

Öğretmen Adaylarının Yaşam Teorilerini Oluşturan Merkezi Epistemolojik İnançlarının Belirlenmesi

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ÖZ. Bu araştırmanın amacı, öğretmen aday öğrencilerin farklı boyutlardaki epistemolojik inançlarını incelemektir. Araştırmanın örneklem gurubunu Uludağ Üniversitesi Eğitim Fakültesi Sınıf Öğretmenliği Bölümü'nde öğrenim görmekte olan 350 dördüncü sınıf öğretmen aday öğrenci oluşturmaktadır. Araştırma sonuçları öğretmen aday öğrencilerin bilgi kaynağı olarak bilimi temel almada oldukça kararsız, rasyonel topluma inançlarının ise oldukça düşük olduğu yönünde bir eğilimi ortaya koymaktadır. Öte yandan araştırma sonuçları öğretmen aday öğrencilerin geleceğin kestirilmesinde rüya, fal ve benzeri batıl ritüelleri fazlaca dikkate almadıklarını, ancak yaşamlarında kadere ve nazara önemli ölçüde inanma eğilimi içinde olduklarına işaret etmiştir.

Anahtar Sözcükler: Merkezi epistemolojik inançlar, öğretmen eğitimi, öğretmen adayları

ÖZET

Araştırmanın amacı ve önemi: Türkiye'de yapılan az sayıdaki epistemolojik inançlara yönelik çalışma örgün öğretimde öğrenme ve öğretmeye yönelik epistemolojik inançlar üzerine odaklanmıştır (Deryakulu, 2002; Deryakulu ve Bıkmaz, 2003; Deryakulu ve Büyüköztürk, 2005). Yaşama yönelik kişisel kuramlarımızın temeli, bilginin doğası ile bilmenin doğası hakkındaki inançlarımız tarafından oluşturulmaktadır. Dolayısıyla öğrenme-öğretme süreçlerine yönelik epistemolojik inançların anlaşılabilmesi için; epistemolojik inançların toplumsal, siyasal, ekonomik, dinsel ve psikolojik bağlamlara ilişkin farklı boyutlarının da incelenmesi önemlidir. Bu araştırmanın amacı ise, araştırmanın çıkış noktasını oluşturan yukarıdaki görüşler doğrultusunda, öğretmen aday öğrencilerin farklı boyutlardaki epistemolojik inançlarını incelemektir.

Yöntem: Araştırmanın örneklem gurubunu Uludağ Üniversitesi Eğitim Fakültesi Sınıf Öğretmenliği Bölümü'nde öğrenim görmekte olan 350 dördüncü sınıf öğretmen aday öğrenci oluşturmaktadır. Deneklerin 262'si kız (%74,9), 88'i de erkeklerden (%25,1) oluşmaktadır. Veri toplama aracı iki bölümden oluşmaktadır. Birinci bölüm öğretmen adaylarının demografik özelliklerini tespit etmeye yönelik sorulardan oluşmaktadır. İkinci bölümde ise, dört alt boyuttan oluşan Merkezi Epistemolojik İnançlar Ölçeği (Oksal, Şenşekerci & Bilgin, 2006) kullanılmıştır. Alt ölçeklerin güvenilirlik katsayıları; "Bilgi kaynağı olarak bilime inanç" .85, "Rasyonel topluma inanç" .77, "Batıl ritüellere inanç" .75 ve "Doğüstü güçlere inanç" .66 olarak hesaplanmıştır. Verilerin çözümlenmesinde araştırma sorularına bağlı olarak frekans, yüzde, t testi ve ANOVA kullanılmıştır.

Bulgular: Araştırma sonuçları erkek öğrencilerin rasyonel topluma yönelik inançlarının kız öğrencilere göre daha yüksek olduğunu ortaya koymuştur. Annesi ilkökul mezunu olan öğretmen adaylarının annesi ortaokul mezunu olan öğretmen adaylarına kıyasla gerek bilime gerekse de rasyonel topluma daha fazla inanma eğilimlerinin daha fazla olduğunu göstermektedir. Tüm bu bulgular arasında en dikkat çekici olanı, öğretmen adaylarının yaşam teorilerini oluşturan merkezi epistemolojik inançlar arasında, bir bilgi kaynağı olarak doğüstü güçlerin bilimden ve rasyonel toplumdaki yer tutuyor olmasıdır. Diğer bulgular araştırma içerisinde ayrıntılı olarak verilmiştir.

