *maturity* ($p=0,034$), and with respect to this the candidates whose mothers had primary school and lower level of education claimed to have better skills of *maturity* compared to the candidates who had mothers with secondary school and higher level of education. As the relationship between the educational level of the mother and the other subcategories: it was observed that the candidates whose mothers had primary school and lower level of education claimed to have better skills of *truth seeking*, *open-*



mindfulness, analytical, curiosity and maturity compared to the candidates who had mothers with secondary school and higher level of education. The candidates whose mothers had secondary school and higher level of education, on the other hand, claimed to have better skills of *systematic* and *self-esteem* (Table 18).

As the relationship between the educational level of the fathers of the teacher candidates and the subcategories of critical thinking was taken into account, the following results were observed: the candidates whose fathers have "literate and lower" level of education claimed to have the skills of *truth seeking, open-mindedness* and *maturity* in highest numbers and they claimed to have the skills of *analytical* and *self-esteem* in the second highest numbers in comparison with the other candidates. They came on the third place in terms of claiming to have *analytical* skills whereas they came in the last place in the *systematic* skills as compared to the other candidates. The highest number of candidates that claimed to have the skill of *curiosity* was the ones whose fathers were university graduates. These candidates came in the second place in claiming to have the skills of *truth seeking* and *open-mindedness*. The listing of the candidates in terms of the highest number of them claiming to have the skills in all subcategories is as such from the highest to the lowest: in *truth seeking* "literate and below, university, primary school, secondary school, high school"; in *analytical*, "high school, literate and below, secondary school, primary school, university"; in *systematic*, "primary school, high school, university, secondary school, literate and below"; in *self-esteem*, "high school, literate and below, university, secondary school, primary school"; in *curiosity*, "university, high school, primary school, literate and below, secondary school"; in *maturity* "literate and below, secondary school, high school, university, primary school" (Table 18).

Table 18: Critical thinking disposition in accordance with the educational level of the parents

Mother ed.	n	Truth S. Mean Rank	Open-min Mean Rank	Analytical Mean Rank	Systematic Mean Rank	Self-este. Mean Rank	Curiosity Mean Rank	Maturity Mean Rank
Elementary and lower	79	39,20	39,03	37,33	36,97	36,57	37,73	38,41
Second. S. and above	14	31,00	38,82	31,35	37,22	39,70	36,00	25,91
Father ed.								
Literate and lower	3	46,40	50,75	38,70	18,00	39,25	37,75	47,00
Elementr.S	21	39,04	38,50	36,00	40,66	34,74	38,62	33,59
Sec. S.	14	35,81	37,36	37,50	33,13	37,12	29,00	39,85
High S.	14	33,33	32,00	41,04	38,86	40,57	40,21	36,71
Unv.	9	40,92	46,42	30,13	37,18	37,13	41,38	35,96

3.6. The Relationship Between Family Structure and the Subcategories of Critical Thinking (Open-ended Questions)

The relationship between the family structure and the subcategories of critical thinking were examined through Kruskal Wallis test and no statistically meaningful difference was found. The teacher candidates claimed to have the skills in all subcategories from the highest number to the lowest as indicated in the following list: in the subcategory of *truth seeking* "authoritarian, other, democratic, over-caring, protective"; in *open-mindedness* "indifferent, other, authoritarian and protective (even), democratic, over-caring"; in *analytical* "indifferent ve over-caring (even), other, democratic, authoritarian and protective (even)"; in *systematic* "over-caring, democratic and protective (even), authoritarian, other"; in *self-esteem* "democratic, authoritarian, protective, other, over-caring"; in *curiosity* "authoritarian, protective and other (even), democratic, over-caring"; in *maturity* "indifferent and over-caring (even), other, authoritarian, democratic, protective" (Table 19).

Table 19: Critical thinking disposition in accordance with the family structure

Family Structure	Truth S.	Open-min.	Analytical	Systemat.	Self-esteem	Curiosity	Maturity
Authoritar.							
Have skill	91,7%	83,3%	50,0%	41,7%	83,3%	91,7%	63,6%
Med.-level	8,3%	16,7%	25,0%	41,7%	8,3%	8,3%	18,2%
Lack skill	0,0%	0,0%	25,0%	16,7%	8,3%	0,0%	18,2%
Democratic							
Have skill	82,1%	77,8%	68,0%	50,0%	92,0%	63,0%	56,0%
Med.-level	14,3%	14,8%	24,0%	15,4%	8,0%	29,6%	28,0%
Lack skill	3,6%	7,4%	8,0%	34,6%	0,0%	7,4%	16,0%
Non-Solicit.							
Have skill		100,0%	100,0%				100,0%



