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Evaluation of Prospective Primary and Pre-School Teachers' Critical Thinking Level

Okulöncesi Eğitimi Öğretmen Adayları ve Sınıf Öğretmenliği Öğretmen Adaylarının Eleştirel Düşünce Düzeylerinin Değerlendirilmesi

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Abstract

The purpose of the study is to evaluate the critical thinking level of the prospective primary school teachers and prospective pre-school teachers. The setting consists of 1st, 2nd, 3rd and 4th year students studying at Elementary Education Department including Preschool Education Department and Primary School Education Department. The data were obtained via the California Critical Thinking Disposition Inventory (CCTD). The obtained data were analyzed in terms of the opinions about critical thinking tendency of the prospective teachers depending on their gender differences, their study hours, and their departments and "t test" was employed to find out the differences between means. "ANOVA" techniques were used to observe whether there was a difference in disposition of prospective teachers' critical thinking depending on study years, their parents' education level, and "Tukey test" was applied to designate the difference within the classes. Eventually, the results concluded that there were some significant differences between the prospective primary school teachers and prospective pre-school teachers on some dimensions of critical thinking regarding gender, education time, departments, classes and parents' educational level.

Keywords: Critical Thinking, Pre-school Education, Primary School Education.

Öz

Bu çalışmanın amacı, sınıf öğretmenliği ve okulöncesi öğretmen adaylarının eleştirel düşünme düzeylerinin değerlendirilmesidir. İlköğretim Bölümü Sınıf Öğretmenliği ve Okulöncesi Öğretmenliği Anabilim Dallarının 1., 2.,3., ve 4. sınıflarında öğrenim gören öğretmen adayları araştırmanın örneklemini oluşturmaktadır. Araştırmanın verileri Kaliforniya Eleştirel Düşünme Eğilimi Ölçeği kullanılarak elde edilmiştir. Elde edilen verilerin analizinde, öğretmen adaylarının cinsiyetlerine, öğrenim şekline ve anabilim dallarına göre eleştirel düşünme eğilimleri hakkındaki görüşleri arasında anlamlı bir farklılık olup olmadığı, ortalamalar arasındaki farkın test edilmesinde kullanılan "t testi" ile yoklanmıştır. Öğrenim gördükleri sınıflara, babalarının ve annelerinin öğrenim durumlarına göre eleştirel düşünme eğilimleri hakkındaki görüşlerinde bir farklılık olup olmadığı da tek boyutlu varyans (anova) analizi ile yoklanmış; farklılığın hangi sınıflar arasında olduğunu belirlemek üzere Tukey testi kullanılmıştır. Araştırma sonucunda, okulöncesi ile sınıf öğretmenliği öğrencilerinin cinsiyetlerine öğrenim şekillerine göre, anabilim dallarına, öğrenim gördükleri sınıflara ve anne-babalarının eğitim düzeylerine göre eleştirel düşünmenin bazı boyutlarında anlamlı farklılıklar olduğu ortaya çıkmıştır.

Anahtar Sözcükler: Eleştirel düşünce, okulöncesi eğitim, sınıf öğretmenliği.

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Introduction

It is expected that a graduate student from educational institutions can solve the problems that they face, form hypothesis, prepare models, interpret the data, and use their high level mental process (analysis, synthesis and evaluation (Büyükkurt, 1990).

According to Özden, a qualified teacher adopts critical thinking in his/her life. He is able to be democratic in communication and administration, be a risk taker and a modest person. He should provide the classroom open in discussion and questioning (Özden, 2003:160).

Mulkeen and Tetenbaum (1987) describe certain characteristics of the 21st century that elicit professional development from in-service through career ladder skills and open-ended continuing professional development; increased information flow of research-based complex social problems, coupled with rapid change and mobility; and an increase in decentralization of organizations, institutions, and systems (Rodriguez and Sjostrom, 1998).