Tartışma ve Sonuç: Araştırma sonuçları öğretmen aday öğrencilerin bilgi kaynağı olarak bilimi temel almada oldukça kararsız, rasyonel topluma inançlarının ise oldukça düşük olduğu yönünde bir eğilimi ortaya koymaktadır. Öte yandan araştırma sonuçları öğretmen aday öğrencilerin geleceğin kestirilmesinde rüya, fal ve benzeri batıl ritüelleri fazlaca dikkate almadıklarını, ancak yaşamlarında kadere ve nazara önemli ölçüde inanma eğilimi içinde olduklarına işaret etmiştir. Tüm bu bulgular, öğretmen adaylarının çoğunlukla din odaklı geleneksel toplumun kültürel karakteristiğini temsil ettikleri yönünde genel bir yorum içinde değerlendirilebilir. Bu açıdan bakıldığında, Batıl Ritüellere fazlaca ilgi gösterilmemiş olması ilk bakışta bir çelişki gibi görünse de aslında Türk kültürel yapısında batıl ritüellerin dince yasak sayılması bu çelişkiyi açıklar niteliktedir.

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Determination of Central Epistemological Beliefs Forming Student Teachers' Life Theories

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Abstract. The purpose of this research is to explore the different dimensions of epistemological beliefs held by student teachers. The sample group of the study consisted of 350 senior students enrolled at Uludağ University, Faculty of Education, Department of Primary School Education. While 262 (74.9%) of the sample students were girls, 88 (25.1%) were boys. The research results suggest that Turkish student teachers are skeptical about relying on science as a source of knowledge and have a low tendency towards believing in rational society among student teachers. On the other hand, the research results indicate that student teachers do not take dreams, fortune-telling or similar superstitious rituals into consideration in predicting the future, but that they have a significant tendency to believe in destiny and the Evil Eye affecting their lives.

Key Words: Central epistemological beliefs, teacher education, student teachers.

INTRODUCTION

Within the last decade the important role of beliefs on teaching, and learning has been studied by many researchers (Calderhead, 1996; Cater, 1990; Chan, 2001; Nietfeld & Enders, 2003; Perry, 1970; Schommer, 1990). Few studies also made on epistemological beliefs in Turkey are focused on epistemological beliefs about learning and teaching in formal education (Deryakulu, 2002; Deryakulu and Bikmaz, 2003; Deryakulu and Buyukozturk, 2005). Specifically research by Schommer (e.g.; 1992, 1993) and others (Buehl, Alexander & Murphy) have shown that student's beliefs about knowledge and the process about knowing (epistemology) play a powerful role in their learning and development. Consequently these epistemological beliefs may provide valuable insights into how to improve teaching and learning in higher education.

In general, *belief* can be defined as a subjective tendency of knowledge, which is based on means such as inspiration, intuition, dreams and revelation and knowledge of popular survival by its nature and purpose. According to sociological theories, it is a type of mental state which is socially created, shared and thus leans on a resembling reality and arises from the individual's need to 'hold on to' and from the interactive actions and performance intended to meet this need (UNESCO, 1993: 303). Within its political, social and historical context, *beliefs* involve many acquired ideas from superstitions to legends and tales, from clichés such as jokes and aphorisms to prejudices and rigid judgments as the basis of social memory. Consequently, they play a determining role in the formation of both social culture and individual and group identities. Also, according to behavioral studies, *belief* is the consequence of impulsive and automatic repetition of behavior learned through observation by man and is generated by conditions of the individual (Huffman, Vernoy & Vernoy, 2000: 236).

Originating from the Greek word *episteme* and *logos*, "epistemology" is the philosophy discipline which studies the conditions of acquiring and constructing the source, the nature and the reality of both the subjective knowing tendency, representing beliefs, and the objective knowing tendency that takes observational and experimental evidence as the baseline and is always open to changeability. It aims to enlighten how we know knowledge by asking whether we derived it through the mind process or divine inspiration of supernatural powers or whether the mind is a power capable of perceiving reality or a warehouse keeping innate thoughts. In this context, "epistemological belief" refers to the basis of acquired knowledge and thoughts assumed to reflect reality by the individual, in other words the beliefs of the individual as the "knowing subject" in the relationship established with the "known object". According to Hofer and Pintrich, epistemological beliefs form the core of an individual's

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personal theory (1997). Moreover, Perry points out that epistemological beliefs reflect a person's view about what knowledge is, its degree of certainty, how it is gained, and the limits and criteria for determining knowledge, and he emphasizes that the development of an individual's beliefs on "learning, teaching and intelligence" is related to these beliefs.

