THE EVALUATION OF TEACHER CANDIDATES' USING THE SKILLS OF CRITICAL THINKING STRATEGIES

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ABSTRACT

The main purpose of this study is the evaluation of teacher candidates' using the skills of their critical thinking strategies. The population of the study consists of the teacher candidates who are in the first class of the departments in the academic year 2014-2015 at the Faculty of Education in Siirt Universtiy. The sample of the study also comprises of 318 students who were determined by sampling randomly and who study in the Primary School Teacher Training programme, Science Teacher Training programme, Elementary School Math Teacher Training programme, Social Studies Teacher Training programme of The Department of Secondary School Teacher Training; in the Turkish Teacher Training Programme of the Department of Turkish Education. In the study as the data collection tool, **"The Critical Thinking Strategies Survey"** which is developed by Koç (2015) and of which realiability and validity studies have been done under the light of the results of pre-application and expert thought has been used. In the analysing of the data, frequency, percentage, arithmetic average and chi-square have been used. As a result, teacher candidates' using the skills of critical thinking strategies are evaluated according to the different variables (gender, department) and it is obvious that in general there isn't significant difference among the thoughts of the teacher candidates, but in particular it has emerged that significant difference for some items has been found. Based on these results, it was found in a set of suggestions on critical thinking strategies.
Key Words: Thinking, critical thinking, critical thinking strategies

INTRODUCTION

The most important difference that seperates human beings from other creatures is that of the skill of 'thinking'. Thinking " the sate of thinking, the independent and its own state of mind as free from sensations, impressions and designs" is the ability of making comparisions, determining the differences and establishing links between them (TDK, 1998). With this skill, human beigns evaluate their good and bed sides. In other words, they approach to the events critically (Seferoğlu ve Akbıyık, 2006, s.194). The individuals who think critically think creatively, reasonably, and analyze, synthesize and evaluate the knowledge that he gets from different resources (Beyer, 1985; Grant, 1998; Moore, 2001). Moreover, individuals like this have got the skills that they stay away from the prejiduces, they use verbal and oral languages effectively, they are aware of inconsistent judgements, they ask effective questions, they compare their thoughts with others' and they show the differences between them. In gaining these skills, first family then educational institutions have got big missions and responsibilities. Nowadays especially under the roof of the educational institutions, at schools, the skill of critical thinking is being tried to be given to individuals. But in the studies and surveys, it has been seen that individuals don't reveal the skill of critical thinking enough, they consider the critical thinking concept as the action of judging and they are not active in putting forward their own thoughts. Whereas, in the 2004-2005 academic year, in the teaching programmes that were applied throughout Turkey, critical thinking was among the basic skills and there were activities for obtaining these skills in these lessons. In these activities, some individuals use affective strategies by looking at the events impartially, trusting the skill of thinking and improving their mental determination; they use cognitive strategies-macro skills by reading the events critically, listening, getting in touch with disciplines, applying socratic discussion and evaluation the events according to a criteria, analysing; they also use cognitive strategies-micro skills by discovering the differences between the events, paying attention to important similarities and differences using their critical thinking repertory (Yıldırım ve Şensoy, 2011, pp.526). These strategies that individuals use are the critical thinking strategies. The individuals who use the critical thinking strategies effectively, along their formal and informal education, can use the high level skills effectively such as problem solving, creative and reflective thinking and as a result, with life long learning process, they can produce qualified products in every field of the life. In raising these new generations that will succeed successful inventions and studies, teachers that are the only and important building stones of education institutions as formal have got big responsibilities. It is important that teachers, in order to fulfill this duty best, must improve and train themselves by considering modern approaches, models before and after their professional life. Hence, that the need of determining their thoughts related with the evaluation of teacher

candidates' using the skills of critical thinking strategies forms the problem of this study. In accordance with this problem, the answers of the questions below are looked for:

1. How is the distribution of the views of the teacher candidates related with critical thinking strategies?
2. According to their genders, do the views of the teacher candidates related with using the skill of critical thinking strategies show significant differences?
3. According to their departments, do the views of the teacher candidates related with using the skill of critical thinking strategies show significant differences?

METHOD

Research method

The research is based on the relational screening method. The relational screenings are "research models that aim at determining the degree and existence of the change between two or more variances." (Karasar, 1998:81).