Turkey's new primary education program includes views that require training individuals having the abilities of decision-making, problem solving, critical thinking, research, and cross-examination. The Primary School Education Department that is responsible in realizing this program also has alternations in its own programs and training of primary school teachers, who lead the students under the lights of the values as stated above, put on importance.

According to Watson, (1925) thinking is a way of silent speech. It can also be called internal speech. People spend most of their awaken time by thinking (as cited in Güven 2000).

Demirel (2004:226) proposes that critical thinking primarily depends on the ability to attain the information, to use the information and to evaluate the information in an effective manner. Critical Thinking is one of the aspects of thinking, which is accepted as a way of overcoming problems and eases the way of reaching the information in our lives (Hudgins, Edelman, 1988). "Critical thinking is thinking that assesses itself" (Centre for critical Thinking, 1996b). "Critical thinking is the ability to think about one's thinking in such a way as;

1. To recognize its strengths and weaknesses,

2. To recast the thinking in improved form" (Centre for Critical Thinking, 1996c). Critical thinking involves the rigorous process or method of ascribing reasonableness to a belief (Ikuenobe, 2001).

According to Scriven & Paul (1996), critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions such as clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

Beyer (1995 cited in Wade, 1995) elaborately explains what he sees as essential aspects of critical thinking. These are dispositions, criteria, argument, reasoning, point of view, and procedures for applying criteria.

A well-cultivated critical thinker raises vital questions and problems by formulating them clearly and precisely. He gathers and assesses relevant information, uses abstract ideas to interpret it effectively. He comes to well-reasoned conclusions and solutions, and tests them against relevant criteria and standards; thinks open-mindedly within alternative systems of thought, recognizes and assesses, as need to be, their assumptions, implications, and practical consequences; and communicates effectively with others in order to figure out solutions to the complex problems (Paul and Scriven , 1996).

While the contemporary education curriculum is highly contested arena, there seems to be consensus that it should help students to think well and to think for themselves (Pithers, 2000).

The need to teach higher order thinking skills is not a recent one. Education experts ilities. First, there is the problem of defining "critical thinking". The second major impediment to develop

critical thinking in the classroom is the difficulty that faculty faces in measuring critical thinking ability per se.

Ikuenobe claims that critical thinking should be acquired by the students. In order to do that instructors motivate questioning by explaining to students its logic, functions and basis as an epistemic process- this may help to vitiate the negative attitudes and implications. Students have to see the connections among questioning, critical thinking, inquiry and learning, and fallibilism. Instructors have to develop a constructive and non-threatening way to ask questions and teach students a process of asking questions so that one does not alienate and intimidate. The instructor must create, in general, a classroom environment that will allow students to express themselves, and they must be given the opportunity to participate actively in their own learning process, which involves acquiring the skills of questioning for bringing about understanding, growth and progress in knowledge (Ikuenobe, 2001).

Demirel (2004:227) designates that critical thinking consists of five dimensions such as "consistency, integration, applicability, competency, and establishing communication. In the consistency dimension, a critically thinking individual eliminates the oppositeness in thoughts. Moreover, he can handle all dimensions of thought within integrating dimension. According to Applicability is the implementation of perceived information by adding them to the previous knowledge as a model. Competency is the ability to ground your experiences and their results in an effective way. The dimension of establishing communication is the transfer perceived ideas to others as a combination of thoughts.

Paul, Binkeri, Jensen, and Krekleau (cited in Şahinel 2002) state that one of the main purposes of the education bases the critical thinking skills is how to reshape other people's thinking style and how to imagine their thinking styles.

Zygmant and Schaffer (2006) claim that it is necessary to use and develop special strategies to improve critical thinking. If critical thinking skills require practice, it should be provided in education environment. Furthermore, experience and the time spend about this topic are the key factors in inciting the critical thinking.

