

THE EPISTEMOLOGICAL BELIEFS OF DISTANCE EDUCATION STUDENTS

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ABSTRACT

The researchers have mostly emphasized the epistemological beliefs which were considered as significant in learning process along with the desire to reveal the nature of learning. Epistemological belief is defined as the "individuals' subjective beliefs about what information means and how knowing and learning occur". It is a fact that the teachers' epistemological beliefs have important effect on the students' learning process. Teachers are the models for the students with both their patterns of behavior and learning approaches.

The aim of this study was to determine the epistemological beliefs of the students attending to pre-school education and English language teaching departments in distance education, besides it was attempted to investigate these beliefs in terms of certain variables, namely, gender, department and grade that the students attend, and their academic achievement level, lastly the education level of their parents. The study was conducted through a descriptive method and 697 pre-service teachers composed the sampling of the study.

To collect data, "Epistemological Belief Scale", which was developed by Schommer (1990) and adapted to Turkish by Deryakulu and Büyüköztürk (2002), was used. As a result, it was obtained that the epistemological beliefs of the students in distance education developed at low level. Additionally, it was found that the epistemological beliefs of the pre-service teachers differed in terms of gender, department, grade, academic achievement, education level of parents.

Keywords: Learning, epistemological beliefs, distance education, teacher education.

INTRODUCTION

The concept of learning to learn, which has come into prominence along with the information society, necessitates individuals to be more conscious and active in learning process. Being conscious about the learning process is closely related to individuals' epistemological beliefs about learning process because an individual who believes that he can learn can succeed more easily.

The word "epistemology" has Greek origin and refers to the concept answering the questions of "what is information? What are the sources of information?". In the same vein, epistemological belief is defined as the "individuals' subjective beliefs about what information means and how knowing and learning occur" (Schommer, 1990; cited in. Deryakulu & Buyukozturk, 2002). In literature, the first studies related to epistemological beliefs were conducted by Perry. In those studies, epistemological beliefs were interpreted as what information means and how information is acquired (Brownlee, Purdie & Boulton–Levis, 2001).

Then, Perry concluded that these beliefs could cause observable differences on students' knowing, learning, and studying styles (Deryakulu and Büyüköztürk, 2002). The studies started by Perry were then extended by Schoenfeld (1983) to high school students' beliefs about mathematic learning, and by Dweck and Leggett (1988) to the students' beliefs about intelligence, besides the females' ways of knowing was covered by Belenky and others (1986), and the effects of gender on epistemological beliefs were studied by Baxter Magolda (1992) and revised and dwelled on by Schommer (1990) (Chai, Khine & Teo, 2006).

Schommer stated that epistemological beliefs should be considered all in one, instead of handling it one by one as knowledge, intelligence or learning. In other words, he indicated that epistemological beliefs are a belief system with a multi-dimensional structure. In that context, Schommer developed a four-dimensional scale. The dimensions of the scale are "*ability to learning is inherent*", "*knowledge is simple*", "*learning is realized immediately*" and "*knowledge is certain*". In Turkey, the three dimensions, which were developed by Deryakulu and Buyukozturk (2002) as a result of adaptation study, were arranged as "*the belief that learning depends on effort*", "*the belief that learning depends on ability*", and "*the belief that there is only one truth*".

Recently, many quantitative and qualitative studies on epistemological beliefs have been conducted, while most of these studies focused on the development of individuals' epistemological beliefs (Deryakulu, 2004). The results of these studies showed that the students' beliefs about learning, knowledge, and intelligence influence their academic achievement, overcoming problems, and accomplishing their objectives (Dweck & Leggett, 1988; Schommer, 1990; Schommer, 1993a; Ryan, 1984; Qian & Alvermann, 2000).

Furthermore, the variables such as gender, academic achievement, the department students attend were focused in the studies about epistemological beliefs and mostly, the relationship between these variables and epistemological beliefs were discussed. Chai, Khine and Teo (2006) investigated the epistemological beliefs of 537 Singaporean pre-service teachers and their learning levels. As a result of the study, they obtained that their epistemological beliefs differed; particularly there was a difference in terms of gender, for the benefit of female, however it was detected that there was no difference in terms of the participants' learning levels. Moreover, Cano (2005) carried out a study on the effects of epistemological beliefs and studying approach on their academic achievements, 1600 students at secondary school in Spain participated in this study. As a result, it was found that there were significant differences between particularly female students and male students. According to this, the female students' epistemological beliefs were developed less. In the same way, Schommer, Crouse and Rhodes (1992) also found in their studies about high school students' epistemological beliefs and their understanding of materials for mathematical courses that the female students'

epistemological beliefs were developed less. In that sense, Schommer-Aikins, Mau, Brookhart and Hutter (2000) investigated the relationship between the 1200 elementary students' epistemological beliefs and academic achievement in terms of gender. In this study, it was obtained that there was no relationship between the elementary students' epistemological beliefs and academic achievement level in terms of gender variable.

Schommer (1993b) studied the difference between the technology sciences and social sciences university students' epistemological beliefs and tried to determine the dimensions of differences. In the study, it was noted that there was a significant difference between the technology sciences university students and social sciences students' epistemological beliefs. It was seen that particularly the students studying the social sciences believed that information has a simpler structure.

In a similar study conducted by Strobel, Cernusca and Jonassen (2004), the differences between the social sciences, fine arts, management and engineering students' epistemological beliefs were explored in terms of variables such as gender, grade level, and the department through qualitative and quantitative research methods. Thus, it was concluded that there was no significant difference between the students' epistemological beliefs in terms of gender, grade level and age, whereas a significant difference between the students' epistemological beliefs was detected in terms of department they attend to. These findings were supported with the qualitative research findings. On the other hand, Hofer (2000) attempted to determine the university students' epistemological beliefs about different disciplines. 326 university students attending to the same department participated in the study and it was found that the students' beliefs about psychology discipline were developed more in comparison with their beliefs regarding science discipline. Additionally, Schommer-Aikins, Duell and Hutter (2005) examined the relationship between the elementary students' general epistemological beliefs and their beliefs about problem solving in the field of mathematics, the results indicated that the students' general epistemological beliefs were influential on their problem solving in mathematics.