Considering the fact that, teachers are amongst the effective agents of reproduction of societies and human civilization, and within the framework of their task, they have to possess "a cognitive sophistication and flexibility to comprehend multiple viewpoints within a broader social, cultural and political context" (Brownlee, 1996). In this context, it is of great importance in student teachers' training to involve a formation that provides an attitude of considering knowledge as a relative and variable unit and as critical thinking skills against unsettled, uncertain or incoherent knowledge. With goals, content and strategies, planning of training programs to serve this purpose necessitates student teachers, as the knowing subjects, to have a deep knowledge and open mind on the source, the nature and the quality of their dialectic interaction with knowledge and mental activities and the logical instruments used to acquire knowledge. At this point, research which questions the epistemological beliefs of students comes into effect, and in fact ideas about the importance of this subject are not very recent.

For example, Plato in "The Republic" laid stress on the importance of raising students who are equipped with personal epistemological goals and structured students' early education so as to cope with intelligence-based arguments. In this structure, which depends on conducting intense studies in fields such as mathematics, geometry, music, astronomy etc., students are generally required to question in an abstract sense as well as pragmatically the nature of ideas or forms. Rather than lecturing or sample presentations, it is observed that Plato applied the "dialectical inquiry" method that enables students to suggest and then test the general principles of hypothesis through their personal experiences in this training method. The main goal of the method is to definitely ensure that the student learns that knowledge should not be accepted as it is presented. Again, Descartes in "A Discourse on Method" within the framework of "Cartesian thought" also defended that education should provide qualifications for "detailed analysis, accepting things that can only be understood plainly and clearly, deducing results from reachable facts and as a result checking the logic of all these phases without omitting any points" (Hatcher, 2005).

Studies on personal epistemological beliefs were developed in the recent past by William Perry (1970). Through his research on university students, Perry showed that personal epistemological beliefs range between dualism, a manner of perceiving absolute truths as either right or wrong and multiplism, a manner of perceiving knowledge as temporary and personal. The other stages are "relativism" which is accepted as a feature of all learning stages, "relativism subordinate" in which opinions needed to be supported by evidence in some contexts only and "commitment within relativism" in which some beliefs are more valuable than others.

Perry's follower Kitchener (1983; as cited in Brownlee, 2003) explained that epistemological beliefs may influence an individual's cognitive sophistication during the solution of ill-defined problems reflecting real world dilemmas and contradictions. According to him, an individual's epistemological beliefs should help him or her "to be aware of the situation, to comprehend the limitations of the solution and to interpret". For example, if a teacher believes that knowledge is absolute and truths can be transmitted by authorities, then for both simple and complex problems there is only a single correct solution. Conversely, a teacher who believes that knowledge is personally constructed through critical reflection will acknowledge and develop various solution alternatives (King and Kitchener, 1994; as cited in Brownlee, 2003). In a way, the findings of Kitchener are supported by Cornwall (1990; as cited in Hatcher, 2005) who has proved that changes in an individual's epistemological beliefs also affect the methods of teaching and an individual's beliefs on knowledge determine the objectives of teaching. Consequently, knowledge is constructed by the individual rather than being discovered.

Hofer and Pintrich (1997) point out those epistemological beliefs play an important role in the development of learning because they have an influence on the development of the individual's central

values and life theories. According to Hofer and Pintrich, students' beliefs on the nature of knowledge (certainty and simplicity) and the nature of knowing (source of knowledge and justification for knowing) should be considered the core of an individual's life theory, while other beliefs on learning, teaching and intelligence are considered as peripheral to personal theory.