A study conducted by Kurnaz and Sünbül (2009) on the effects of skill and content-based critical thinking training on students' achievement and attitudes within the fifth grade course of social knowledge of primary school reveals that the methods of teaching critical thinking skills needs to be improved in accordance with Turkey's educational conditions.

It is necessary to train predominantly the prospective teachers about this topic and a new curriculum should be designed considering the critical thinking skills.

The Purpose of the Study

The main purpose of the study is to evaluate the critical thinking level of the prospective primary school teachers and prospective preschool teachers. In this sense, answers are sought to the following questions.

Is there a significant difference between the gender and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Is there a significant difference between education time and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Is there a significant difference between the departments and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Is there a significant difference between classes and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Is there a significant difference between the fathers' education level and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Is there a significant difference between the mothers' education level and the critical thinking level of the prospective primary school teachers and prospective preschool teachers?

Limitations of the Study

This study,

Is limited with the primary school education department and preschool education department in Elementary Education Department at Education Faculty at Çanakkale Onsekiz Mart University

Is limited with 480 prospective teachers studying in primary school education department and preschool education department in Elementary Education Department at Education Faculty at Çanakkale Onsekiz Mart University

Is limited with the California Critical Thinking Disposition Inventory (CCTD) consisting of 51 statements.

Method

Setting

The setting of the study consisted of with prospective teachers studying in Primary School Education Department and Preschool Education Department in Elementary Education Department at Education Faculty at Çanakkale Onsekiz Mart University (Day and Evening Classes).

Participants

The inventory was applied to the 520 randomly selected 1st, 2nd, 3rd and 4th year students studying in primary school education department and preschool education department in Elementary Education Department at Education Faculty at Çanakkale Onsekiz Mart University. The number of the participants reduced to 480 students when the ones who answered the inventory wrong and left incomplete were omitted. (Table 1)

Table 1.

The Dispersion of the Prospective Teachers According to Their Gender, Study Hours, Departments, Education Level of Their Fathers, and Education Level of Their Mothers

General features of prospective teachers		f	%
Gender	Male	198	41.3
	Female	282	58.7
	Total	480	100.0
Education Time	Day Classes	240	50.0
	Evening Classes	240	50.0
	Total	480	100.0
Department	Primary School Education	240	50.0
	Preschool Education	240	50.0
	Total	480	100.0
Classes	1. Year	120	25.0
	2. Year	120	25.0
	3. Year	120	25.0
	4. Year	120	25.0
	Total	480	100.0
Education level of their fathers	Illiterate	19	4.0
	Literate	20	4.2
	Primary School graduate	150	31.3
	Secondary School Graduate	94	19.6
	High School Graduate	115	24.0
	Bachelor Degree	74	15.4
	MA/S Degree	8	1.7
	Total	480	100.0
Education level of their mothers	Illiterate	101	21.0
	Literate	34	7.1
	Primary School graduate	241	50.2
	Secondary School Graduate	46	9.6
	High School Graduate	49	10.2
	Bachelor Degree	9	1.9
	MA/S Degree	-	-
	Total	480	100.0

Collection and Analysis of the Data

The California Critical Thinking Disposition Inventory (CCTD) served as the data-gathering instrument for the study. The inventory was developed by Facione, P., and Facione, N. in 1992 concerning criteria in definition of the critical thinking resulted with Delphi Project. The inventory consisted of 75 Likert Scale statements including six choices and seven sub-inventories (Facione, Giarcarlo, Facione, Gianen, 1995). The original inventory was in English and it was adopted into Turkish by Kökdemir (2003). During this adaptation, validity of the inventory was retested and the studies related with factor analyses were done. Depending on the results of these studies, the inventory was reshaped with 51 statements related with six factors and at the end of practice 0, 88 cronbach alfa value was reached about its consistency. Turkish version of California Critical Thinking Disposition Inventory included six facets, which were analyticity, truth-seeking, systematicity, open-mindedness, inquisitiveness, self-confidence. Some of the statements in maturity which was another sub dimension in the original inventory were omitted or added to the open-mindedness dimension (Hamurcu, et al. 2005)

The seven subscales (Facione et al., and Xıang, P. et al.,) include,

- Analyticity: Assesses prizing the application of reasoning and the use of evidence to resolve problems, anticipating potential conceptual or practical difficulties, and consistently being alert to the need to intervene.