There were few studies on the distance education students' epistemological beliefs; in one of these rare studies, Kember (2001) tried to determine the epistemological beliefs of the university students attending to Open University in Hong Kong. In this study, it was obtained that there was a difference between the epistemological beliefs of the students who just started to university education and the ones at the end of the first year at the university. These differences refer to the development of epistemological beliefs at the end of the first year at university. Among the studies on the epistemological beliefs, mostly pre-service teachers' epistemological beliefs have been focused. For the class teaching, the educationists and researchers often discuss the concepts and class applications, especially teaching strategies and their classroom performances reflecting teachers' beliefs and value systems (Cheng, Chan, Tang & Cheng, 2008). The pre-service teachers' beliefs, particularly their beliefs about learning, are the significant factor that can influence their classroom performances (Lawrance, 1992; Pajares, 1992; Renne, 1992; Richardson, Anders, Tidwell & Lloyd 1991; Shaver, 1992; Wilson, 1990). In teacher training programs, it is very crucial to focus on epistemological beliefs in order to improve learning (Brownlee, Purdie & Boulton-Levis, 2001). In this regard, Lyons (1990) emphasized the significance of assigning important parts of teacher training programs to teaching the ways of

learning. Regarding this issue, Brownle, Purdie, Boulton – Levis (2001) conducted an experimental study in order to introduce the pre-service teachers' epistemological beliefs.

Consequently, they concluded that the epistemological beliefs of the pre-service teachers who were trained on these beliefs were more developed and mature. Likewise, Brownlee (2001) investigated the epistemological beliefs of pre-service teachers. 29 pre-service teachers participated in this qualitative study, and as a result, it was found that the participants had epistemological beliefs at similar level. It was thus suggested that it is necessary to develop pre-service teachers' epistemological beliefs in teacher training programs and they should be encouraged to attain information.

In Sinatra and Kardash (2004)'s study, which examined the relationship between the pre-service teachers' epistemological beliefs, characters, teaching process and resistance behavior, it was determined that the pre-service teachers' epistemological beliefs could be changed in the light of innovations and pre-service teachers attached importance to the ability of persuasion.

In another study, Ravindran, Grene and De Baker (2005) investigated the relationship between the pre-service teachers' epistemological beliefs, learning and performance goal, level of cognitive focus, and learning process. Then, it was obtained that there was a significant relationship between the pre-service teachers' epistemological beliefs and other variables, besides it was revealed that if the pre-service teachers' epistemological beliefs were not developed, they became more superficial during learning process.

Furthermore, Chan and Elliott (2002) explored the relationship between the epistemological beliefs of the pre-service teachers in Hong Kong and conceptualizing teaching-learning process.

The results showed that the pre-service teachers' epistemological beliefs had important effect on conceptualizing process. On the other hand, Braten and Stromso (2004) examined the relationship between the pre-service teachers' epistemological beliefs and learning goals in terms of gender variable, as a result they found that female students' epistemological beliefs were more influential on their learning goals; however this effect was less for the male students.

In addition to these studies counted abroad, in Turkey, epistemological belief studies were conducted particularly with students at Education Faculties. For instance, Erdem, Yilmaz and Akkoyunlu (2008) examined the pre-service teachers' information literacy and epistemological beliefs, self-efficacy beliefs in terms of gender and grade and they attempted to determine whether there is a significant relationship or not.

As a result, it was found that the pre-service teachers' self-efficacy beliefs were strong, meanwhile; in the sense of epistemological beliefs, they were more matured about the belief that there was only one truth.

On the other hand, in the study conducted by Vural and Gomleksiz (2007), the relationship between the Primary School Education, Classroom Teaching students' epistemological beliefs, level of sensitivity about human and environment rights, level of agreement with democracy principles, and some socio-demographic variables were investigated and it was found that the pre-service teachers were sensitive to human and environment rights, besides it was observed that out of epistemological beliefs, they had more matured beliefs in "learning does not depend on effort" and "learning does not depend on ability", while they had less matured beliefs in "there is only one truth" . Furthermore, it was obtained that the pre-service teachers' epistemological beliefs differed in terms of some variables such as gender, grade, number of siblings, geographical region, education level of parents and political tendency. Likewise, Oguz (2007) carried out a study on the Primary School Education, Classroom Teaching students' epistemological beliefs and similarly investigated whether these beliefs differed in terms of gender, grade, and education level of parents. It was found that the students' epistemological beliefs were not so much matured or developed. When the relationship between the English Language Teaching students' epistemological beliefs and teacher competency beliefs were examined, Rakıcıoğlu (2005) found that the students' epistemological beliefs did not change in terms of gender, age, and grade. However, Ongen (2003) found that Education faculty students' epistemological beliefs did not differ significantly in terms of grade, but there was a significant difference in terms of gender.

Moreover, Deryakulu (2002) examined the relationship of the Computer Education and Instructional Technology Teaching, and Social Sciences Teaching pre-service teachers' control focus, epistemological beliefs with the type and level of control on understanding the teaching material.

As a consequence, it was found that the students with tendency of internal control focus more frequently control the process of understanding the teaching material than the students with external control focus. Moreover, it was concluded that the students who believed "learning does not depend on ability" used the based on text control type. The researchers have mostly emphasized the epistemological beliefs which were considered as significant in learning process along with the desire to reveal the nature of learning. In this regard, it is a fact that the teachers' epistemological beliefs have important effect on the students' learning process. Teachers are the models for the students with both their patterns of behavior and learning approaches. Thus, information on the pre-service teachers' epistemological beliefs can be used to make teaching-learning process more effective and functional.

In Turkey, in order to satisfy the need for Pre-school Education and English Language Teaching teachers, a distance education program for Pre-school Education and English Language Teaching started in Anadolu University in 2000-2001 academic years, as a result of comprehensive works with Ministry of Education. English Language Teaching Undergraduate Program is a quadrennial program within Distance Education Faculty of Anadolu University.

This program, which started as a result of protocol signed by Ministry of Education and Anadolu University on 28.02.2000, is an equivalent program to the formal undergraduate education program of English Language Teaching at Education Faculties. The first two years of the Distance English Language Teaching Undergraduate Program are carried out as a formal education (face to face education) while the last two years are conducted through complete distance education system. The main goal of Distance English Language Teaching Undergraduate Program is to contribute to training sufficient number of qualified English Language teachers that Turkey needs, without making any concessions. (<http://iolp.anadolu.edu.tr/egitim.htm>)

Distance Pre-school Education Undergraduate Program is also a quadrennial program affiliated to Distance Education Faculty in Anadolu University. This program also started as a result of protocol signed by Ministry Education and Anadolu University on 25.01.2000 and this program is equivalent to formal education program of Pre-school Education at Education Faculties, but it is completely conducted through distance education system. The main goal of this program is to contribute to training the required number of qualified pre-school education teacher in Turkey without any concessions. (http://www.oalp.anadolu.edu.tr/S01_01.htm)

The main learning materials of Distance English Language Teaching and Pre-school Education students are course books. The *course books* are designed as appropriate to the levels of students and it contains suggestions for studying, memory notes, discussion questions and references to related sources. Additionally, *television broadcasts* related to courses are included in the program to support the course books. Television used at Distance Education system of Anadolu University is one of the most important means that supports the written materials. It is possible to train larger population under equal conditions by using visual and audio components together. Furthermore, students can benefit from *e-learning* applications through internet support. These e-learning services are presented to the students in this program in order to facilitate learning strategically by gathering the several advantages of individual equipments such as book, television, computer etc in one learning environment. In addition to this, the students enrolled in both distance education programs carry on their teaching practices at schools. The fact that the students attending to the distance education programs are in different learning environments in comparison to the students enrolled in formal education programs constitutes the justification of the present study. As a matter of fact, this situation gives rise to the question of how the information and learning perceptions of the pre-service teachers, who are trained in different learning environments are developed. In addition, there are very few studies on the epistemological beliefs of the students attending to the distance education programs, thus the present study attempted to contribute this gap in literature.