Population and Sample

The population of the study consists of the teacher candidates from the first class of the departments of Education Faculty at Siirt University in the 2014-2015 academic year. The sample of the study also comprises of 318 students who are chosen by sampling randomly and who study in the Primary School Teacher Training programme, Science Teacher Training programme, Elementary School Mathematics Teacher Training programme, Social Studies Teacher Training programme of The Department of Secondary School Teacher Training; in the Turkish Teacher Training Programme of the Department of Turkish Education. (Table 1)

Tablo 1. The distribution of first-class teacher candidates surveyed

No	Departments	N	f
1	Primary school teacher	165	51,9
2	Social studies teacher	37	11,6
3	Science teacher	20	6,3
4	Türkish teacher	52	16,4
5	Math teacher	44	13,8
TOTAL		318	100

As seen in Table 1, the sample of the study is formed from 165 teacher candidates from the department of primary school teacher training (51,9%), 37 teacher candidates from the department of Social studies teacher training (11,6%), 20 teacher candidates from the department of Science teacher training (6,3%), 52 teacher candidates from the department of Turkish teacher training (16,4%), 44 teacher candidates from the department of Math teacher training (13,8%)

Data collection devices

In the study, as the tool of the data collection, **"The Critical Thinking Strategies Survey"** that was developed by Koç (2015) and whose validity and reliability studies was made in the light of expert view and the results of pre-perfom has been used. In the survey, there are 3 choices that rate as " no (1), partially (2), yes (3). In order to make detailed analysis and comments on the basis of items and because the items/articles of the survey are handled independently from each other, an analysis related with the reliability of the scores (like the coefficient of Cronbach Alfa internal consistency) is not done.

Data analysis

The data collected in this study are evaluated with SPSS 17.0 packaged programme. In analyzing the data, the number of the teachers who expressed their opinions regarding each item and their percentage is given as a table. According to their genders and departments, that whether there is significant difference between the teacher candidates' views related with contribution to the evaluation of using the skills of critical thinking is tested with chi square test. In the study, the level of significance is taken as $p \leq 0.05$).

FINDINGS

1.   The distribution of teacher candidates' views related with critical thinking strategies

The distribution of teacher candidates' views related with critical thinking strategies is given in Table 2.

Tablo.2 The distribution of teacher candidates' views related with critical thinking strategies:

	ITEMS/ARTICLES	Yes		Partially		No	
		N	**%**	**N**	**%**	**N**	**%**
1	I try to add new knowledge to the knowledge that I got.	193	60,7	36	11,3	89	28
2	I criticise the aspects of any subject that I find unreasonable.	288	90,6	20	6,3	10	3,1
3	Instead of taking the exactly same knowledge, I reinterpret that knowledge with my own words.	235	73,9	61	19,2	22	6,9
4	I consider others' ideas while I am expressing my opinion.	214	67,3	60	18,8	44	13,9
5	I consider the strong and weak aspects of any subject.	282	88,7	31	9,7	5	1,6
6	I discuss about a subjet by establishing emphaty with the man I talk to.	273	85,8	35	11	10	3,1
7	I establish a relation between the subjects/ideas.	293	92,1	20	6,3	5	1,6
8	I approach to the new subject/knowledge without prejiduce.	144	45,3	85	26,7	89	28
9	I try to find the same and different aspects of the knowledge that I obtain in different ways.	214	67,3	71	22,3	33	10,4
10	I use the word 'I don't know' when I am not sure of the subject.	257	80,8	33	10,4	28	8,8
11	I accept the contradictions and inconsistencies in my own thoughts and actions.	230	72,3	39	12,3	49	15,4
12	I find solutions to reach my goals when I come across difficulties.	280	88,1	25	7,9	13	4,1
13	I transfer the knowledge I learn to the daily life by approaching critically.	243	76,4	57	17,9	18	5,7
14	I use alternative knowledge resources about any subject.	262	82,4	34	10,7	22	6,9
15	I consider certain criterias while appreciating any (subject/knowledge/event etc.)	265	83,3	38	11,9	15	4,7
16	I use every kind of ways, methods to find a solution for the problem I encountered.	229	72	57	17,9	32	10,1
17	I ask questions to myself while learning a subject.	266	83,6	34	10,7	18	5,7
18	I reconsider the information about any subject that others evaluate according to their own evidences.	246	77,4	46	14,5	26	8,2
19	I can exactly distinguish the points on any subject where opposite views conflict.	237	74,5	69	21,7	12	3,8
20	I create my own way of thinking while deciding on any subject for myself.	276	86,8	30	9,4	12	3,8
21	I think of any subject in an audible manner.	137	43,1	88	27,7	93	29,2
22	I try to combine the problems on condition not to lose anything from its accuracy.	246	77,4	42	13,2	30	9,4
23	I listen what other people think about any subject and I try to learn from them.	272	85,5	32	10,1	14	4,4
24	I research why the ones who decide on anything that is 'good or bad' say so.	214	67,3	78	24,5	26	8,2
25	I revise again the ways, methods that individuals use to reach the same result about any subject.	283	89	21	6,6	14	4,4