Med.-level		0,0%	0,0%				0,0%
Lack skill		0,0%	0,0%				0,0%
Sollicitous							
Have skill	80,0%	75,0%	100,0%	80,0%	50,0%	60,0%	100,0%
Med.-level	0,0%	25,0%	0,0%	20,0%	25,0%	40,0%	0,0%
Lack skill	20,0%	0,0%	0,0%	0,0%	25,0%	0,0%	0,0%
Protective							
Have skill	66,7%	83,3%	50,0%	50,0%	70,6%	87,5%	50,0%
Med.-level	16,7%	16,7%	18,8%	18,8%	29,4%	6,3%	37,5%
Lack skill	16,7%	0,0%	31,3%	31,3%	0,0%	6,3%	12,5%
Other							
Have skill	90,9%	85,7%	76,9%	35,7%	60,0%	85,7%	71,4%
Med.-level	9,1%	14,3%	15,4%	42,9%	26,7%	7,1%	28,6%
Lack skill	0,0%	0,0%	7,7%	21,4%	13,3%	7,1%	0,0%

3.7. The Relationship between the Economical Situation and the Subcategories of Critical Thinking (Open-ended Questions)

Although there was no statistically meaningful difference between the variable of economical situation and the subcategories of critical thinking disposition, as the relationship between them was examined, the following results were observed: The candidates who claimed to have the skills of *truth seeking*, *open-mindedness*, *analytical* and *maturity* in highest numbers were the ones with "lower income". The candidates who claimed to have the skills of *systematic* and *curiosity* in highest numbers were the ones whose income was equal to their expenses, and the candidates who claimed to have the skill of *self-esteem* in highest numbers were the ones with "higher income" (Table 20).

The teacher candidates can be listed according to the number of the candidates claiming to have a specific skill as such, from the highest numbers to the lowest: in *truth seeking* "lower income, higher income, even income/expense"; in *open-mindedness* "lower income, even income/expense, higher income"; in *analytical* "lower income, even income/expense, higher income"; in *systematic* "even income/expense, higher income, lower income"; in *self-esteem* "higher income, lower income, even income/expense"; in *curiosity* "even income/expense, lower income, higher income"; in *maturity* "lower income, even income/expense, higher income" (Table 20).

Table 20: Critical thinking disposition in accordance with the economical situation

Econ. Sit.	Truth S.	Open-min	Analytical	Systemati	Self-esteem	Curiosity	Maturity
Equal							
Have skill	79,5%	79,5%	69,4%	52,6%	70,3%	84,6%	61,1%
Med.-level	10,3%	20,5%	16,7%	18,4%	27,0%	10,3%	27,8%
Lack skill	10,3%	0,0%	13,9%	28,9%	2,7%	5,1%	11,1%
Inc. higher							
Have skill	81,8%	78,3%	52,2%	45,0%	90,0%	65,0%	52,4%
Med.-level	18,2%	13,0%	26,1%	15,0%	5,0%	30,0%	28,6%
Lack skill	0,0%	8,7%	21,7%	40,0%	5,0%	5,0%	19,0%
Inc. lower							
Have skill	85,7%	93,3%	76,9%	40,0%	75,0%	73,3%	80,0%
Med.-level	7,1%	6,7%	15,4%	60,0%	12,5%	20,0%	20,0%
Lack skill	7,1%	0,0%	7,7%	0,0%	12,5%	6,7%	0,0%

3.8. The Relationship between the Longest Place of Residence and The Subcategories of Critical Thinking (Open-ended Questions)

In the relationship between the longest place of residence and the subcategories of critical thinking disposition, no statistically meaningful difference was found. As the relationship between them was examined, the highest number of the candidates who claimed to have the skills of *truth seeking* and *open-mindedness* were the ones living in "big cities". The candidates who specified their longest place of residence as the "country" claimed to have the skills of *analytical*, *systematic*, *self-esteem* and *maturity* in highest numbers compared to the others. The ones who claimed to have the skill of *curiosity* in highest numbers specified their longest place of residence as "big city" and "city" (Table 21). The listing of the teacher candidates according to their claims of having the skills in all subcategories is as such, from the highest number of candidates to the lowest: in *truth seeking* "big city, city, country, town"; in *open-mindedness* "big city, town, country"; in *analytical* "(no big difference between country and town) country, town, big city"; in *systematic* "(again no big difference between country and town) country, town, big city"; in *self-esteem* "country, town, big city"; in



curiosity “(no big difference between big city and town) big city, town, country”; in maturity “country, big city, town” (Table 21).

Table 21: Critical thinking disposition in accordance with the longest place of residence

Place Long. Res	Truth S.	Open-min.	Analytical	Systemat.	Self-est.	Curiosity	Maturity
City							
Have skill	76,9%	80,5%	67,6%	52,5%	74,4%	77,5%	55,3%
Med.-level	17,9%	14,6%	16,2%	17,5%	23,1%	20,0%	31,6%
Lack skill	5,1%	4,9%	16,2%	30,0%	2,6%	2,5%	13,2%
Country							
Have skill	82,4%	78,3%	68,4%	53,3%	87,5%	75,0%	81,3%
Med.-level	17,6%	13,0%	26,3%	33,3%	6,3%	18,8%	12,5%
Lack skill	0,0%	8,7%	5,3%	13,3%	6,3%	6,3%	6,3%
Big city							
Have skill	88,9%	84,2%	56,3%	33,3%	72,2%	77,8%	61,1%
Med.-level	5,6%	15,8%	18,8%	38,9%	16,7%	11,1%	27,8%
Lack skill	5,6%	0,0%	25,0%	27,8%	11,1%	11,1%	11,1%