AIM OF THE STUDY

The aim of this study is to determine the epistemological beliefs of the pre-service teachers attending to Pre-school Education and English Language Teaching Distance Education Programs.

Within the context of this aim, the following research questions were addressed;

1. What are the English Language Teaching and Pre-school Education pre-service teachers' epistemological beliefs?
2. Do the English Language Teaching and Pre-school Education pre-service teachers' epistemological beliefs differ in terms of
 - a. gender
 - b. department they attend to
 - c. grade
 - d. level of academic achievement
 - e. education levels of parents?

METHOD

Research Model

The present study, which attempted to determine the English Language Teaching and Pre-school Education pre-service teachers' epistemological beliefs, was conducted as a descriptive study through survey method. In the study, the epistemological beliefs of the distance education students were defined, then it was investigated whether these beliefs differed in terms of some variables or not.

Population and Sampling

The population of the study consisted of 21.985 students enrolled at Pre-school Education and English Language Teaching Undergraduate Program at Distance Education Faculty in Anadolu University during 2007-2008 academic years spring term. Out of this population, 12.960 students attend to Pre-school Education program while 9.025 students attend to English Language Teaching program. *(These statistics belong to February 2008 and are obtained from Anadolu University Distance Education Program Head office)* Due to the large size of general population and difficulties in data collection, a target population for this study is constituted. This target population consists of students that the researcher can reach and have opinion through either direct observation or observation of a sampling group. It can be arranged by defining the appropriate criteria (Karasar, 1998). While determining the target population for this study, seven geographical regions of Turkey were taken into consideration in order to represent the whole country, thus, one city from each region and half of the all students in these cities were selected. According to this, one city from each region in Turkey was selected randomly.

The selected cities were Istanbul, Izmir, Eskisehir, Samsun, Adana, Gaziantep and Erzurum. There were totally 2200 students in these seven cities. Out of these students, 1108 students attend to Pre-school Education while 1092 students were enrolled at English Language Teaching programs. In appendix, the number of students selected from sampling cities was given according to the program the students attend. Consequently, the sampling group of this study consisted of totally 1100 students attending to Pre-school Education and English Language Teaching programs at seven cities in Turkey. The statistics related to the sampling group of the study was presented in Table: 1 below.

Table: 1
The Sampling Group of the Study

Group	Number of Students	Number of Students in Sampling Cities	Number of Students selected for Sampling	The Students Participated in the Study	The Proportion of Return	The Ones Excluded	The Ones Evaluated in the Study
Pre-school Education	12.960	1108	554	227	%20.63	5	222
English Language Teaching	9.025	1092	546	489	%44.45	14	475
Total	21.985	2204	1100	716	%65.09	19	697

As seen in Table 1, out of the students composing the sampling group, 716 students participated in the data collection procedure of the study. Accordingly, 20.63% of the students enrolled at Distance Pre-school Education Undergraduate Program returned in the application, meanwhile 44.45% of the Distance English Language Teaching Undergraduate Program students replied back in the application; totally 65.09% of the students returned in the study.

Table: 2
Demographic Features of the Pre-Service Teachers in the Study

Demographic Features	Number	Percentage
Gender		
Female	593	85.1
Male	104	14.9
Grade		
First Grade	265	38.0
Second Grade	272	39.0
Third Grade	73	10.5
Fourth Grade	87	12.5
Department		
Pre-School Education	222	31.9
English Lang. Teaching	475	68.1
Education Level of Parents		
Low	371	53.2
Average	236	33.9
High	90	12.9
Success		
Average	153	22.0
Good	261	37.4
Very Good	283	40.6

However, when data collection instrument was examined, it was detected that 19 participants completed the instrument wrongly or they did not complete at all.

Therefore, the data collected from 222 Pre-school Education and 475 English Language Teaching programs, totally 697 students, were taken into evaluation in

this study. Demographic information of these students was presented in Table: 2. Table 2 indicated that 85% of the sampling group was female students while 14.9% of them were male. Related to the grade they attend, 38% of the students were the first grade, 39% were the second grade, while 10.5% attend to the third grade and 12.5% to the fourth grade.

Furthermore, out of the students, 31.9% were the Pre-school Education students, while 68.1% were English Language Teaching students. When the education levels of the participants' parents were examined, it was seen that 53.2% of the parents had low education level, 33.9% of them had average level, whereas 12.9% of the parents had high education level. For the academic achievement level of the participants, 22% of them had "average" level, 37.4% had "good" level, and 40.6% of them had "very good" level of academic achievement.

Data Collection

In order to determine the epistemological beliefs of distance education pre-service teachers, a data collection instrument including two parts; namely "personal information" and "Epistemological Belief Scale" was used. The "Epistemological Belief Scale" was developed by Schommer (1990) and translated to Turkish and validated by Deryakulu and Büyüköztürk (2002). Epistemological Belief Scale has a three-factor structure. In the scale, for the first factor "The belief that learning depends on effort", there are 18 items, while there are 9 items for the second factor "The belief that learning depends on ability", lastly 8 items represent the third factor "The belief that there is only one truth". For this instrument, five-point Likert scale rating as "Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5)" was used to ascertain the students' agreement level for each statement. Furthermore, 5 questions were also asked to determine the participants' personal features.

As a result of analysis employed to determine the reliability of the study again, the Cronbach alpha coefficient for the entire scale was .63, for the first factor, it was .56, for the second factor .60, for the third factor, .56. The data collection instruments were sent to the distance education students via mail. In the envelopes the students received, there were a data collection instrument, return envelope (with a stamp and address) and a note explaining the deadline for the return of the instrument. The addresses of the participants were found through the information processing center in Anadolu University. The study was conducted on between 20th April -20th June in 2007-2008 academic years.