On the other hand, epistemological beliefs are directly connected with the judgment quality and thinking skills of the individual and this quality and these skills are intensively affected by intellectual norms in social life. For example, individuals' birth place and the period they were born in, their cultural life, beliefs of their family who raised them and relationships they established underlie rational or irrational powers structuring their thoughts (Paul & Elder, 2001). Also, the interaction of the individual with the social groups they belong to, philosophical and moral practices, reasoning devices, polity, economic conditions, forms of historical narration and religious beliefs are among the primary factors determining the quality of judgment (Paul & Elder, 2001). As all these external effects and determinations may lead to the formation of a rationalistic way of thinking, they may also cause irrational thinking methods like "egocentricity", "socio-egocentricity" or "egoism" (Paul & Elder, 2003). Thus, as Hofer and Pintrich (1997) proposed, the core of personal theory consists of an individual's beliefs on the nature of knowledge and the nature of knowing. Therefore, in order to understand epistemological beliefs about the learning and teaching process, different dimensions of epistemological beliefs in social, political, economic, religious and psychological contexts should be studied. Thus, the purpose of the present study is to explore the different dimensions of epistemological beliefs held by student teachers in accordance with the above mentioned views forming the starting point of the research. For this purpose, the following questions are examined:

- 1- Are there any significant differences between epistemological beliefs and demographic variables (gender, socio-economic status of the family, educational level of the parents)?
- 2- Do the epistemological beliefs held by student teachers differ in accordance with their identity perceptions (citizenship identity, ethnic identity and religious-denominational identity) in terms of level of political socialization?
- 3- What are the epistemological beliefs held by student teachers?

METHOD

Sample and Data Collection

The sample of the study consisted of 350 teacher education students enrolled at Uludag University, Faculty of Education, Department of Primary School Education. While 262 (74.9%) of the sample students were females, 88 (25.1%) were males.

The research data were collected in 2006, through the questionnaire developed by researchers. The questionnaire was administered in classroom settings during regular class meetings. The instructions were also provided orally by the researchers before giving written instructions, which were presented at the top of the scale document. It took respondents approximately 15-20 minutes to complete the scale.

Instrument

Demographic Questionnaire: The questions were aimed at getting information about the gender of teacher education students, students' perceived socio-economic status of their families and educational level of their parents. The question related to the socio-economic level of the family was "Which of the following best describes the socio-economic status of your family?" (low SES, medium SES and high SES). The question related to the educational level of the parents was "Which of the following best describes your parents' educational level?" (illiterate, primary school, secondary school, high school, university). Besides these questions, they were asked to determine their identity perceptions (citizenship identity, ethnic identity and religious-denominational identity) in terms of political

socialization level. In this study, identity perceptions are evaluated as a matter of self-declaration and/or self-identification in terms of citizenship, religion and ethnicity.

Epistemological beliefs: The Epistemological Beliefs Questionnaire considered to represent epistemological beliefs in different dimensions was developed by the researchers. Respondents were asked to provide their level of agreement or disagreement using a 5- point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with a 3 indicating a neutral answer. Each subscale scores were separately computed by summing the responses on related items. Thus, using subscale values, each respondent can be represented on each of the four dimensions. High scores represented a high level of beliefs in related dimensions while low scores represented a low level of beliefs in related dimensions. Details of developing The Multidimensional Epistemological Beliefs Questionnaire are briefly reported below.