3.9. The Relationship between the Subcategories of Critical Thinking and Where and with Whom the Candidates Stayed During Their Undergraduate Education (Open-ended Questions)

As the relationship between the variable of where and with whom the candidates stayed during their undergraduate education and the subcategories of critical thinking was examined, it was observed that the listing of the teacher candidates according the number of the candidates who claimed the have the skills is as such, from the highest number to the lowest: in *truth seeking* the ones who stayed “on one’s own at a house, in private dorms and religious community houses” came on top (all had the same ratios) followed by state-funded dorms, the dorms of RAA, with family, with room-mates, with relatives”; in *open-mindedness* all the candidates claimed to fully have this skill except for the ones who stayed with family and the dorms of RAA; in *analytical* “with relatives, on one’s own at a house, religious foundations, religious community dorms (all at a ratio of 100%), state-funded dorms, the dorms of RAA, private dorms, with family, with room-mates”; in *systematic* “on one’s own at a house, dorms of the religious foundations and communities (both at a ratio of 100%), state-funded dorms, the dorms of RAA, with family, with room-mates, with relatives”; in *self-esteem* “with relatives, on one’s own at a house (both at a ratio of 100%), with family, state-funded dorms, the dorms of RAA, with room-mates, religious foundations, religious community dorms, private dorms”; in *curiosity* “with relatives, on one’s own at a house, private dorms, religious foundations, religious community dorms (all at a ratio of 100%), state-funded dorms, the dorms of RAA, with family, with room-mates”; in *maturity* “on one’s own at a house, private dorms, religious foundations, religious community dorms (all at a ratio of 100%), with room-mates, the dorms of RAA, with family, state-funded dorms, with relatives” (Table 22).

Table 22: Critical thinking disposition in accordance with where and with whom the candidates stayed during the undergraduate education

Where T. Res. D. Ed.	Truth S.	Open-min.	Analytical	Systemat.	Self-est.	Curiosity	Maturity
Fam. n=11							
Have skill	81,8%	90,9%	55,6%	44,4%	88,9%	70,0%	55,6%
Med.-level	18,2%	9,1%	33,3%	22,2%	11,1%	30,0%	44,4%
Lack skill	0,0%	0,0%	11,1%	33,3%	0,0%	0,0%	0,0%
Relativ. n=1							
Have skill	0,0%	100,0%	100,0%	0,0%	100,0%	100,0%	0,0%
Med.-level	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Lack skill	100,0%	0,0%	0,0%	100,0%	0,0%	0,0%	100,0%
Room-mates n=12							
Have skill	75,0%	100,0%	50,0%	33,3%	66,7%	58,3%	66,7%
Med.-level	16,7%	0,0%	41,7%	33,3%	25,0%	8,3%	25,0%
Lack skill	8,3%	0,0%	8,3%	33,3%	8,3%	33,3%	8,3%
One’s own n=1							
Have skill	100,0%	0,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Med.-level	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Lack skill	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
KYK n=8							
Have skill	83,3%	100,0%	71,4%	75,0%	87,5%	87,5%	50,0%



Med.-level	16,7%	0,0%	0,0%	0,0%	12,5%	12,5%	50,0%
Lack skill	0,0%	0,0%	28,6%	25,0%	0,0%	0,0%	0,0%
Private dorm. n=3							
Have skill	100,0%	100,0%	66,7%	0,0%	0,0%	100,0%	100,0%
Med.-level	0,0%	0,0%	0,0%	100,0%	100,0%	0,0%	0,0%
Lack skill	0,0%	0,0%	33,3%	0,0%	0,0%	0,0%	0,0%
Religious foun.or com. Dorm. n=2							
Beceri var	100,0%	100,0%	100,0%	100,0%	50,0%	100,0%	100,0%
Orta düzeyde	0,0%	0,0%	0,0%	0,0%	50,0%	0,0%	0,0%
Yetersiz	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Dorms of Rel. Affairs Ad. n=39							
Have skill	82,5%	69,2%	68,4%	48,7%	76,9%	80,0%	62,2%
Med.-level	10,0%	25,6%	15,8%	30,8%	15,4%	20,0%	21,6%
Lack skill	7,5%	5,1%	15,8%	20,5%	7,7%	0,0%	16,2%

3.10. The Relationship between the Type of Education and the Subcategories of Critical Thinking (Open-ended Questions)

The teacher candidates who participated in the study consisted of both daytime education and evening education students. Although there was no statistically meaningful difference between the variable of the type of education and critical thinking disposition, as their relationship was observed the following results were found:

In the subcategory of *truth seeking*, 80,5% of the daytime education students claimed to have the skill of *truth seeking*, 12,2% of them claimed to have it on the medium level, and 7,3% of them claimed to lack the above-mentioned skill; whereas 82,4 % of the evening education students claimed to have this skill, 11,8% of them claimed to have it on the medium level, and 5,9% of them claimed to lack the above-mentioned skill (Table 22). In the subcategory of *open-mindedness*, 80,0% of the daytime education students claimed to have the skill of *open-mindedness*, 15,00% of them claimed to have it on the medium level, and 5,0% of them claimed to lack the above-mentioned skill; whereas 83,8 % of the evening education students claimed to have this skill, 16,2% of them claimed to have it on the medium level. None of the candidates claimed to lack the skill of open-mindedness in this group (Table 22).