Data Analysis

In data analysis, mean and standard deviation values were used to determine the epistemological beliefs of the students, besides in order to define the differences between the groups, "independent t test" was employed for the pair group comparisons (gender, department); however for the more than two group comparisons (grade, academic achievement level, education levels of parents), one-way ANOVA test was applied. Then, to identify the source of the difference, Tukey HSD test was used. In personal information part, a classification was used in order to determine the pre-service teachers' academic achievement level.

In distance education programs, the students' academic success is evaluated out of 100 as a mark. Accordingly, the success average between 50 – 66 was accepted as "average", the ones between 67–83 were considered "good", and the marks between 84- 100 were accepted as "very good". On the other hand, for the education levels of parents, the parents who did not go to school or graduated from primary school were classified as "low", the ones graduated from secondary and high school were considered as "average", lastly the ones graduated from university and post-graduate education were categorized as "high". In the personal information part, the students' education levels were arranged according to this classification. In data analysis, the significance level was accepted as .05 and the data was analyzed through SPSS (Statistical Package for the Social Sciences).

FINDINGS and DISCUSSION

In this part, the findings obtained from the statistical analysis of data for each research question were presented and interpretations of these findings were discussed.

Epistemological Beliefs of Pre-service Teachers in The Distance Education

The means of the scores that the pre-service teachers got from the sub-scales designed to determine the epistemological beliefs of the pre-service teachers in distance education were given in Table: 3 below.

As seen in Table 3, the participants achieved different means of scores from the epistemological belief sub-scales.

Table: 3
The Mean Values and Standard Deviations of the
Distance Education Pre-Service Teachers' Epistemological Belief Scores

Factor	N	The Lowest Score	The Highest Score	Mean	Standard Deviation
The belief that learning depends on effort	697	19	82	34.35	6.26
The belief that learning depends on ability	697	9	37	19.47	4.41
The belief that there is only one truth	697	12	41	28.24	4.85
Total	697	51	116	81.99	9.92

For the first factor in the scale, which is "the belief that learning depends on effort", the participants obtained 34.35 mean, while the mean of scores for the second factor, "the belief that learning depends on ability", was 19.47, lastly for the third factor which refers to "the belief that there is only one truth", 28.24 was attained as mean of scores.

In the study, low mean of scores was interpreted as developed/matured epistemological belief whereas high mean of scores were explained as undeveloped/unmatured epistemological belief (Schommer-Aikins, Mau, Brookhart & Hutter, 2000; Deryakulu, 2004).

Thus, it cannot be claimed that the epistemological beliefs of the pre-service teachers in distance education were not developed/matured in every three dimension.

The results indicated the participants' score means related to the "belief that learning depends on effort" (Factor 1) were not high, however the means of the pre-service teachers' scores regarding the "belief that learning depends on ability" (Factor 2) and "belief that there is only one truth" (Factor 3) were high.

In other words, these findings pointed out that the pre-service teachers' epistemological beliefs that "learning depends on effort" were more developed and matured. These findings were consistent with the findings that Vural and Gomleksiz (2007) and Oğuz (2007) obtained from the studies with primary education students.

Considering this, this finding can be interpreted that in teacher training programs, all teaching vocational information courses should be recently emphasized with respect to the students' active participation to the process of learning to learn. For "the belief that learning depends on ability", the pre-service teachers in this study reached higher means of scores than for "the belief that learning depends on effort", but lower means than "the belief that there is only one truth". According to this, it can be claimed that the pre-service teachers were less developed in the dimension of "the belief learning depends on ability", in comparison with the dimension of "the belief that learning depends on effort", but more developed considering the dimension of "the belief that there is only one truth".

This result can be explained referring to a significant problem in Turkish Education System; defining students as successful-unsuccessful, or the one who learn easily or hard in all classes, particularly starting from the primary education, and use of these classifications by especially the teachers and parents may cause such findings. In fact, the similar results obtained from the studies with the students in formal education can support this claim.

Moreover, it can be claimed that the pre-service teachers' beliefs about "there is only one truth" were less matured/developed than their beliefs about other two factors. This finding is compatible with the results of other similar studies.

In detail; Oğuz (2007), Öngen (2003) and Deryakulu and Büyüköztürk (2002, 2005) found that the students attending to different departments were less matured/developed in the dimension of "the belief that there is only one truth". When considered from this point of view, it can be observed that both formal education students and distance education students have several characteristics in common about this issue.

This situation can be explained with reasons that the students do not participate actively in teaching-learning process, and their research, questioning, and thinking skills are not so developed. At the same time, the fact that the students in distance education see the course book as the only information source also influences this situation. The Epistemological Beliefs of the Students in Distance Education in terms of Different Variables

Gender

In the second research question of the study, firstly it was investigated whether the distance education pre-service teachers' epistemological beliefs differed in terms of gender.

Thus, the means of the pre-service teachers' scores from each factor were analyzed in terms of gender variable. The figures obtained from data analysis were presented in Table 4 below.

Table: 4
The Pre-Service Teachers' Epistemological Beliefs in terms of Gender

Factor	Gender	Number of Participant (N)	Mean (X)	Standard Deviation (SS)
The belief that learning depends on effort	Female	593	33.84	6.13
	Male	104	37.26	6.23
The belief that learning depends on ability	Female	593	19.19	4.19
	Male	104	21.03	5.22
The belief that there is only one truth	Female	593	28.27	4.85
	Male	194	28.07	4.86

When the figures in Table 4 were examined, it can be seen that the participants obtained different score mean from the sub-factors on epistemological beliefs. In this context, both the female and male pre-service teachers got different score mean from the dimensions of "the belief that learning depends on effort" and "the belief that learning depends on ability".

On the other hand, they reached very similar scores from the dimension of "the belief that there is only one truth".

The male students had higher score mean from the dimensions that "the belief that learning depends on effort" and "the belief that learning depends on ability" than the female students.

In order to determine whether the differences in the female and male students' scores from the sub-factors of epistemological beliefs were significant or not, t-test was employed. The findings were given in Table: 5.

Table: 5
The Differences between the Pre-Service Teachers'
Epistemological Beliefs in terms of Gender

Factor	Gender	N	X	SS	t	Sd	P
The belief that learning depends on effort	Female	593	33.84	6.13	5.24	695	P<.05
	Male	104	37.26	6.23			=.00
The belief that learning depends on ability	Female	593	19.19	4.19	3.96	695	P<.05
	Male	104	21.03	5.22			=.00
The belief that there is only one truth	Female	593	28.27	4.85	0.37	695	P>.05
	Male	104	28.07	4.86			=.70

According to the values given in Table 5, there are significant differences between the female and male students' scores in that dimensions of "the belief that learning depends on effort" (Factor 1) and "the belief that learning depends on ability" (Factor 2). On the contrary, no significant difference between the male and female students' scores in the dimension of "the belief that there is only one truth" (Factor 3) was found. Consequently, it can be claimed that the female students' epistemological beliefs were more matured/developed than the male students in the dimensions of "the belief that learning depends on effort" (Factor 1) and "the belief that learning depends on ability" (Factor 2), however in the dimension of "the belief that there is only one truth", the female and male students have similar epistemological beliefs.

