

## Freshman and Senior Pre-service Mathematics Teachers' Attitudes Toward Teaching Profession

(Birinci ve Dördüncü Sınıf Matematik Öğretmen Adaylarının Öğretmenlik  
Mesleğine Karşı Tutumları)

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**Abstract:** The aim of this study is to compare the attitudes of freshman and senior pre-service teachers pursuing an undergraduate degree in an elementary mathematics education program toward teaching profession and to reveal the kind of relationship that exists between these attitudes. Case study method was used in the study. As a data collecting tool, A 5-point likert type questionnaire was used. The data of the study were obtained by conducting this questionnaire to total 212 pre-service teachers (141 freshmen, 71 seniors) studying at Karadeniz Technical University, Fatih Faculty of Education during 2008-2009 school year. After the answers of the pre-service teachers to questionnaire form were scored, the obtained data were analyzed using independent samples t-test and one-way ANOVA. As a result of the study, it was concluded that the attitudes of freshmen and senior pre-service teachers toward teaching profession showed statistically significant difference in terms of several variables favoring senior pre-service teachers. Based on the results of the study, several recommendations were made.

**Keywords:** attitudes, pre-service mathematics teachers, teaching profession

**Öz:** Bu çalışmanın amacı, ilköğretim matematik öğretmenliği programında öğrenim gören birinci ve son sınıf öğretmen adaylarının öğretmenlik mesleğine karşı tutumlarını çeşitli değişkenler açısından karşılaştırmak ve bu tutumlar arasında nasıl bir ilişki olduğunu ortaya koymaktır. Çalışmada, survey metodu kullanılmıştır. Veri toplama aracı olarak 5'li likert tipi bir anket kullanılmıştır. Çalışmanın verileri, 2008-2009 eğitim-öğretim yılında Karadeniz Teknik Üniversitesi Fatih Eğitim Fakültesi'nde öğrenim gören toplam 212 (141 birinci sınıf, 71 dördüncü sınıf) matematik öğretmeni adayına bu anket uygulanarak elde edilmiştir. Öğretmen adaylarının anket formuna vermiş oldukları cevaplar puanlandırıldıktan sonra elde edilen veriler bağımsız t-testi ve tek yönlü ANOVA yapılarak analiz edilmiştir. Çalışma sonucunda, birinci ve dördüncü sınıf öğretmen adaylarının öğretmenlik mesleğine karşı tutumlarının bazı değişken için istatistiksel açıdan anlamlı bir farklılık gösterdiği ve bu farklılığın son sınıftaki öğretmen adayları lehine olumlu bir şekilde değiştiği sonucuna varılmıştır. Çalışmanın sonuçlarına dayanarak çeşitli öneriler sunulmuştur.

**Anahtar Sözcükler:** tutumlar, matematik öğretmen adayları, öğretmenlik mesleği

## **Introduction**

The main aim of every education system is to bring up qualified workforce and give pupils citizenship education (Temizkan, 2008). An education system realizes this aim through determining its educational philosophy according to the state policy and raising people according to this model (Çelikten, Şanal & Yeni, 2005). As a fundamental and noteworthy element of this system (Hanif, 2006; Kaya & Büyükkasap, 2005; Şimşek, 2005; Tanrıöğen, 1997; Temizkan, 2008), teaching profession tops in every aspect the professions which have the power to shape the society. Fulfilling the demanded responsibilities in this profession at the expected level and being successful depend mostly on the qualities of these people (Erdem & Anılan, 2000). As we all know, teaching profession requires affective domain competencies such as attitude and behavior as well as cognitive ones such as knowledge and skills (Çeliköz & Çetin, 2004). In other words, having the knowledge and skills of a subject field is not sufficient per se (Şenel, Demir, Sertelin, Kılıçaslan & Köksal, 2004), the teacher should also have a positive attitude toward teaching profession (Çetin, 2006; Gürbüz & Kışoğlu, 2007). Therefore it's important for the teachers to experience a high quality pre-service teacher training in order to be successful in their future professional lives (Sözer, 1996), because teachers gain an important part of these competencies during their undergraduate studies. During this period, pre-service teachers gain several values and attitudes pertaining to the profession beside the subject field knowledge (Lasek & Wiesenbergovala, 2007).

The attitudes of pre-service teachers toward teaching profession are effective on their professional lives as well as reflecting their views on teaching profession (Çapri & Çelikkaleli, 2008). Specifically, the attitude developed toward a profession is the most important determinant of achievement of the individual in that profession (Gürbüz & Kışoğlu, 2007). If teachers have positive attitudes toward teaching profession, this will positively influence their professional lives. Therefore, the education given to pre-service teachers should allow them to develop positive attitudes toward their profession (Johnson & Howell, 2005; Oral, 2004; Senemoğlu & Özçelik, 1989). So, as for all pre-service teachers, it's also important for pre-service mathematics teachers to develop positive attitudes toward teaching profession as well as improving themselves in their subject fields. Previous research indicates that the attitudes and behaviors of teachers have an important impact on pupils (Çapa & Çil, 2000; Güven, 2001; Temizkan, 2008). Thus, the studies investigating the attitudes of pre-service teachers toward teaching profession may contribute to the studies on teacher education.