In the subcategory of *analytical*, 65,0% of the daytime education students claimed to have the skill of *analytical*, 20,0% of them claimed to have it on the medium level, and 15,0% of them claimed to lack the above-mentioned skill; whereas 65,6% of the evening education students claimed to have this skill, 18,8% of them claimed to have it on the medium level, and 15,6% of them claimed to lack the above-mentioned skill (Table 22). In the subcategory of *systematic*, 50,5% of the daytime education students claimed to have the skill of *systematic*, 17,5% of them claimed to have it on the medium level, and 32,5% of them claimed to lack the above-mentioned skill; whereas 45,5% of the evening education students claimed to have this skill, 36,4% of them claimed to have it on the medium level, and 18,2% of them claimed to lack the above-mentioned skill (Table 22). In the subcategory of *self-esteem*, 84,6% of the daytime education students claimed to have the skill of *self-esteem*, 12,8% of them claimed to have it on the medium level, and 2,6% of them claimed to lack the above-mentioned skill; whereas 67,6% of the evening education students claimed to have this skill, 23,5% of them claimed to have it on the medium level, and 8,8% of them claimed to lack the above-mentioned skill (Table 22). In the subcategory of *curiosity*, 70,0% of the daytime education students claimed to have the skill of *curiosity*, 25,0% of them claimed to have it on the medium level, and 5,0% of them claimed to lack the above-mentioned skill; whereas 85,3% of the evening education students claimed to have this skill, 8,8% of them claimed to have it on the medium level, and 5,9% of them claimed to lack the above-mentioned skill (Table 22). In the subcategory of *maturity*, 56,4% of the daytime education students claimed to have this skill, 30,8% of them claimed to have it on the medium level, and 12,8% of them claimed to lack the above-mentioned skill; whereas 69,7% of the evening education students claimed to have this skill, 21,2% of them claimed to have it on the medium level, and 9,1% of them claimed to lack the above-mentioned skill (Table 22).



As observed from the results, evening education students claimed to have the skills of *truth seeking, open-mindedness, analytical, curiosity* and *maturity* in higher numbers, except for the skills of *systematic* and *self-esteem*.

Table 22: Critical thinking disposition in accordance with the type of education (open-ended questions)

Ed. Type	Truth S.	Open-min.	Analytical	Systematic	Self-est.	Curiosity	Maturity
I.							
Have skill	80,5%	80,0%	65,0%	50,0%	84,6%	70,0%	56,4%
Med.-level	12,2%	15,0%	20,0%	17,5%	12,8%	25,0%	30,8%
Lack skill	7,3%	5,0%	15,0%	32,5%	2,6%	5,0%	12,8%
II.							
Have skill	82,4%	83,8%	65,6%	45,5%	67,6%	85,3%	69,7%
Med.-level	11,8%	16,2%	18,8%	36,4%	23,5%	8,8%	21,2%
Lack skill	5,9%	0,0%	15,6%	18,2%	8,8%	5,9%	9,1%

4. Comparative Analyses

In this section two comparisons will be made. First, the application results of Turkish Adaptation of California Critical Thinking Disposition Scale (TACCTDS) at the end of the first and the last semesters will be compared and following this. Second, the scale results of the final semester and the answers to the open-ended questions the candidates were asked, again at the end of the final semester, concerning how they evaluated themselves in terms of critical thinking skills.

4.1. The Comparison of the TACCTDS Results Applied at the I. and VIII. Semesters (First Comparison)

In this comparison 71 participants within the study were matched and it was aimed to figure out how these individuals had changed during their 4-years undergraduate education. In other words as a result of the matching two sets of each student's answers were individually compared. As the same samples were used, Two Related Sample T test was used as a tool for analysis (for further information see: Sofyalıoğlu, Kartal, 2011: 266-268). The following findings were reached as a result of this analysis: (The ones ending with an E refer to the earlier test results).