- Truth-seeking: Targets the disposition of being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about pursuing inquiry even if the findings do not support one's self-interests or one's preconceived opinions.

- Systematicity: Measures being organized, orderly focused, and diligent in inquiry.

- Open-mindedness: Measures one's tolerance of divergent views and sensitivity to the possibility of one's own bias.

- Inquisitiveness: A measure of one's intellectual curiosity and desire for learning even when the application of the knowledge is not readily apparent.

- CT self-confidence: Measures the trust one places in one's own reasoning processes.

- Maturity: Targets the disposition to be judicious in one's own decision-making.

The inventory was applied to the participants in March 2006 by the researchers and the obtained data was analyzed by employing some quantities techniques on SPSS.

Within the analysis process, 't' test, which assesses whether the means of two groups are statistically different from each other, was employed to test whether there is a significant difference between the views of prospective teachers' critical thinking tendencies in terms of gender.

't' test was applied to investigate whether there is a significant difference between the views of prospective teachers' critical thinking tendencies in terms of their education time.

Again,'t' test was used to examine whether there is a significant difference between the views of prospective teachers' critical thinking tendencies in terms of their departments.

One-way Anova was employed to test whether there is a difference between the views of prospective teachers' critical thinking tendencies in terms of their classes, and their fathers and mothers' education level. Tukey test was used to find out the difference among groups.

Findings

The obtained data are presented below into six categories and carefully interpreted considering the sub dimensions, which have differences.

1. The findings about differences between the gender and critical thinking disposition of Preschool Education Department and Primary School Education Department:

Table 2 .
The Comparison of Gender and Critical Thinking Disposition Differences of Preschool Education Department and Primary School Education Department

Sub Disposition	Gender	N	$\overline{X}$	SK	sd	t	p
Open-mindedness	Male	147	39.36	5.87	478	1.973	.049*
	Female	333	40.61	6.62			
Inquisitiveness	Male	147	37.95	6.71	478	2.775	.006*
	Female	333	39.55	5.38			

In table 2, the findings about differences between the gender and critical thinking disposition of Preschool Education Department and Primary School Education Department are shown. It is seen in the table there is a difference between the prospective teachers' gender and the sub-dimensions of Open-mindedness and Inquisitiveness. When the views of male and female prospective teachers about Open-mindedness and Inquisitiveness are concerned, the means of the female prospective teachers' views are superior to the males' views. Depending on these data, it could be said that the female prospective teachers' views are different form the males' views in terms of the sub dimensions, Open-mindedness and Inquisitiveness. From the point of other dimensions, the difference between groups is not found as statistically significant.

2. The findings about differences between the study hours and critical thinking disposition of Preschool Education Department and Primary School Education Department

Table 3.
The Comparison Of Education Time And Critical Thinking Disposition Differences Of Preschool Education Department And Primary School Education Department

Sub dimensions	Education Time	N	$\overline{X}$	SK	sd	t	p
Analyticity	Day Classes	240	41.41	6.03	478	2.570	.010*
	Evening Classes	240	40.12	4.83			
Truth-seeking	Day Classes	240	23.96	3.70	478	2.621	.009*
	Evening Classes	240	24.88	3.98			
Systematicity	Day Classes	240	20.50	3.82	478	2.297	.022*
	Evening Classes	240	19.70	3.73			

The findings about differences between education time and critical thinking disposition of Preschool Education Department and Primary School Education Department are presented. When the table is analyzed, it is noticed that the views of the prospective teachers about critical thinking disposition varies and the analyticity and systematicity dimensions are in day classes favour, on the other hand, the views related on truth-seeking is in evening classes favour.