When we review the literature, we can find a large of studies investigating and comparing the attitudes of the pre-service class teachers and pre-service teachers of natural sciences, social sciences, and Turkish language toward teaching profession in terms of various variables (Çakır, 2005; Çakır, Kan & Sünbül, 2006; Çapa & Çil, 2000; Çapri & Çelikkaleli, 2008; Çeliköz & Çetin, 2004; Çetinkaya, 2009; Erdem & Anılan, 2000; Gürbüz & Kışoğlu, 2007; Kaya & Büyükkasap, 2005; Lasek & Wiesenbergovala, 2007; Oral, 2004; Sözer, 1996; Şenel et al., 2004; Şimşek, 2005; Tanrıöğen, 1997; Temizkan, 2008). Since it's not possible to give an exhaustive description of the contents of all studies mentioned above, merely the ones that were considered to be related with the content of our paper are summarized briefly below.

Sözer (1996) investigated the attitudes of 231 pre-service teachers - studying in their 4th year in various undergraduate programs of Anadolu University, Faculty of Education and 118 pre-service teachers studying in the Teaching Certificate Program - toward teaching profession in terms of several variables. It was determined as a result of the study that, the attitudes of pre-service teachers were positive and showing a statistically significant difference favoring the females in terms of gender variable. Moreover, it was determined that, the attitudes of pre-service teachers did not demonstrate a statistically significant difference in terms of their secondary school Grade Point Average (GPA) and the types of high schools they've graduated from.

Tanrıöğen (1997) investigated the attitudes of 397 pre-service teachers - studying in different programs of Buca Faculty of Education - toward teaching profession in terms of several variables. It was determined as a result of this study that there're statistically significant differences favoring the females in terms of gender variable and favoring those who had preferred teaching profession among the top five in terms of the results of University Entrance Examination (UEE). Moreover, it was determined that there's no statistically significant difference in terms of year of study.

Erdem and Anılan (2000) investigated the attitudes of 196 pre-service teachers - studying in Teacher Training Department of Pamukkale University, Faculty of Education - toward teaching profession in terms of several variables. It was determined that although a statistically significant difference was found favoring those who had preferred teaching profession in the top five, and no statistically significant difference was found in terms of gender and year of study.

Çapa and Çil (2000) applied The Scale of Attitudes toward Teaching Profession to total 340 students in order to determine the attitudes of pre-service teachers studying at Middle East Technical University, Faculty of Education toward teaching profession in terms of several variables. It was determined in this study that, the attitudes of pre-service teachers showed no statistically significant difference in terms of gender variable. Furthermore, it was determined that the difference between the attitudes of 2nd and 4th year students toward teaching profession was not significant but a significant difference was found between the attitudes of 2nd and 3rd year students. Furthermore, 3rd year students were found to have more positive attitudes toward the profession than the 2nd year students, whereas no significant difference was found between the students in terms of the order of preferring teaching profession in the UEE.

Çeliköz and Çetin (2004) carried out a study to determine the factors affecting the attitudes of Anatolian Teacher Training High School students toward teaching profession. They investigated the effects of several variables such as grade, gender, teaching program, the order in which they're planning to prefer teaching profession in the UEE, education level of the parents, academic performance, the number of sisters / brothers and monthly income on the attitudes of 240 students studying in two different Anatolian Teacher Training High Schools. As a result, it was determined that all these variables led to a significant change in the attitudes of these students toward teaching profession.

Oral (2004) applied Attitude Scale to determine the attitudes of 958 pre-service teachers - studying at Dicle University, Ziya Gökalp Faculty of Education - toward teaching profession in terms of several variables. It was determined that

although a statistically significant difference was found favoring females and those who had preferred teaching profession in the top five, no statistically significant difference was found in terms of years of study.

Şimşek (2005) investigated the attitudes of total 288 pre-service teachers - (138 Faculty of Education graduates, 150 Faculty of Science and Arts graduates) studying in a masters (without thesis) program at Yüzüncü Yıl University, Faculty of Education - toward teaching profession in terms of several variables. It was observed that there was no significant difference among the views of the participant students toward teaching profession in terms of gender, type of the high school of graduation and secondary school GPA. However, when we look at the mean attitudes, it was determined that Anatolian Teacher Training High School graduates were found to have better attitudes than the graduates of other schools; those who had higher secondary education GPAs than those who had lower ones; and males than females.