		Paired Samples Statistics			
		Mean	n	Std. Deviation	Std. Error Mean
Pair 1	Crit. total	258,16	71	34,85	4,13
	Crit. total _E	262,26	71	31,27	3,71
Pair 2	Truth S.	41,33	71	8,00	,94
	Truth S. _E	42,90	71	7,06	,83
Pair 3	Open-mind.	44,49	71	7,32	,86
	Open-mind. _E	45,64	71	6,75	,80
Pair 4	Analytical	42,57	71	8,01	,95
	Analytical _E	41,96	71	7,19	,85
Pair 5	Systematic	41,45	71	6,04	,71
	Systematic _E	41,48	71	6,69	,79
Pair 6	Self-esteem	45,84	71	12,07	1,43
	Self-esteem _E	47,46	71	10,20	1,21
Pair 7	Curiosity	42,46	71	7,40	,87
	Curiosity _E	42,81	71	6,29	,74

As the TACCTDS results which were applied at the first and the last semester to the RCE teacher candidates, a decline was observed in all of the subcategories except for *analytical*. Despite this decline, the scores were still on the medium level in all subcategories.

4.2. The Comparison of the Answered Given to the Open-ended Questions and TACCTDS in Accordance with the Demographic Variables (Second Comparison)

In this section the TACCTDS results of the teacher candidates at the VIII. semester were compared to their answers to the open-ended question that were asked to them concerning how they evaluated themselves in terms of the subcategories of critical thinking disposition. It was observed that the answers given to the open-ended questions were not in correspondence with some of the TACCTDS results and that they were in correspondence with some. For instance,

In TACCTDS results, the scores of both male and female candidates were low in the subcategory of *"truth seeking"* and *"curiosity"* within the evaluation of the levels of critical thinking disposition in accordance with gender variable. However, candidates evaluated themselves differently in their answered to



the open-ended questions; 87,5% of the female candidates and 76,7 of the male candidates claimed to have the skill of *truth seeking*; whereas 82,4% of the female candidates and 72,5% of the male candidates claimed to have the skill of *curiosity*. Obviously, among the self-evaluations of both genders, the ratio of the female candidates in claiming to have the skills of *truth seeking* and *curiosity* was higher. In another example, it is found that whereas in TACCTDS results the scores of the candidates of all groups were low in the subcategory of *truth seeking* within the evaluation of the level of critical thinking disposition in accordance with the age variable, except for 26 and 28 year-olds (Table 5), in their answers to the open-ended questions 81,5% of 23-year-old and younger candidates and 81% of the 24-year-old and older candidates claimed to have the skill of *truth seeking*. Again in TACCTDS results, the scores were medium level in the subcategory of *open-mindedness*, whereas in their answers to the open-ended question 85,2% of the 23-year-old and younger candidates and 73,9 of the 24-year-old and older candidates claimed to have this skill (Table 15). In TACCTDS results the higher the educational status of the mother was, the higher the tendency of *truth seeking* was observed to be (Table 9), and in the answers to the open-ended questions the candidates whose mothers were with an educational level of primary school and lower claimed to have the skills of *truth seeking*, *open-mindedness*, *analytical* and *curiosity* in higher numbers as compared to the ones whose mothers were with an educational level of secondary school and higher (Table 18). There were also some differences in the results in terms of the educational level of the fathers (see Table 9 and 18). In TACCTDS results in accordance with the longest place of residence, the scores of all the candidates were low in the subcategories of *truth seeking* and *curiosity* (Table 11), in their answers to the open-ended questions, on the other hand, the ones who resided in big cities claimed to have the skills of *truth seeking*, *open-mindedness* and *curiosity* (Table 21).

There are some points on which the results of TACCTDS and the open-ended questions were in correspondence as well. Some of these were concerned with the variables of university entrance exam scores, economical situation and the type of education. For instance, both TACCTDS results and the answers to the open-ended questions indicate that the higher the university entrance exam score, the higher the candidates' scores in the subcategories of *self-esteem* and *systematic* (Table 7, 17). Similarly, in both results the children of the families with lower incomes were determined to have the skills of *truth seeking*, *open-mindedness* and *analytical*, the ones with higher incomes, on the other hand, were observed to have the skill of *self-esteem* (Table 10, 20). In accordance with the variable of the type of education, both results indicate that "evening education" students had better skills of *truth seeking*, *open-mindedness* and *curiosity* (Table 13, 22).

CONCLUSION AND EVALUATION

One of the objectives of especially the higher education should be to help the students move from dualism in thinking towards a multiplicity. There are some basic skills the students should obtain and develop for this end. These are the developmental obligations of the students and the university education plays a crucial role to facilitate this development. Another developmental obligation of the university students is to be able to act autonomously and independently. The students should have instrumental autonomy along with affective autonomy. Instrumental autonomy means the development of critical and independent thinking and turning it into action. This independence also requires to acknowledge the autonomy of the others and to compromise (Higbee, Dwinell, 1998: 94, 95).