Development of Multidimensional Epistemological Beliefs Instrument

In order to build a set of items, several principles were considered; generated the item pool (50 item statements), gathered a jury of experts who reviewed, added, and deleted items as needed. A total number of 35 items were written in the revised questionnaire. Additionally, in order to determine whether the remaining 35 items were clear and understandable for the students, viewpoints of a group of eight students were also considered. Thus, some items were rearranged and the items perceived as repetition by students were eliminated. Accordingly, a five point Likert-type scale of 28 items was administered to 350 teacher education students and the data were factor analyzed, using principle component analysis with Varimax rotation. Factor loadings of the 28 items of the scale produced a seven factor solution with an eigenvalue over 1 and explained 64.5% of total variance. With an eigenvalue of 1 as the cut-off and a scree plot test, principal component analysis with extraction was performed on items and four factor solutions was confirmed. These process resulted in a scale of 23 items with .49 or more factor loading values, and a four factor solution generated (see Table 1), accounting for 52.8 % of variance (%; 17.242%, 13.349%, 12.560%, 9.660%, respectively). The first factor, which accounted for 17.2 % of variance, grouped items pertaining to beliefs about science as a source of knowledge. This factor (Belief in Science as Source of Knowledge) comprises seven items (10, 20, 16, 8, 26, 58, 29); Cronbach's alpha reliability coefficient was .85. The second factor, which accounted for 13.3 % of variance, grouped items pertaining to beliefs about rational society. This factor (Belief in a Rational Society) comprises six items (51, 54, 44, 49, 38, 59); Cronbach's alpha reliability coefficient was .77. The third factor, which accounted for 12.6 % of variance, grouped items pertaining to beliefs about superstitious rituals .This factor (Belief in Superstitious Rituals) comprises six items (56, 57, 48, 31, 52, 7); Cronbach's alpha reliability coefficient was .75. The fourth factor, which accounted for 9.6 % of variance, grouped items pertaining to beliefs about supernatural powers .This factor (Belief in Supernatural Powers) comprises four items (14, 37, 34, 55); Cronbach's alpha reliability coefficient was .66. The reason why the alpha reliability coefficient for the "Belief in Supernatural Powers" subscale was lower than the other subscales may be due to the number of items (see Table 1),

Table 1: Explained Variance , Eigenvalues and Alpha Coefficients for Epistemological Beliefs Factors

Item No	Factor 1:	Factor 2:	Factor 3:	Factor 4:
	BSSK*	BRS**	BSR***	BSP****
10. We can reach the truth only through science.	,816			
20. Only scientific information is valid and reliable.	,755			
16. The only reliable source of information is science.	,734			
8. In all the areas I want to succeed, I always rely on science.	,727			
26. The only way for reasonable and logical knowledge is science.	,650			
58. Scientific efforts may solve the mysteries of the universe.	,525			
29. Science is the most realistic effort shown by men in order to comprehend the world.	,516			
51. Another indispensable dimension of science is it to be innovative.		,708		
54. Life is easier for societies leading a life with science.		,692		
44. A scientifically backward country is not expected to be democratic.		,681		
49. Without science, we can not form the future of our planet.		,627		
38. Scientific developments require a secular legal system.		,558		
59. The most exciting aspect of science is that it can question everything.		,500		
56. It is possible to predict what may happen in the future by fortune telling.			,810	
57. The predictions of those who are good at fortune telling generally come true.			,761	
48. I believe that our dreams reveal what would happen in the future.			,642	
31. It is possible to predict the future through alternative methods that are not scientific.			,615	
52. The dreams I have usually come true.			,613	
7. I avoid things thought to bring bad luck.			,498	
14. Man can overcome difficulties by obtaining information, but he can not change his destiny.				,768
37. Everything we have been through is written in our destiny.				,715
34. I believe in the existence of supernatural powers that are beyond the perception of our physical sense organs.				,613
55. I believe in the power of the Evil Eye.				,492
Explained Variance	17.24%	13.34%	12.56%	9.66%
Eigenvalue	3,96	3,07	2,98	2,22
Alpha	,85	,77	,75	,66

* BSSK: Belief in Science as Source of Knowledge,

** BRS: Belief in Rational Society,

*** BSR: Belief in Superstitious Rituals,

**** BSP: Belief in Supernatural Powers

Data Analysis

Statistical Analyses were performed on SPSS13.0 statistical package program for Windows.

According to type of the variable, the analyses of %, standard deviation, mean, t and F were employed.

RESULTS

Epistemological Beliefs and Demographic Variables

The results of the analysis which tested whether the epistemological belief scores of student teachers showed differences due to gender indicated that only the scores of the Belief in Rational Society subscale showed significant differences due to gender (see Table 1).

Table 1. Results of t Test Scores of Belief in Rational Society due to Gender

Gender	N	X	S	sd	t	p
<i>Female</i>	262	11.62	3.50	348	4.96	.000
<i>Male</i>	88	13.90	4.32			

** p< 0,001

As presented in Table 1, the beliefs of male students (X= 13.90) in rational society is higher than those of female students (X= 11.62).

The results of ANOVA analysis, which tested whether the epistemological beliefs of student teachers showed differences due to demographic variables, indicated that the epistemological beliefs of student teachers do not display significant differences due to socioeconomic status ($p > .05$), but that the educational levels of parents ($p < 0.001$, $p < 0.05$) result in significant differences. The mean averages and significance levels of parents' educational level on epistemological beliefs are summarized in Table 2 and Table 3.