3. The findings about differences between the departments and critical thinking disposition of Preschool Education Department and Primary School Education Department

Table 4.

The Comparison of Departments and Critical Thinking Disposition Differences of Preschool Education Department and Primary School Education Department

Sub dimensions	Departments	n	$\overline{X}$	SK	sd	t	p
Analyticity	Primary School Education Department	240	41.32	6.11	478	2.215	.027*
	Preschool Education Department	240	40.21	4.75			
Inquisitiveness	Primary School Education Department	240	38.09	6.35	478	3.700	.000*
	Preschool Education Department	240	40.04	5.14			
Truth-seeking	Primary School Education Department	240	24.99	3.64	478	3.275	.001*
	Preschool Education Department	240	23.85	4.01			

In table 4, the findings about differences between the departments and critical thinking disposition of Preschool Education Department and Primary School Education Department are stated. It is pointed out that the prospective teachers participated in the study has dissimilar thoughts on the sub dimension of analyticity, inquisitiveness, and truth seeking. The means of prospective primary school teachers' views about the sub dimension of analyticity and truth seeking are advanced whereas the means of the prospective preschool teachers' views are advanced on in the dimension of inquisitiveness. Under the lights of these data, it could be stated that prospective primary school teachers think more analytic and are more eager in truth seeking than the prospective preschool teachers and prospective preschool teachers are more curious than prospective primary school teachers are.

4. The findings about differences between classes and critical thinking disposition of Preschool Education Department and Primary School Education Department:

Table 5.

The Comparison of Classes and Critical Thinking Disposition Differences of Preschool Education Department and Primary School Education Department

Sub dimension	Source of variance	SD	KT	KO	F	p
Analyticity	Between Groups	3	682.008	135.163	7.830	.000*
	Within Groups	476	13820.783	29.035		
	Total	479	14502.792			
Truth-seeking	Between Groups	3	220.823	109.301	5.035	.002*
	Within Groups	476	6958.325	14.618		
	Total	479	7179.148			

In table 5, it is shown the findings about differences between classes and critical thinking disposition of Preschool Education Department and Primary School Education Department. The results of the variance analysis reveal that the views of the participants differentiated on analyticity and truth-seeking sub dimensions of the critical thinking disposition inventory. According to the tukey test results, done to designate the differences within the groups, the thoughts related with the sub dimensions of analyticity are in the favour of senior class students when compared with the first, second and third year students. Besides, the comparison of the third year students and first and fourth year students on the sub dimensions of truth seeking state that the difference is in the favour of third year students.

5. The findings about differences between the mothers' education level and critical thinking disposition of Preschool Education Department and Primary School Education Department:

Table 6.

The Comparison of the Mothers' Education Level and Critical Thinking Disposition Differences of Preschool Education Department and Primary School Education Department

Sub dimension	Source of variance	SD	KT	KO	F	p
Inquisitiveness	Between Groups	5	396.759	92.438	2.342	.041*
	Within Groups	474	16057.973	33.878		
	Total	479	16454.731			

Table 6 presents the findings about differences between the mothers' education level and critical thinking disposition of Preschool Education Department and Primary School Education Department. When the results of the variance analysis are interpreted, the views of the participants' differentiate about the inquisitiveness sub dimensions of the critical thinking disposition. Tukey test applied to find out the differences within groups states that there is difference in favour of the prospective teachers, whose mothers were university graduate, when compared with the ones whose mothers were illiterate, literate, and primary school graduate.

6. The findings about differences between the fathers' education level and critical thinking disposition of Preschool Education Department and Primary School Education Department:

The variance analysis results assert that there is no significant relationship between the fathers' education level of prospective teachers and their views about the critical thinking disposition in any dimension of the inventory.