As shown in Table 2, in the distribution of the teacher candidates' views related with using the skill of their critical thinking strategies, 90,6% of the teacher candidates said 'yes' to the 2nd article that is "I criticise the aspects of any subject that I find unreasonable." , 88,7% of the teacher candidates said "yes" to the 5th article that is "I consider the strong and weak aspects of any subject.", 92,1% of the teacher candidates said "yes" to the 7th article that is "I establish a relation between the items/ideas.", 88,1% of the teacher candidates said "yes" to the 12th article that is "I find solutions to reach my goals when I come across difficulties.", 89% of the teacher

candidates said "yes" to the 25th article that is " I revise again the ways, methods that individuals use to reach the same result about any subject.";19,2% of the teacher candidates said "partly" to the 3rd article that is "Instead of taking the exactly same knowledge, I reinterpret that knowledge with my own words.", 18,8% of the teacher candidates said "partly" to the 4th article that is "I consider others' ideas while I am expressing my opinion." 26,7% of the teacher candidates said "partly" to the 8th article that is "I approach to the new subject/knowledge without prejudice.", 22,3% of the teacher candidates said "partly" to the 9th article that is "I try to find the same and different aspects of the knowledge that I obtain in different ways.", 24,5% of the teacher candidates said "partly" to the 24th article that is "I research why the ones who decide on anything that is 'good or bad' say so."; 28% of the teacher candidates said "no" to the 1st article that is "I try to add new knowled to the knowledge that I got.", 29,2% of the teacher candidates said "no" to the article 21st that is "I think of any subject in an audible manner." This finding, while the teacher candidates are learning any subject, can be interepreted as they *share* the view that they don't consider the unreasonable points related with the subject, they can distinguish the strong and weak points of the subject, they establish relations in order to provide the integrity of information between the subjects they learn, they show higher performance against the problems they encounter and try to find different solutions, they participate in the view of revising the knowledge they obtained by trying different ways and methods and by using these ways and methods; and they show partly participation in the view that they learn by approaching to the events without any prejudices and consider others' thoughts, they can classify the knowledge they learned, they can question others' thoughts;, they *don't share* the view that they learn the knowledge that they get mentally by showing open participation and they are open to new knowledge

2. According to their genders, the findings related with whether the view of the ability for using the teacher candidates' critical thinking strategies becomes different or not

According to their genders, in the 15th and 23rt articles that are related with the skill for using the teacher candidates' critical thinking strategies, significant differentiation has been monitored. The articles at which there is differentiation are given in Table 3.

Table 3. According to their genders, the chi-square test results of the teacher candidates' view related with the skill for using their critical thinking strategies

Items/Articles				The Views of Teacher Candidates				χ^2	sd	p
				Yes	Partially	No	Total			
15 I consider certain criterias while appreciating any (subject/knowledge/event etc.)	Genders	Female	N	168	20	4	192	9,088	2	0,04
			%	63,4	52,6	26,7	100			
		Male	N	97	18	11	126			
			%	36,6	47,4	73,3	100			
		Total	N	265	38	15	318			
			%	83,3	11,9	4,7	100			
23 I listen what other people think about any subject and I try to learn from them.	Genders	Female	N	176	10	6	192	15,275	2	0,03
			%	91,7	5,2	3,1	100			
		Male	N	96	22	8	126			
			%	76,2	17,5	6,3	100			
		Total	N	272	32	14	318			
			%	85,5	10,1	4,4	100			

As seen in Table 3, in the articles 15 and 23, according to their genders, there is difference between the views related with the skill for using their critical thinking strategies ($X^2_{(15)}$=9,088; $X^2_{(23)}$= 15,275; p ≤0.05). Accordingly, it has been seen that for "*I consider certain criterias while appreciating anything (subject/knowledge/event etc.)*" which is mentioned in the article 15, 63% of the female teacher candidates said "yes", 52,6% of them said "partly", 26,7% of them said "no"; 36,6% of the male teacher candidates said "yes", 47,4% of them said "partly" and 73,3% of them said "no"; for "*I listen what other people think about any subject and I try to learn from them.*" which is mentioned in the article 23, 91,7% of the female teacher candidates said "yes", 5,2% of them said "partly" and 3,1% of them said "no"; 76,2% of the male teacher candidates said "yes", 17,5% of them said "partly" and 6,3% of them said "no". This finding can be interpreted as that male teacher candidates, while learning certain studies, events, *don't share* the view that they consider some criterias according to female candidates; as that female teacher candidates give place to the view that they listen to others' thoughts *more carefully* than male teacher candidates.

2. According to their departments, the findings related with whether the view of the skill for using the teacher candidates' critical thinking strategies becomes different or not

According to their departments, in the articles 10 and 21, that are related with the ability for using the teacher candidates' critical thinking strategies, significant differentiation has been monitored. The articles at which there is significant differentiation are given in Table 4.