Table 2. Means and Significance Levels of Mother's Education on the Subscales

Subscales	Mother's Educational Level			MS	F (2.347)
	Illiterate • (n = 30)	Primary School• (n = 188)	Secondary School• (n = 132)		
<i>Belief in Science as Source of Knowledge</i>	14.4 (3.44)	17.4 (4.72)	15.1 (4.70)	22.4	12.32**
<i>Belief in Rational Society</i>	11.6 (3.10)	13.2 (3.92)	10.8 (3.43)	14.1	17.72**
<i>Belief in Superstitious Rituals</i>	14.0 (4.57)	14.2 (3.94)	14.2 (4.28)	16.7	0.55
<i>Belief in Supernatural Powers</i>	14.2 (3.60)	14.3 (3.12)	13.4 (2.84)	9.5	0.19*

** p< 0.001, * p< 0.05

•Values M (SD)

Note: The differences between the means are compared by Scheffe test. The high scores in all these measurements represent high levels of BSSK, BRS, BSR and BSP.

As presented in Table 2, significant differences were found between the mother's educational level and the subscales of BSSK ($F(2.347) = 12.32$, $p < .001$; BRS ($F(2.347) = 17.32$, $p < .001$) and BSP ($F(2.347) = .019$, $p < .05$). Intergroup comparisons made using the Scheffe test indicated that the beliefs of student teachers whose mothers were primary school graduates (X= 17.4) in science as a source of knowledge were greater than those of student teachers whose mothers were illiterate (X=14.4) and those of secondary school graduates (X= 15.1). The subscale of BRS displays that the beliefs of student teachers whose mothers were primary school graduates in rational society (X= 13.2) were greater than those of student teachers whose mothers were secondary school graduates (X=10.8). The subscale of BSP shows that the beliefs of student teachers whose mothers were primary school graduates in supernatural powers (X= 14.3) were similarly greater than those of student teachers whose mothers were secondary school graduates (X=13.4).

As presented in Table 3, significant differences were found between the father's educational level and the subscales of BSSK ($F(2.347) = 3.29$, $p < .05$; BRS ($F(2.347) = 9.00$, $p < .001$) and BSR ($F(2.347) = 3.17$, $p < .05$). Intergroup comparisons made by using the Scheffe test indicated that the beliefs of student teachers whose fathers were primary school graduates (X= 17.15) in science as a source of knowledge were greater than those of student teachers whose fathers were high school graduates (X=15.85). The subscale of BRS similarly displays that the beliefs of student teachers whose fathers were primary school graduates (X= 13.21) in rational society were greater than those of student teachers whose fathers were high school graduates (X= 11.35). The subscale of BSR displays that the beliefs of student teachers whose fathers were university graduates (X= 15.42) in superstitious rituals were greater than those of student teachers whose fathers were primary school graduates (X=13.79).

Table 3. Means and Significance Levels of Father's Education on the Subscales

Subscales	Father's Educational Level			MS	F (2,347)
	Primary School• (n = 139)	High School• (n = 155)	University• (n = 56)		
<i>Belief in Science as Source of Knowledge</i>	17.1 (4.56)	15.8 (4.64)	15.7 (5.40)	22.4	3.29*
<i>Belief in Rational Society</i>	13.2 (3.66)	11.3 (3.59)	12.0 (4.43)	14.1	9.00**
<i>Belief in Superstitious Rituals</i>	13.7 (3.74)	14.2 (4.28)	15.4 (4.35)	16.7	3.17*
<i>Belief in Supernatural Powers</i>	14.2 (3.07)	13.8 (3.11)	13.8 (3.09)	9.5	1.00

** p< 0.001, * p< 0.05

• Values M (SD)

Note: The differences between the means are compared by Scheffe test. The high scores in all these measurements represent high levels of BSSK, BRS, BSR and BSP.

Epistemological Beliefs and Identity Perceptions in terms of Political Socialization Level

ANOVA analysis was conducted to test whether the epistemological beliefs held by student teachers differed in accordance with their identity perceptions (citizenship identity, ethnic identity and religious-denominational identity) in terms of level of political socialization. The mean averages and significance levels of identity perceptions in terms of political socialization level are summarized in Table 4.