Discussions

The results of the present study concluded that there was a significant difference between views of prospective primary school teachers and prospective pre-school teachers regarding their critical thinking dispositions and their gender. The difference emerged from the sub-dimensions of open-mindedness and inquisitiveness. The analysis of mean scores of the male and female prospective teachers' views regarding sub-dimensions of open-mindedness and inquisitiveness asserted that the means of female prospective teachers were superior to male prospective teachers. Depending on these results, it could be stated that the views of prospective female teachers on critical thinking disposition differentiate from male prospective teachers' views on open-mindedness and inquisitiveness. In his study with prospective teachers from different departments, Genç (2008) found significant differences in critical thinking levels according to gender. The study affirmed that there was a significant difference at .05 significance level between prospective teachers' critical thinking disposition (open mindedness-curiousness) and gender. Another study conducted by Hamurcu, Günay, Akamca and Özyılmaz (2005) comparing the critical thinking profiles of prospective primary school teachers and prospective science teachers concluded similar results. Facione, Giancarlo, Facione and Gainen's study (1995) carried out with university students divulged that female students were more successful than male students regarding open mindedness . Besides, male students were found more successful to female students in terms of analyticity. On the contrary, Özdemir (2005) stated that gender did not have an effect on critical thinking disposition. Therefore, the results of these two studies are not matched. On the other hand, Doğanay, Taş and Erden (2007) asserted that there was a statistically significant difference among university students in terms of critical thinking levels and gender. The difference was in favour of male students, suggesting that male students used their critical thinking skills more than female while expressing their ideas on a current controversial issue.

When the results indicating the differences between prospective primary teachers and prospective pre-school teachers' views on critical thinking disposition and their education time were analysed, it was striking that prospective teachers' views were differentiated on analyticity, truth-seeking and systematicity dimensions. The difference was in favour of day classes on

analyticity and systematicity whereas the difference on truth seeking was on the behalf of evening classes. It is known that the students' applying the day classes have higher university entrance exam scores than the students' applying the evening classes. Therefore, it is thought that the significant difference on analyticity and systematicity dimension may result from the day students success. A similar study conducted by Genç (2008) also concluded results in favour of day classes on analyticity. In this respect, both results are in accord with each other. In the same study, it was designated that there was a differentiation in terms of evening classes on truth-seeking dimension. Therefore, these studies are also in harmony with each other from this perspective.

The findings including the difference between prospective primary teachers and pre-school teachers' views on critical thinking dimension and their departments deduced that prospective teachers thought in a different way from each other on analyticity, inquisitiveness, and truth-seeking sub-dimensions. Prospective primary school teachers had superior scores to prospective pre-school teachers on analyticity and truth-seeking whereas prospective pre-school teachers had higher scores than prospective primary school teachers on inquisitiveness. The curriculum of the Preschool Education Department puts more emphasis on creativity. The students of this department are required to be curious and employ their creativity to the courses, which are highly practice oriented. It may be inferred that the difference on inquisitiveness may result from this factor. It was ascertained in a similar study carried out by Genç (2008) that there was a significant difference among the students of Pre-school Education Department, Primary School Education Department and Science Education regarding their critical thinking levels. The difference on truth-seeking and analyticity was found in favour of pre-school education students. The research results on inquisitiveness were concluded in favour of science education students. Therefore, the results of these two studies are overlapped.

When the results representing prospective teachers' views on critical thinking disposition regarding their study year were analysed, it was observed that the prospective teachers' views were differentiated on analyticity and truth-seeking subscales of the Critical Thinking Disposition Inventory.