"Critical thinking," one of the basic skills/developmental obligations of the university students, is the basic concern of this study. The aim of this study is to determine the levels of critical thinking disposition of the teacher candidates studying at MCBU Faculty of Theology, department of RCEE; if there were any differences between these levels between the first and the last semesters and, if so, in which direction this change took place and how the candidates evaluate themselves in subcategories of critical thinking. The results of this research, the data of which was collected through the related literature, TACCTDS and open-ended questions, can be listed as such:

As a result of the T test, which was conducted to determine if there was a statistically meaningful difference between all the subcategories of TACCTDS and in total scores in accordance with the variable of the gender of the participants of the study, no meaningful difference was observed and it was seen that both groups scored close to each other in all the subcategories. In accordance with the variable of "gender", the teacher candidates received the highest score in the subcategory of *self-esteem*, and the lowest score in the subcategory of *truth seeking* (Table 4). In other studies conducted with the participation of RCE teacher candidates, it was also observed that the scores in the subcategory of *truth seeking* were low. This condition is surprising, because one of the topics of RCE especially highlights that there is a necessity, in Islam, of seeking for true and reliable knowledge, examination, observation, questioning, in-depth consideration of an



issue from different points of view; rational thinking; doubting every news and knowledge without ensuring the truthfulness and reliability of them first.

Actually RCE teacher candidates are expected to have the skill of *truth seeking* both as a vision and as a mission. That the scores in this subcategory were low can bring the following questions in mind: "Is education rather carried out through rote-learning education system which leads the students to atrophy? Can the attempts to provide and develop these skills, which should also be emphasized in major area courses, be possibly insufficient? It was also argued that, this situation "may be a result of the education they received which was based on the idea that truth is absolute and is based on divine inspiration, by the nature of their field" (Coşkun, 2013: 158-159). Besides, one of the RCE teacher candidates who participated in the research said: "I m not a curious person and that is why I do not have the skill of truth seeking. I am a person who leaves most of the things to its natural course" and through this statement s/he put forth the fact that the two skills are interrelated and that s/he did not have the skill of truth seeking because she also lacked the skill of curiosity. Another candidate puts weight of the relationship between the two skills by suggesting: "I am curious about different thoughts, emotions and systems. And this triggers me to read and investigate." Obviously the lack of the skill of *truth seeking* is closely connected to the lack of the skill of *curiosity*. And another candidate explains how the skill of *curiosity* is atrophied in the following statement: "I had curiosity at first but as the instructor rebuffed my questions and told us not to ask questions, I lost this curiosity".

The following story is told in an anecdote: "In 1997 a researcher that went to Ezher University in Egypt saw the course books which were written in a very elevated, academic Arabic and asked the students if they understood them. The answer was as follows: "no, we don't, we don't need to understand. For instructors want us to write down certain key sentences in the exams and we pass the course by memorizing these sentences, and what's more we pass with pretty high grades". The same researcher tells in another anecdote in 2018 how he opened a summer school on the interpretation of the holy book and how he tried to teach students from the theology faculties from all over Turkey to produce ideas and interpretations through the verses of Quran, but that he could not make it because of their habits of memorizing stock knowledge or the tendency of the instructors to take the easy way out and make the students memorize the course contents (Gül, 2018, <http://www.mirathaber.com/ali-riza-gul-ezberci-ya-da-korlestirici-din-egitimi-10-5281y.html>). Another real-life story is as follows: at the universities the instructors makes the students write down the topics of the course and asks the students to write down the exact same sentences at the exams. These real-life stories which are very hard-hitting and which have nothing what-so-ever with the student-centered education system, unfortunately may explain to a certain point why the students had low skills of *truth seeking*.

However, in their answers to the open-ended questions concerning how they evaluated themselves in the subcategories of critical thinking, 87,5% of the female teacher candidates of RCE and 72,5% of the male candidates claimed to have the skill of *truth seeking*. Some of the students' unedited statements are as follows: "For truth seeking I ask too many questions, try to oppress my prejudices and take details into consideration." "I am also in the act of truth seeking. I don't believe in everything I hear. I do research. For instance, even in religious issues to say that everything you hear is true! A Question mark occurs in my mind. I test the information I hear from the resources as far as I can." "I definitely seek for truth even if it will eventually make me abandon my loyalties, even if I know that it will lead me to disappointment." "If I get involved in any event, I am not a person who accepts right away. I make investigations through my own knowledge and experiences. It should be so. A person should question his/her own thoughts, as well, to find the truth."

No statistically meaningful difference between the critical thinking levels of the teacher candidates who participated in the study was observed in the TACCTDS results in accordance with the age variable (Table 5). In terms of the variable of "the High School from which the candidates graduated" on the other hand, the three highest scores in all subcategories, except for *curiosity*, belonged to the graduates of: "Other (Vocational High School, Distance Education High School, ...); RVHS; AHS, SuperHS, ScienceHS, ATVHS (Anatolian High School, Super High School, Science High School, Anatolian Teachers' Vocational High School). The lowest scores in all subcategories belonged to the graduates of ARVHS (Anatolian Religious Vocational High School) (Table 6). Here the question of "why the graduates of ARVH got lower scores that the graduates of AHS" may come to mind and the answer to this question may be the subject of another research. The reason can be thought to be that "ARVHS course schedule is quite intense" but it can also be said that AHSL, SuperHS, ScienceHSFL and ATVHS course schedules are perhaps even more intense as compared to ARVHS.