Table 4. Means and Significance Levels of Identity Perceptions on the Subscales

Subscales	Identity			MS	F (2,347)
	Citizenship• (n = 279)	Ethnic• (n = 53)	Religious-denominational• (n = 18)		
<i>Belief in Science as Source of Knowledge</i>	15.8 (4.40)	17.1 (5.25)	22.3 (4.56)	20.70	18.50**
<i>Belief in Rational Society</i>	11.9 (3.63)	11.9 (3.63)	17.1 (4.59)	13.58	17.21**
<i>Belief in Superstitious Rituals</i>	14.1 (4.37)	14.9 (2.97)	13.4 (2.30)	16.94	1.21
<i>Belief in Supernatural Powers</i>	13.7 (3.07)	14.3 (2.86)	16.3 (3.10)	9.29	6.4*

** p< 0.001, * p< 0.01

• Values M (SD)

Note: The differences between the means are compared by Scheffe test. The high scores in all these measurements represent high levels of BSSK, BRS, BSR and BSP.

As presented in Table 4, significant differences were found between identity perceptions and the subscales of BSSK ($F(2,347) = 18.50, p < .001$); BRS ($F(2,347) = 17.21, p < .001$) and BSP ($F(2,347) = 6.4, p < .01$). Intergroup comparisons made by the using Scheffe test indicated that the beliefs of student teachers who expressed that religious-denominational identity represented them, in science as a source of knowledge, rational society and supernatural powers were significantly greater than those of student teachers who expressed that citizenship identity, and ethnic identity represented them.

Epistemological Beliefs Dimensions

The subscale mean scores were calculated in order to sketch the profiles of epistemological beliefs of the student teachers in four dimensions. The first factor "Belief in Science as Source of Knowledge" contains seven items. Accordingly, the lowest score was expected to be 7, while the highest score was

expected to be 35. The average mean score was 21 on the scale. The mean score for the students who participated in the research for “Belief in Science as Source of Knowledge” was 16.35 (SS= 4.77) and was below the average (on a 5 point scale, the score ranges between 2 and 3, but is closer to 2). This result suggests that student teachers are quite sceptical about relying on science as a source of knowledge.

The second factor “Belief in Rational Society” contains six items. The average mean score was 18 on the scale. The mean score for the students who participated in the research for “Belief in Rational Society” was 12.20 (SS=3.85) and quite below the average (on a 5 point scale scored as 2 points). This result suggests a low tendency towards belief in rational society among student teachers.

The third factor “Belief in Superstitious Rituals” contains six items. The average mean score was 18 on the scale. The mean score for the students who participated in the research for “Belief in Superstitious Rituals” was 14.23 (SS= 4.11) and quite below the average (on a 5 point scale, the score ranges between 2 and 3, but is closer to 2). This result suggests that student teachers do not believe very much in dreams, fortune telling or similar alternatives for predicting the future.

The fourth factor “Belief in Supernatural Powers” contains four items. The average mean score was 12 on the scale. The mean score for the students who participated in the research for “Belief in Supernatural Powers” was 14.00 (SS=3.09) and above the average (on a 5 point scale it is close to 4). This result suggests that student teachers have a significant tendency to believe in destiny and the Evil Eye affecting their lives.

DISCUSSION and CONCLUSION

The research results suggest that Turkish student teachers are skeptical about relying on science as a source of knowledge and have a low tendency towards believing in rational society among student teachers. On the other hand, the research results indicate that student teachers do not take dreams, fortunetelling and similar superstitious rituals into consideration when predicting the future, but that they have a significant tendency to believe in destiny and the Evil Eye affecting their lives.

In a general interpretation, all these findings can be generally interpreted as the fact that student teachers represent the cultural characteristics of a traditional society based on religion. Although the fact that teacher students do not show much interest in superstitious rituals might seem to be a contradiction from this aspect, the fact that superstitious rituals are forbidden by religion in Turkish cultural structure explains the reason for this contradiction.

The results of the research suggest that the beliefs of male students in rational society are greater than those of female students. This result can be interpreted as a reflection of male-dominant social relations which prevent the equal participation of women in the processes of domestic life, education, paid work and political decisions and increase gender discrimination. As is frequently stated, women are obliged to adopt various relations of subservience and submit to the possible negative results beyond their control within the context of these social relations (Ilkcaracan- Ilkcaracan, 1998). Therefore, the existing sexual identity roles imposed on women in conformity with traditional norms can be interpreted as an obstructive factor in women’s desire to identify with the female image in rational society.