There are some studies that share similar findings with these results. In the studies conducted by Oğuz (2007), Deryakulu and Büyüköztürk (2005), a significant difference between the male and female students' epistemological beliefs in "Learning depends on effort" (Factor 1) was also obtained.

The female students had more developed beliefs about the fact that learning depends on effort. Moreover, in the studies conducted by Vural and Gömleksiz (2007), Deryakulu and Büyüköztürk (2005), Öngen (2003), a significant difference between the male and female students' scores on "the belief that learning depends on ability" (Factor 2), in favor of female students were detected.

These findings support the finding of the present study that the female students' epistemological beliefs in Factor 1 which is "the belief that learning depends on effort" and Factor 2 regarding "the belief that learning depends on ability". Besides, similarly Öngen (2003) also found that there was no significant difference between the male and female students' epistemological beliefs about Factor 3 which refers to "the belief that there is only one truth".

The findings that the female students' epistemological beliefs about "learning depends on effort and ability are more matured/developed than the male students can be associated with the significance they give to education.

The female students' desire to have more respectful status in the society, have economical independence, and be more successful are some of the reasons for their enthusiasm to learning.

Department that Students Attend

For the second research question, secondly the distance education students' epistemological beliefs differed in terms of their department or not were examined. Therefore, the means of the pre-service teachers' scores regarding each factor in Epistemological Beliefs Scale was analyzed in terms of their department. The findings were presented in Table: 6.

Table: 6
The Pre-Service Teachers'
Epistemological Beliefs in terms of their Department

Factor	Department	Number of Participants (N)	Mean (X)	Standard Deviation (SD)
The belief that learning depends on effort	Pre-school Education	222	33.57	6.56
	English Lang. Teaching	475	34.71	6.08
The belief that learning depends on ability	Pre-school Education	222	19.04	4.20
	English Lang. Teaching	475	19.67	4.49
The belief that there is only one truth	Pre-school Education	222	29.32	4.90
	English Lang. Teaching	475	27.73	4.75

The results in Table 6 showed that the Pre-school Education and English Language teaching pre-service teachers' scores from the sub-factors of epistemological beliefs were different.

Table: 7
The Differences between the Pre-Service Teachers’
Epistemological Beliefs in terms of their Departments

Factor	Department	N	X	SS	t	Sd	P
The belief that learning depends on effort	Pre-school Education	222	33.57	6.57	2.24	695	P<.05 =.02
	English Lang. Teaching	475	34.71	6.08			
The belief that learning depends on ability	Pre-school Education	222	19.04	4.20	1.74	695	P>05 =.08
	English Lang. Teaching	475	19.67	4.49			
The belief that there is only one truth	Pre-school Education	222	29.32	4.90	4.06	695	P<05 =.00
	English ang. Teaching	475	27.73	4.75			

The English Language teaching pre-service teachers’ scores were higher for the dimension of Factor 1, “the belief that learning depends on effort”. While the means of the Pre-school Education and English Language Teaching students’ scores on Factor 2, “the belief that learning depends on ability” were close, the means of the Pre-school education were higher in the dimension of Factor 3 “the belief that there is only one truth” than the English Language Teaching students’. In order to determine whether the differences between the score mean that the Pre-school Education and English Language Teaching students obtained from the sub-factors of epistemological beliefs were significant or not, t-test was applied. The results were given in Table: 7. When the values in Table 7 were examined, it was seen that the difference between the Pre-school Education and English Language Teaching students’ scores in Factor 1, “the belief that learning depends on effort” and Factor 3 “the belief that there is only one truth” were statistically significant. However, in the dimension of Factor 2, “the belief that learning depends on ability”, no significant difference was determined.

Thus, these findings indicated that the Pre-school Education students' beliefs about Factor 1 which refers to "the belief that learning depends on effort" were more developed/matured than the English Language Teaching students', on the other hand, the epistemological beliefs of English Language Teaching students about Factor 3 "the belief that there is only one truth" were more developed/matured than the Pre-school Education students. However, the students of both departments had similar epistemological beliefs about Factor 2, "the belief that learning depends on ability". On the basis of all these findings, the reason why the Pre-school Education students' epistemological beliefs that learning depends on effort were more developed/matured can be explained with the fact that the Pre-school Education programs are more creativity-oriented and that activities encouraging creativity are involved. Additionally, it can be claimed that the reason why the English Language Teaching students had more developed/matured beliefs about Factor 3 which refers to "the belief that there is only one truth" is the fact that the students are trained in a language teaching program. In language teaching, it is crucial to make students acquired the skills required for the necessities of a language in a learning strategy based environment. This situation can be considered to cause such finding. In other words, this can be interpreted that different learning experience develops students' point of views. As a result, it can be argued that there is a significant relationship between the students' epistemological beliefs and their department.

Grade

For the second research question of the study, thirdly, the distance education students' epistemological beliefs were investigated in terms of grade they attend. Thus, the pre-service teachers' scores in sub-categories of the data collection instrument was analyzed considering the grade as a variable. The results were illustrated in Table: 8 below.

Table: 8
The Pre-Service Teachers' Epistemological Beliefs in terms of Grade

Factor	Grade	Number of Participant (N)	Mean (X)	Standard Deviation (SD)
The belief that learning depends on effort	1 st Grade	265	33.49	5.55
	2 nd Grade	272	35.00	5.69
	3 rd Grade	73	34.53	7.89
	4 th Grade	87	34.78	8.04
The belief that learning depends on ability	1 st Grade	265	19.48	4.18
	2 nd Grade	272	19.72	4.61
	3 rd Grade	73	19.13	4.99
	4 th Grade	87	18.91	3.87
The belief that there is only one truth	1 st Grade	265	28.73	4.65
	2 nd Grade	272	27.86	4.88
	3 rd Grade	73	27.98	5.50
	4 th Grade	87	28.16	4.75

According to the findings given in Table 8, the means of the scores that the distance education students got in this study were different in terms of grades ranging from 1st to 4th years. For Factor 1, "the belief that learning depends on effort", the highest mean belonged to the students attending to 2nd grade while the lowest mean was received by 1st grade. Furthermore, for Factor 2, "the belief that learning depends on ability", again 2nd grade students received highest mean of scores, but 4th grade students got the lowest mean of score for this time. Lastly, for Factor 3, "the belief that there is only one truth", 1st grade students had the highest mean of scores and 2nd grade students got the lowest mean of score.