There was a meaningful difference in TACCTDS results in accordance with the variable of “university entrance exam score” ($p= 0,002$) and it was observed that there was an increase in the subcategory of *self-esteem* in correspondence with the increase in the entrance exam score. According to the answers to the open-ended questions, in correspondence with the increase in the university entrance exam score, and increase in the subcategory of *self-esteem*, along with *systematic* was observed, however, a decrease was observed in the other subcategories (Table 17). The increase in *self-esteem* in correspondence with the exam score can be evaluated as “knowledge is power” and the ones possessing it has higher self-esteem. As a matter of fact, the following statements of two candidates support our evaluation. The first of these candidates says “I believe in myself more than earlier. The new things I learn, experience build up my self-esteem” and the second one says: “I believe in myself in the matters that I am knowledgeable”. Although it was not meaningful, with the increase in the university entrance exam score, a slight increase in the *analytical*, *systematic* and in the *critical total* was observed, and a decrease was observed in the rest of the subcategories (Table 7). The fact that as the university entrance exam score increases the scores of *truth seeking*, *open-mindedness* and *curiosity* decrease also brings the following flaws to mind: “beside the rote-learning based education system which, in turn, leads to atrophy as tried to be discussed in terms of the variable of gender (the earlier paragraph); the fact that the education system is based on the testing of the students and its results; the perception of academic success as the storing of the knowledge in the memory and ignoring or lacking the awareness concerning the importance of using this knowledge in actual life experiences and sustaining it; the fact that there is not enough place in education for application of the knowledge provided to the students.”

In the TACCTDS results in accordance with the variable of “the educational level of the mother”, although it was not meaningful, it was observed that there was an increase in the subcategory of *truth seeking* accompanying the increase in the mother’s level of education. With respect to this conclusion, it can be argued that education relatively fulfills its functions such as leading to investigate, question and provide different perspectives. However, it was remarkable that, in this variable, the scores of the children of the “illiterate” mothers came in the first place in the subcategories of *analytical* and *systematic*; and in the second place in the subcategories of *open-mindedness*, *curiosity* and *critical total* (Table 9). A similar result was observed in the answers to the open-ended questions; the candidates whose mothers had an educational level of primary school and lower, claimed that they had the skills of *open-mindedness* and *curiosity* along with *analytical* and *truth seeking* in higher numbers compared to the candidates whose mothers had an educational level of secondary school and higher. The candidates whose mothers had an educational level of secondary school and higher, claimed that they had the skills of *systematic* and *self-esteem* in higher numbers (Table 18). Indeed, these results seem to be in conflict with the results within the subcategory of *truth seeking*, and this points to the necessity of a careful reevaluation of the education system, elimination of its deficiencies and its development. In the TACCTDS results in accordance with the variable of “father’s educational level”, the highest scores in the subcategories of *analytical*, *systematic*, *self-esteem*, *curiosity* and in the *critical total* also belonged to the children of the fathers who were primary school graduates and this is an issue that needs to be thought through and investigated (Table 9). The results were similar in the answers to the open-ended questions, except for *curiosity*; the candidates whose fathers had the educational level of “literate and below” came in the first place in claiming to have the skills of *truth seeking* and *open-mindedness*, and in the second place in claiming to have the skills of *analytical* and *self-esteem*. In their answers to the open-ended questions, the candidates who claimed to have the skill of *curiosity* were the ones who were the children of university graduates (Table 18).

In TACCTDS results in accordance with the variable of “family structure” all the candidates scores low in *truth seeking*; the ones who classified their families as “indifferent” were observed to get the highest score within themselves in *truth seeking* and *analytical*; and the lowest score in *systematic*, *self-esteem*, *curiosity* and in the *critical*. In *open-mindedness* the highest score belonged to the children of the families which were classified as “other” and the lowest score, to the ones which were classified as “authoritarian and over-caring”. In the subcategory of *self-esteem* the highest score belonged to the candidates who evaluated their families as *authoritarian* (Table 9). In their answers to the open-ended questions the candidates who claimed to have the skills in highest and lowest numbers can be listed as such: In *truth seeking* the ones with “authoritarian, protective” families; in *open-mindedness*, with “indifferent, over-caring” families; in *analytical*, with “indifferent, authoritarian- protective (even)” families; in *systematic*, with “over-caring, other” families; in *self-esteem*, with “democratic, over-caring” families; in *curiosity*, with “authoritarian, over-caring” families (Table 19). That the candidates who classified their family structures as “indifferent” in TACCTDS results got the highest scores in *truth seeking* and *analytical*, bring J. J. Rousseau’s “conception of natural,



independent education" to mind. Again the fact that the ones who defined their families as "authoritarian and over-caring" scored low in *open-mindedness*, supports this conclusion.