Although the tendency of student teachers whose parents are primary school graduates (mothers and fathers) to believe in both science and rational society seems to be greater than that of student teachers whose parents are secondary school graduates and high school graduates (mothers and fathers, respectively) might seem to be a contradiction at first sight, it can be explained by devoting some space to speculation within the limitations of this research. Because of its deficiencies, the Turkish formal education system has not been able to create alternatives in the context of value-building to traditional values of family or of close acquaintances with whom the individual has to live for a large part of his/her life. Therefore the values and beliefs expressed in daily life by individuals represent the

cultural structure and motives dominant in the family rather than their educational levels. On the other hand, the fact that student teachers whose parents are primary school graduates have a greater tendency to believe in science and rational society may be related to the fact that education is considered by them to be the only option to improve their quality of life. As the social and economical structures of Turkey are not based on a distinct economic classification, vertical mobility in society is higher and more noticeable than in developed countries. Naturally, education turns into a strong reason for being hopeful both for parents with a low educational level and a low income level. This view may answer the question why student teachers whose parents are primary school graduates believe more in both science and rational society, but the question why student teachers whose parents are secondary school graduates and high school graduates believe less in both science and rational society remains. Discovering the reasons underlying these findings should be an interesting endeavor for future research.

The results of the research also reveal that the beliefs of student teachers whose fathers are university graduates in superstitious rituals are greater than those of student teachers whose fathers are primary school graduates. The fact that “fortunetelling and dream interpretation” have gone through technical and terminological changes in parallel with the modernization process and have a place in popular culture should be considered in interpreting this outcome, because in this state, superstitious rituals are far from being an irrational way of obtaining and sharing information for those students who believe in them, but are an ordinary means of enjoyment in popular entertainment culture.

The fact that the beliefs in supernatural powers of those students who prefer to express themselves through their “religious-denominational identity” are greater than of those who prefer citizenship identity can be explained by the fact that it is already a characteristic of the beliefs their identities are based on. However, from historical, sociological and political viewpoints it is not very meaningful that those students’ beliefs in science and rational society are greater than those who express themselves through their citizenship identity. For this reason, the first thing this conflicting result suggests is the students’ lack of conceptual efficiency about science and rational society and the probability that they considered these concepts in terms of the practical benefits that facilitate life and make it possible to reach their goals. On the other hand, it is also possible that the student teachers who express themselves through their religious-denominational identity have avoided presenting their true ideas because of various strategic reasons. Apart from this, as the individuals living in cities grow up in cultural circles drawn up ideologically, the beliefs and thoughts they possess are generally speculative and baseless (Berar: 138–140). It can cause the identity to develop on an unsafe, inconsistent and unreliable grounding and for instance, contrary facts such as believing in science and superstitious rituals can be adopted at the same time.

Without doubt, the most striking of all these findings and interpretations is the fact that the beliefs of student teachers in supernatural powers are greater than in science and rational society among the central epistemological beliefs that constitute their personal life theories. Such a picture of beliefs is seriously obstructive to student teachers’ developing sophisticated, conflicted and flexible epistemological beliefs in the fields of teaching, learning and intelligence.

Given the way that students’ epistemological beliefs are influenced by the learning environments they participate in, conducting research in learning environments such as teacher education courses would be valuable and important. In order to prepare student teachers for complex demanding teaching roles to manage and interact with a broad range of students, parents, and administrative personnel, replications and extensions of this study would be important.

Considering the findings of the present study which is limited to the current sample, if student teachers may have different epistemological beliefs in different contexts, a larger sample size might allow a more definitive conclusion to be drawn with regard to epistemological beliefs.

The epistemological beliefs of the student teachers that are revealed in this study were accepted as the core beliefs of them about knowing. Core beliefs are considered to have a filtering effect on other

knowledge and beliefs. Given the fact that core beliefs about knowing reflect student teachers' beliefs about what knowledge is, how it can be gained, its degree of certainty, conducting more qualitative research would allow the future study to address some of the questions raised by the results of the present study.

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