To check whether these differences in the score mean in terms of different grades that the participants attend were statistically significant or not, variance analysis was employed on the group means. The results were figured in Table: 9.

Table: 9
The Differences between Pre-Service Teachers' Epistemological Beliefs in terms of Grade

Factor	Source of Variance	Sum of Square (S.S.)	Degree of Freedom (D.f)	Mean of Square (K.O)	F Value (F)	Significance Level (P)
The belief that learning depends on effort	Between Groups	325.912	3	108.637	2.791	P< .05 =0.04
	Within Group	26979.264	693	38.931		
	Total	27305.176	696			
The belief that learning depends on ability	Between Groups	52.596	3	17.592	.900	P>.05 =0.44
	Within Group	13497.108	693	19.476		
	Total	13549.704	696			
The belief that there is only one truth	Between Groups	108.621	3	36.207	1.538	P>.05 =0.20
	Within Group	16309.402	693	23.534		
	Total	16418.023	696			

As indicated in Table: 9, the results of variance analysis, on the means of the scores that the participants at different grades had, showed that the *F* value (2.791) obtained from the dimension of Factor 1, "the belief that learning depends on effort" was higher than the table of *F* value at the .05 significance level.

This value pointed out that there are significant differences between the distance education students' score means describing the dimension of "the belief that learning depends on effort" (Factor 1).

On the contrary, as a result of variance analysis, the *F* values obtained from the participants' score means related to Factor 2, "the belief that learning depends on ability" and Factor 3, "the belief that there is only one truth" were found as (respectively .900 and 1.538) were less than the significance level.

This finding showed that there is no significant difference between the scores describing the epistemological beliefs in terms of Factor 2, "the belief that learning depends on ability" and Factor 3, "the belief that there is only one truth"

In order to determine which between-group differences caused the significant difference between the participants' scores from Factor 1 "the belief that learning depends on effort", in terms of grade, Tukey HSD was employed. The findings were illustrated in Table: 10.

Table: 10
The Sources of The Difference between The Pre-service Teachers' Epistemological Beliefs in terms of Grade

Factor	Grade	1 st Grade	2 nd Grade	3 rd Grade	4 th Grade
The belief that learning depends on effort	1 st Grade	-	-1.50*	-1.03	-1.28
	2 nd Grade	.150*	-	.46	.21
	3 rd Grade	.1.03	-.46	-	-.24
	4 th Grade	.1.28	-.21	.24	-

According to Table 10, the difference between the score means of Factor 1 "the belief that learning depends on effort" was due to the differences between the 1st grade and 2nd grade students' means of scores from Factor 1. Third difference is in favor of 2nd grade students. However, these findings can be interpreted in a way that 1st grade students' epistemological beliefs about this dimension were more matured or developed.

When compared with other studies, it can be seen that the findings of this study are different. In detail, In the studies conducted by Erdem, Yılmaz and Akkoyunlu (2008) and Vural and Gömleksiz (2007), it was obtained that there was a significant difference in Factor 3 "the belief that there is only truth" in terms of grade, this difference was in favor of 4t grade.

Thus, it was concluded that as the grade the students attend to raised, the students' epistemological beliefs about "there is only one truth" became more matured. Additionally, in these studies, no significant difference was found for other dimensions of the epistemological beliefs. However, Oğuz (2007) and Öngen (2003) ascertained that the students at lower grades (2nd grade) had more matured/developed beliefs on Factor 2 which is "the belief that learning depends on ability".

Consequently the findings of the present study pointed out that when examined in terms of grade, there was no significant difference in the dimension of Factor 2 "the belief that learning depends on ability", and Factor 3 "the belief that there is only one truth". However a significant difference was detected in the dimension of Factor 1 which refers to "the belief that learning depends on effort".

Although it is usually expected that as the grade of the students rises, their opinions and beliefs about learning become more matured, the findings obtained in this study indicated that the learning experiences of the students in the distance education did not enable them to develop the dimension of their beliefs that learning depends on effort. Besides, the fact that the distance education students do not have any experience related to learning together can be one of the reasons for such findings.

The Level of Academic Achievement

For the second research question of the study, fourthly it was examined whether the epistemological beliefs of the pre-service teachers in distance education differed in terms of their academic achievement levels.

Therefore, the participants' means of scores from the Epistemological Belief Scale were analyzed considering their level of academic achievement. The findings of the data analysis were presented in Table 11 below.

Accordingly to Table 11, the participants had different means of scores from the Epistemological Belief Scale according to their levels of academic achievement.

Thus, the students with average level of academic achievement had the highest means from Factor 1 "the belief that learning depends on effort" and Factor 2 "the belief that learning depends on ability", on the other hand, the students with very good level of academic achievement had the lowest means for these dimensions. However, for Factor 3 "the belief that there is only one truth", the students with very good level of academic achievement had the highest means for this time, the students with average level had the lowest means.

Table: 11
The Pre-Service Teachers' Epistemological Beliefs in terms of Academic Achievement Levels

Factor	Academic Achievement	Number of Participant (N)	Mean (X)	Standard Deviation (SD)
The belief that learning depends on effort	Average	153	35.71	5.76
	Good	261	34.19	6.97
	Very Good	283	33.76	5.71
The belief that learning depends on ability	Average	153	19.82	4.83
	Good	261	19.44	4.20
	Very Good	283	19.30	4.36
The belief that there is only one truth	Average	153	27.41	5.18
	Good	261	28.19	4.53
	Very Good	283	28.72	4.92

When examined whether the differences between the means of scores that the participants obtained from the scale in terms of their academic achievement level were statistically significant or not, again variance analysis was employed to the means of the groups. Table: 12 indicated the findings of this analysis in the following.