In terms of analyticity subscale, there was a significant difference in favour of 4th year students when they were compared with first year, second year and third year students. According to the truth-seeking subscale, there was a significant difference in favour of 3rd year students among 3rd year, 1st year and 4th year students. It could be concluded that higher education supports critical thinking particularly in analyticity and truth-seeking subscales. It can be supposed that the decrease of rote learning level in the education system due to the progress of education year leads students to seek for information and this supports the development of critical thinking skills in a positive way chiefly on these two subscales. According to Kember (1997), curriculum design is seen to influence university and college lecturers to focus on subject-matter content when teaching rather than on the development of critical thinking (as cited in Pithers, 2000). Langer's view is that teachers should learn to teach from multiple perspectives and focus on linkages and similarities of content. According to Langer, a way forward to enhance students' critical thinking is to change the myths on which current educational practice is based (as cited in Pithers, 2000). Shin, Lee, Ha, and Kim's study (2006) affirms similar results. Gramsci's (1978) description of intellect based on life experience suggests that experience advances intellectuality through rational analysis and critical awareness. (cited in Rodriguez & Sjostrom,1998). Coşkun (2001) asserts that critical thinking is significantly differentiated regarding the class level. In this study, the critical thinking levels of students studying nursery high school at Hacettepe Üniversity were investigated. The results concluded that the level of critical thinking increased as the progress of education and it was affirmed that the 4th year students had more critical thinking skills than the students of other classes particularly in analyticity dimension. A research conducted by Xiang, P. et al., (2002) points out that the prospective teachers of physical education department are more successful than the prospective teachers of other departments on sub dimensions of truth seeking in critical

thinking disposition. However, this study did not include the prospective teachers in physical education department.

The study concluded that the effect of mothers' educational level on critical thinking disposition was designated in inquisitiveness sub-dimension. A significant difference was found in favour of prospective teachers whose mothers had a bachelor degree between the views of prospective teachers whose mothers had a bachelor degree, and whose mothers were literate and primary school graduate. It is assumed that mothers become more curious when they have higher graduation level and this is directly reflected to their children. The child who spends more time with his/her mother to his /her father may be affected by particularly mothers in Turkey. The results indicated that children were affected more by their mothers than their fathers due to the time that they spent together. The obtained results reveal that mothers are also effective on their children in terms of their critical thinking skills. The present study ascertained that there was not a significant difference between views of prospective teachers' critical thinking disposition and their fathers' education levels. In this case, the views of prospective teachers studying in pre-school education department and primary school education department on critical thinking dimensions are not affected by the variable of fathers' education level. In other word, the two variables are independent from each other. In a study with university students, Özdemir (2005) indicated that parent's education levels do not have any crucial effect on their children's critical thinking views.

Conclusion

The study revealed the following conclusions;

1. There is no significant relationship between prospective teachers' gender and critical thinking disposition in terms of open mindedness and inquisitiveness.

2. There is a significant relationship between prospective teachers' education time and critical thinking disposition in terms of analyticity, truth seeking, and sistematicity. However, a significant relationship is found with other sub dimensions.

3. There is a significant relationship between prospective teachers' departments (Preschool Education Department and Primary Education Department) and critical thinking disposition in terms of analyticity, Inquisitiveness, and truth seeking.

4. The results of the comparison done within the classes that there is a significant difference in favour of senior classes when the scores of the analyticity and truth seeking dimensions are analysed within the senior and junior classes.

5. It is attained that the views of the prospective teachers about critical thinking disposition and their mothers' education level differentiate in terms of inquisitiveness sub dimensions.

6. It is concluded that there is no significant relation-ship between the prospective teachers' fathers' education level and their views about the critical thinking disposition in any dimension of the inventory.

Implications

1. Teachers should watch students in order to designate their critical thinking.

2. It is considered that students learning atmosphere may come true in groups is an effective way in order to improve their critical thinking.

3. It is better for teachers to use different material in teaching.

4. There should be confusing information in the instructed information during a class hour that leads students to think.

5. The game activities organized for children should include features improving children's critical thinking.

6. It should be provided that the activities and course syllabuses designed since the preschool education contains elements developing child's critical thinking.

7. Seminars should be given to the educators and parents on critical thinking and books are to be published.

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