Tablo 4. According to their departments, the chi-square test results of the teacher candidates' view related with the ability for using their critical thinking strategies

Items/Articles				Yes	Partially	No	Total	χ^2	sd	p
						The Views of Teacher Candidates				
10	I use the word 'I don't know' when I am not sure of the subject.	**Departments**	Science teacher	N	17	0	3	20			
				%	85	0	15	100			
			Türkish teacher	N	47	3	2	52			
				%	90,4	5,8	3,8	100	17,514	8	0,02
			Primary school teacher	N	132	16	17	165			
				%	80	9,7	10,3	100			
			Math teacher	N	31	11	2	44			
				%	70,5	25	4,5	100			
			Social studies teacher	N	30	3	4	37			
				%	81,1	8,1	10,8	100			
			Total	N	257	33	28	318			
				%	80,8	10,4	8,8	100			
21	I think of any subject in an audible manner	**Departments**	Science teacher	N	15	2	3	20			
				%	75	10	15	100			
			Türkish teacher	N	19	13	20	52			
				%	36,5	25	38,5	100	27,524	8	0,00
			Primary school teacher	N	68	56	41	165			
				%	41,2	33,9	24,8	100			
			Math teacher	N	12	11	21	44			
				%	27,3	25	47,7	100			
			Social studies teacher	N	23	6	8	37			
				%	62,2	16,2	21,6	100			
			Total	N	137	88	93	318			
				%	43,1	27,7	29,2	100			

As seen in Table 4, in the articles 10 and 21, according to their departments, there is difference between the views related with the ability for using their critical thinking strategies ($X^2_{(10)}$=17,514; $X^2_{(21)}$= 27,524; p ≤0.05). Accordingly, it has been seen that for "*I use the word 'I don't know*' when I am not sure of the subject*" which is mentioned in the article 10, 90.4,% of the Türkish teacher candidates said "yes", 25 of Math teacher candidates said "partly", 15% of Science teacher candidates said "no"; for "*I think of any subject in an audible manner*." which is mentioned in the article 21, 75% of the Science teacher candidates said "yes", 33,9% of the Primary school teachers said "partly" and 47.7% of Math teacher candidates said "no". This finding can be interpreted that Türkish teacher candidates, according to Science, Math, Primary school, Social studies teacher candidates, answered any subject after being sure of it, and they didn't answer the subject that they don't know and they are not sure, Science teacher canadidates, according to Turkish, Primary school, Math, Social studies teacher candidates, give *more* place to the view that they show explicit participation instead of implicit participation.

CONCLUSION AND SUGGESTIONS

1. In general, with regard to the distribution of the views related with the ability of using teacher candidates' critical thinking strategies, while teacher candidates learning any subject, they don't consider the unreasonable points, they can distinguish the strong and weak points of the subject, they establish relations in order to provide the integrity of information between the subjects they learn, they show higher porformance against the problems they encounter and try to find different solutions, they participate in the

view of revising the knowledge they obtained by trying different ways and methods by using these ways and methods, and they *don't share* the view that they learn by approaching to the events without any prejudices and consider others' thoughts, they can classify the knowledge they learned, they partly show participation in the view of questioning others' thoughts, they learn the knowledge that they get mentally by showing open participation and they *don't agree* the view that they are open to new knowledge. It can be expressed that the individuals that use the critical thinking strategies, find effective solutions to the problems they encounter (Şensoy, 2011), during these solutions, the individual always use the ability of questioning and establish relationship between the knowledge he gets (Demirkaya, 2008). In other words, the individuals who use the critical thinking strategies use their mental processes as a chain and they tie the each ring of the chain to the other ring and weave a strong connection between these rings. So these individuals can use the knowledge that they obtain in the life long learning process with the help of critical thinking strategies in order to achieve the ultimate goal. In other words, the individual that use the ability of critical thinking and strategies related with it is exploring the events deeply, consider different thoughts and discover the world he lives in (Cüceoğlu, 1995).

2. According to their genders, among the views related with the ability of using the critical thinking strategies in general a significant differentation doesn't exist, but in an article, female teacher candidates *didn't show participation* in the view related with the critical thinking strategies, in another article, it is seen that male teacher candidates give *more* place to the ability of using the critical thinking strategies.

3. According to their departments, among the views related with the ability of using the critical thinking strategies in general there is not a significant differentation, but it is seen that in an article, Turkish teacher candidates, in another article Sciene teacher candidates give *more* place to the ability of using the critical thinking strategies.

Suggestions

• The sample group of this study is the teacher candidates that are in their first year at the Faculty of Education. It can be suggested that the next studies can be applied to the teacher candidates that are at different classes.

• That the individuals, while using the skill of critical thinking, show resistance to learn what kind of knowledge and how this knowledge will effect the individual's academic life can be questioned using qualitative research.

• The contribution of listening skill to the critical thinking skill can be searched.

• Qualitative / quantitative studies can be done about which high level skills improve in the individuals who take part in courses directly

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