Table: 12
The Differences between The Pre-Service Teachers’
Epistemological Beliefs in terms of Academic Achievement Levels

Factor	Source of Variance	Sum of Square (S.S.)	Degree of Freedom (D.f)	Mean of Square (K.O)	F Value (F)	Significance Level (P)
The belief that learning depends on effort	Between Groups	390.702	2	195.351	5.037	P< .05 =0.00
	Within Group	26914.474	694	38.782		
	Total	27305.176	696			
The belief that learning depends on ability	Between Groups	27.052	2	13.526	.694	P>.05 =0.50
	Within Group	13522.653	694	19.485		
	Total	13549.704	696			
The belief that there is only one truth	Between Groups	171.105	2	85.552	3.654	P< .05 =0.02
	Within Group	16246.918	694	23.411		
	Total	16418.023	696			

According to Table 12, the *F* values found as a result of variance analysis on the participants’ scores for Factor 1 “the belief that learning depends on effort” and Factor 3 “the belief that there is only one truth” in terms of their level of academic achievements were respectively 5.037 and 3.654, and these values were found as higher than .05 significance level. This finding revealed that there was a significant difference between the means of scores that the distance education students with different academic achievement levels achieved on the dimensions of Factor 1 “the belief that learning depends on effort” and Factor 3 “the belief that there is only one truth”. On the contrary, the variance analysis also pointed out that the *F* value obtained in the dimension of Factor 2 “the belief that learning depends on ability” was lower than .05 significance level. This finding showed that there was not statistical significant between the means of the scores that the distance education students had from Factor 2 “the belief that learning depends on ability”. To determine which between-group differences caused the difference between the participants’ means of scores form Factor 1 “the belief that learning depends on effort” and Factor 3 “the belief that there is only one truth” , again Tukey HSD test was applied. The findings were presented in Table: 13.

Table: 13
The Sources of the Difference between the Students’
Epistemological Beliefs in terms of Academic Achievement Level

Factor	Academic Achievement	Average	Good	Very Good
The belief that learning depends on effort	Average	-	1.52*	1.95*
	Good	-.1.52	-	.42
	Very Good	-.1.95	-.42	-
The belief that there is only one truth	Average	-	-.78	-.1.30*
	Good	.78	-	-.52
	Very Good	1.30*	.52	-

According to Table: 13, the difference between the scores from Factor 1 which refers to “the belief that learning depends on effort” caused the difference between the scores of the participant with average academic achievement level and the participants with very good academic achievement level.

This difference was in favor of the student with average academic achievement level. However, this situation can be interpreted that according to Epistemological Belief Scale, the students with very good academic achievement level had more matured or developed beliefs about the dimension Factor 1 “the belief that learning depends on effort”. Furthermore, it was found that the difference in the dimension of Factor 3 “the belief that there is only one truth” was due to the difference between the scores of the students with average academic achievement level and the students with very good academic achievement level.

This difference was in favor of the students with very good academic achievement level. This finding revealed that the students with average academic achievement level had more matured or developed epistemological belief referring that there is only one truth

As a result, according to the distance education students’ academic achievement levels, it was seen that there was a significant difference in the participants’ scores about the belief that learning depends on effort and the belief that there is only one truth, however there was not a significant difference in the dimension of the belief that learning depends on ability.

When the findings of the present study were examined, the reason for the finding that as the academic achievement level of distance education students raised, their epistemological beliefs on Factor 1 referring to “the belief that learning depends on effort” became more matured could be the teaching-learning environments designed for the distance education students.

As important factors, particularly the facts that individual studying is more dominant and common, also they arrange their own learning, in comparison with the formal education students.

In addition to this, the finding that the epistemological beliefs of the students with average academic achievement level had more matured or developed for the dimension of Factor 3 "the belief that there is only one truth" could be evaluated as interesting.

According to this, the distance education pre-service students approached learning in more critical way. In fact, the reason why the epistemological beliefs of the students with very good academic achievement level were less matured in this dimension could be associated with the facts that these students adopted rote-memorization, which is one of the biggest problems of Turkish Education System, and the research and questioning skills of these students are not developed adequately.

Education Levels of Parents

For the second research question of the study, lastly it was investigated whether the epistemological beliefs of the pre-service teachers in distance education differed in terms of the education levels of their parents or not, so then the participants' scores from the Epistemological Belief Scale were analyzed considering the education levels of parents.

The obtained results were given in Table: 14.

Table: 14
The Epistemological Beliefs of the
Pre-service Teachers in terms of Education Levels of their Parents

Factor	Education Level	Number of Participant (N)	Mean (X)	Standard Deviation (SD)
The belief that learning depends on effort	Low	371	33.91	6.00
	Average	236	34.81	5.89
	High	90	34.96	7.97
The belief that learning depends on ability	Low	371	19.00	4.30
	Average	236	19.85	4.45
	High	90	20.41	4.51
The belief that there is only one truth	Low	371	28.14	4.86
	Average	236	28.36	4.93
	High	90	28.33	4.64

Related to the education levels of the pre-service teachers' parents, the ones who graduated from primary and secondary schools were categorized as "low", the high school graduates were defined as "average", while university and post-education graduates were classified as "high".

The education levels of the participants' parents asked in the section for demographic information were arranged according to this categorization.

It is seen in Table 14 that considering the education levels of parents, the participants got different means of scores from the Epistemological Belief Scale. The students whose parents' education levels were "high" had the highest means of scores from the dimensions of Factor 1 "the belief that learning depends on effort" and Factor 2 "the belief that learning depends on ability", however, the ones whose parents had "low" education level had the lowest means of scores in this dimension. For the Factor 3 "the belief that there is only one truth", the students whose parents had "average" education levels had the highest means, but the students whose parents had "low" education level had the lowest mean.

To define whether the difference in the pre-service students' scores from the sub-factors in the Epistemological Belief Scale was significant or not, variance analysis was applied to group means. As the findings of the variance analysis on the pre-service students' epistemological beliefs in terms of education levels of parents indicated that the *F* value (5.070) obtained related to Factor 2 "the belief that learning depends on ability" was higher than .05 significance level. This figure showed that for Factor 2 "the belief that learning depends on ability", there were significant differences between the pre-service teachers' means of scores in terms of education level of parents. On the other hand, the result of variance analysis pointed that the *F* values obtained from the scores on Factor 1 "the belief that learning depends on effort" and Factor 3 "the belief that there is only one truth" were (respectively 1.999 and .159) lower than .05 significance level. Thus, it is clear that there was no significant difference between the scores of the pre-service teachers' beliefs on "learning depends on effort" and "there is only one truth".

Table: 15
The Difference in the Epistemological Beliefs of the
Pre-service Teachers in terms of Education Levels of Parents

Factor	Source of Variance	Sum of Square (S.S.)	Degree of Freedom (D.f)	Mean of Square (K.O)	F Value (F)	Significance Level (P)
The belief that learning depends on effort	Between Groups	156.415	2	78.208	1.999	P>05 =0.13
	Within Group	27148.761	694	39.119		
	Total	27305.176	696			
The belief that learning depends on ability	Between Groups	195.109	4	97.554	5.070	P< .05 =0.07
	Within Group	13354.596	694	19.243		
	Total	13549.704	696			
The belief that there is only one truth	Between Groups	7.497	4	3.749	.159	P>05 =0.85
	Within Group	16410.526	694	23.646		
	Total	16418.023	696			

Tukey HSD test was used to find out which between group differences caused the difference in the scores of the pre-service teachers from Factor 2 "the belief that learning depends on ability. The results were given in Table: 16.