In TACCTDS results in accordance with the variable of "economical situation", the scores of the children of the families whose "income was lower than the expenses" was higher than the rest of the candidates in all subcategories except for *self-esteem* in which they came in the second place after the candidates whose families' "incomes were higher than the expenses". The fact that the score of the children of the families with "incomes higher than the expenses" was the highest in *self-esteem*, shows that economical power also strengthens the self-esteem. However, it is also possible to say that the hollow power that comes with only money, without the intellect and the heart, does not mean much, and what's more it can even be harmful. In accordance with the variable of economical situation, a statistically meaningful difference was observed in the subcategory of *curiosity* as a result of the Anova test ($p=0,013$) and the ones with lowest incomes were observed to have the highest scores in "*curiosity*" and the ones with highest incomes, to have the lowest scores (Table 10). In their answers to the open-ended questions the candidates who claimed to have the skills of *truth seeking*, *open-mindedness* and *analytical* were the ones with "lower incomes"; of *systematic* and *curiosity* were the ones with "income/expense balance"; of *self-esteem* were the ones with "higher incomes" (Table 20). The fact that the scores for the skill of *curiosity* decreases as the income increases, seems to support our earlier argument.

In TACCTDS results the listing of the scores from the highest to the lowest in accordance with the variable of "the longest place of residence" was as such: in *truth seeking*, *analytical*, *systematic* and in the critical total "country, big city, town"; in *open-mindedness*, "big city, town, country"; in *self-esteem*, "town, country and big city, even" and in *curiosity*, "town, big city, country". The fact that candidates who grew in the "country" where the stimulants are less and the natural ways of living are more common had better skills of *truth seeking*, *analytical*, *systematic* compared to the others, again, brings the conception of "natural and independent education" to mind. It was an expected and understandable result that the candidates who grew up in the "big city" got higher scores in *open-mindedness*. Living together with people from different cultures - multiculturalism - diverse experiences, etc. enables the development of this skill. The candidates claiming to have the skills of *truth seeking* and *open-mindedness* in their answers to the open-ended questions were the ones living in the "big city". The candidates whose longest place of residence was country claimed to have the skills of *analytical*, *systematic* and *self-esteem* in higher numbers compared to the others. The ones who claimed to have the skill of *curiosity* the most were the ones whose longest places of residence were "big city" and "town" (Table 21).

In TACCTDS results in accordance with "where and with whom the candidates stayed during their undergraduate education" the ones who stayed in "state-funded dorms" and dorms of RAA" were observed to come among the top three in all subcategories except for *analytical* and *self-esteem*. The highest score in *analytical* belonged to the ones who stayed at "the dorms of religious foundations and communities", whereas they had the lowest score in *self-esteem*. The highest score in *self-esteem* belonged to the ones who stayed "with relatives" (Table 12). The ones who stayed "with family" and at "the dorms of religious foundations and communities" might be thinking that they felt more secure. In their answers to the open-ended questions, that the candidates who stayed at the "state-funded dorms" came within top three in all subcategories is in correspondence with TACCTDS results, whereas that the ones who stayed at the "dorms of religious foundations and communities" claimed to have all of the skills of critical thinking except for *self-esteem* does not correspond with TACCTDS results.

In TACCTDS results, in accordance with the variable of the type of education, the scores of all candidates were observed to be low in *truth seeking* and *curiosity*, and medium level in the rest of the subcategories. As their scores were compared, it was observed that the scores of the evening education students were a little higher in *truth seeking*, *open-mindedness*, *curiosity* and in the critical total; and the scores of the daytime education students very slightly higher in the subcategories of *analytical*, *systematic* and *self-esteem* (Table 13). In their answers to the open-ended questions, that the evening education students claimed to have better skills of *truth seeking*, *open-mindedness*, *analytical* and *curiosity*, but not in the subcategories of *systematic* and *self-esteem* (Table 22) was in correspondence with TACCTDS results.

One of the research hypotheses was that the critical thinking levels of the fourth year RCE Education students were medium level". According to TACCTDS results this hypothesis is confirmed in all subcategories except for *truth seeking*, whereas it is not, according to the answers of the open-ended questions. Because the results of the open-ended questions indicate that the teacher candidates had better skills of critical thinking in accordance with different variables. The second hypothesis of the research was that "no big change took place in the critical thinking disposition levels of the RCE Education teacher



candidates at the end of their four-year-undergraduate education". The difference between the critical thinking disposition levels of the teacher candidates at the beginning of the first and at the end of the eighth semester was aimed to be determined through TACCTDS results and it was observed that there was a slight decline in all the subcategories except for *analytical*. Despite this decline, the scores in all subcategories were observed to be still on the medium level in accordance with several different variables, except for *truth seeking*. However, in their answers to the open-ended questions that were directed to the candidates concerning how they evaluated themselves "in the subcategories of critical thinking", they claimed to have the skills of *truth seeking, open-mindedness, self-esteem* and *curiosity* in high numbers.

That TACCTDS results and the answers to the open-ended questions came out differently may be an issue to be investigated.

Another crucial issue is the development of the critical thinking skills of the students at every level and in every field of education. The study is expected to create an awareness concerning the significance of the development of the critical thinking skills of the students/individuals, to contribute to the field and future studies in terms of raising consciousness and motivating systematical studies.

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