Table: 16
The Sources of the Difference between the Epistemological Beliefs of the Pre-service Teachers in terms of Education Level of Parents

Factor	Education Level	Low	Average	High
The belief that learning depends on ability	Low	-	-.84	-1.40*
	Average	.84	-	-.55
	High	1.40*	.55	-

Accordingly, the difference between the pre-service teachers' means of scores on Factor 2 "the belief that learning depends on ability" was caused due to the difference between the students whose parents had high and low education levels. This difference was in favor of the students whose parents had high education levels. However, this can be interpreted that the students whose parents had low education levels possessed more matured or developed epistemological beliefs. In comparison with other studies, the findings of the present study seemed different such that in the study conducted by Vural and Gomleksiz (2007), it was found that the epistemological beliefs regarding Factor 2 "the belief that learning depends on ability" differed according to the education levels of parents.

In the present study, it was obtained that as the education levels of the parents raised, the epistemological beliefs in the dimension of Factor 2 "the belief that learning depends on ability" became matured/developed. However, in Oğuz's (2007) study, no significant difference in students' epistemological beliefs in terms of education levels of parents was detected.

Consequently, it was found that the epistemological beliefs of the pre-service teachers differed significantly in terms of education levels of parents, only for Factor 2 "the belief that learning depends on ability". Among the findings of the study, it was interesting to find out that the epistemological beliefs of the pre-service teachers were not matured or developed in spite of the increasing education levels of the parents. As a matter of fact, Schommer (1990) contrarily determined that the epistemological beliefs developed as the education levels of parents increased, because in the families with higher education levels, children have rights to speak and more responsibilities. However, the contrary results obtained in the present study revealed the opinion that the parents do not support the environments in which children develop their own thinking process although their education levels of parents increase. The examples that support this situation are the parents' insistence on children's university registration and not having right to speak. One of the important factors on this result can be the fact that the distance education students live in different geographical regions since the environment that the parents of the pre-service teachers live have important effects on some behavior patterns regardless of high education level. In this study, the effects of geographical regions on epistemological beliefs were also investigated although it was not among the research questions.

Then, it was found that the epistemological beliefs were not adequately matured or developed towards the East of Turkey, although the education levels of the parents rose. This situation can be explained with the traditional and cultural structures of the families.

CONCLUSION AND SUGGESTIONS

Recently, the researchers emphasized the significance of individual differences and underlined that these characteristics should be prioritized in the learning new information (Sinatra and Kardash, 2004). One of the important features of this process was epistemological beliefs. Schommer (1990) defined the epistemological beliefs as the beliefs within the nature of information. The results of the studies on the epistemological beliefs highlighted that learning process become easier as the epistemological beliefs develop or become matured. Moreover, the effect of teachers on the individuals' learning process is accepted without question. In this regard, the epistemological beliefs of the teachers, who have effects on students, become a current issue. The more developed the teachers' epistemological beliefs develop or become matured, the more positive effects the students will have.

From this aspect, it is essential to emphasize on the teachers' pre-service trainings or the programs they attend because the education that the pre-service teachers have for teaching profession is quite important for the development of epistemological beliefs. Considering these reasons, it is necessary to determine the epistemological beliefs of the pre-service teachers while they are attending to teacher education programs. Although there are many studies on particularly the epistemological beliefs of the pre-service teachers attending to formal education, any study on the epistemological beliefs of the pre-service teachers in distance education cannot be come across. For the students at Distance Education Programs, the most important learning environment is course books. Additionally, some television programs or on-line lessons designed for some courses are also involved in these learning environments. Since the learning environments of the distance education students are more different than the formal education students, it raised the question of what epistemological beliefs these distance education students have. The aim of the present study was to determine the epistemological beliefs of English Language Teaching and Pre-school Education pre-service teachers and to examine the relationship between these beliefs and several variables.

In the study, it was determined that the epistemological beliefs of the distance education pre-service teachers in the department of Pre-school Education and English Language Teaching were not so much matured and developed in three dimensions of "Epistemological Belief Scale". It was found that the means of the scores that the participants got in the dimension of "the belief that learning depends on effort" (Factor 1) were not high, but the means related to "the belief that learning depends on ability" (Factor 2) and "the belief that there is only one truth" (Factor 3) were high. According to the evaluation of the scale, this finding revealed that the pre-service teachers had more matured or developed beliefs in the dimension of "the belief that learning depends on effort".

In addition to this, when examined in terms of different variables, for the dimension of the belief that learning depends on effort, it was seen that the female participants, the ones attending to the departments of Pre-school Education, also the 1st grade students, and the ones with average academic achievement levels had more matured beliefs in comparison with the other groups of the study. When examined in terms of other dimensions, it was obtained that there was a statistically significant difference between the participants in the dimension of “the belief that there is only one truth” solely in terms of academic achievement levels of the participants.

The pre-service teachers with average level of academic achievement had more matured beliefs in comparison with the ones with very good level of academic achievement.

Furthermore, for the dimension related to “the belief that learning depends on ability”, the education level of parents caused significant difference between the participants; the epistemological beliefs of the participants whose parents had low education level were more matured than the ones whose parents had high education levels.

Consequently, the result that the epistemological beliefs of the distance education students are not matured or developed pointed out an important necessity. It is essential to develop the distance education students’ epistemological beliefs.

In this regard, it is possible to revise the learning – teaching environments of the pre-service teachers, train them about the nature of information, and to organize the programs as convenient to attain information through different sources.

Thus, it is possible to emphasize the teaching profession knowledge courses such as “*Introduction to Education Science, Teaching Principles and Methods, Educational Psychology, Teaching Practice*” in all learning environments, especially in course books in that way because these courses can provide students more salient clues about learning and teaching ways.

The distance education students are required to be informed more about the dimensions related to “the belief that learning depends on ability” and “there is only one truth”. As a solution to this issue, it can be suggested to make teacher education programs more questioning, open to critical thinking, supporting creative thinking, caring about individual differences such students’ learning styles, and convenient for the use of different meta-cognitive strategies.

It is possible to measure the distance education students’ epistemological beliefs using different scales, in addition it can be suggested to investigate the distance education students’ epistemological beliefs in comparison with the formal education students’.

At the same time, the studies examining the relationship between the distance education students’ belief and learning styles, critical thinking skills, preferred learning approached can be suggested as further research.

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