Kaya and Büyükkasap (2005) investigated the attitudes and concerns of 36 senior pre-service teachers - studying at Physics Education Department of Kazım Karabekir Faculty of Education in Atatürk University - regarding teaching profession in terms of several variables. The data of the study were collected using Profile Questionnaire, The Scale of Attitude toward Teaching Profession, Concern Questionnaire and interviews. At the end of the study, females were found to have more positive attitudes toward the profession than males, viewed it as an ideal profession and they had more ambition to be a teacher.

Gürbüz and Kışoğlu (2007) investigated the attitudes of 117 senior pre-service teachers and 103 faculty of science and arts graduates enrolled in the masters' without thesis program at Atatürk University, Kazım Karabekir Faculty of Education toward teaching profession in terms of several variables. It was determined in this study that, the attitudes of pre-service teachers showed a statistically significant difference in terms of gender variable favoring females.

Lasek and Wiesenbergovala (2007) performed a Questionnaire of Attitudes toward Teaching Profession to 136 3rd year pre-service teachers in order to determine their attitudes toward teaching profession in terms of several variables. Pre-service teachers whose parents are teachers and female pre-service teachers were found to have more positive attitudes than the others.

Çapri and Çelikkaleli (2008) investigated the attitudes of 250 pre-service teachers studying at Mersin University, Faculty of Education toward teaching profession in terms of the variables of gender, program and faculty of study. It was determined as a result of the study that, the attitudes of pre-service teachers were significantly affected from gender, in other words females were found to have more positive attitudes.

Considering the studies summarized above, few studies were found on investigating the attitudes of pre-service mathematics teachers toward teaching profession. It's necessary to determine the attitudes of pre-service teachers toward teaching profession since teachers' attitudes toward profession have an important effect on their professional lives (Derman et al., 2008) and attitude toward the profession is an important predictor of professional success (Çetin, 2006).

Previous research reveals that the attitudes and behaviors of teachers have an important effect on students. Therefore, it's important for pre-service teachers in general and particularly for pre-service mathematics teachers to develop positive attitudes toward teaching profession. However, few studies were found on investigating the attitudes of preservice mathematics teachers toward teaching profession. For this reason, the main purpose of this study is to compare the attitudes of the freshman and senior Pre-service Mathematics Teachers' toward teaching profession in terms of several variables and to reveal the possible associations among these attitudes.

## **Method**

Descriptive survey method was used in this study. Survey method is one of the most commonly used methods in educational sciences (Erözkan, 2007a). The main aim of the survey method is to reveal the feelings, ideas and views of individuals about a subject mostly by obtaining data from large masses of people (Erözkan, 2007b). The survey method aims to collect information and describe a case by revealing the facts without intervening them (Erözkan, 2007a). The easiest way to reach large samples is using questionnaires so questionnaires are widely used in survey studies. Mostly, quantitative data are collected using questionnaires. Using statistical analyses of quantitative data, generalizations are sought (Çepni, 2007).

## **Participants**

This study was conducted during 2008-2009 school year at Karadeniz Technical University, Fatih Faculty of Education with 141 freshmen and 71 seniors, total 212 pre-service mathematics teachers. All participants took part in the study voluntarily.

## **Data Collection Tools**

As a data collecting tool, a 5-point Likert type questionnaire developed by Tanrıoğen (1997) was used. Reliability and validity of the questionnaire were tested. The first part of the questionnaire consists of statements toward getting acquainted with the pre-service teachers and the second part is aimed at revealing the views of them about teaching profession, which all add up to 52 items. The Cronbach  $\alpha$ -reliability coefficient of the scale was found as  $\alpha = 0.94$ .

## **Data Analysis**

The responses of pre-service teachers to the questionnaire form were graded and assessed using SPSS 15.0 (Statistical Package for the Social Sciences). Independent samples t-test was used for variables of gender and the order of preferring teaching profession in the UEE. One-way ANOVA test was used for the variables of family income, parents' profession and education level, high school of graduation and secondary school GPA. Additionally, in order to determine the association between the attitudes of 1st grade students and 4th grade students, independent samples t-test was used.

## Findings and Discussion

This section presents the findings obtained from the study and compares them with the literature.

### *Findings Related to Gender Variable*

The results of the independent t-test performed in order to determine whether there was a statistically significant difference in terms of gender variable among the attitudes of pre-service teachers toward teaching profession.

*Table 1: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of Gender*

Gender	1st Year			4th Year		
	f	x	p	f	x	p
Female	95	205.46	$t_{(139)} = 3.214$	34	218.67	$t_{(69)} = 0.605$
Male	46	187.82	$p = 0.002^*$	37	215.75	$p = 0.547$

When Table 1 is examined, it can be seen that as the attitudes of 1st year pre-service teachers ( $t_{(139)} = 3.214$ ,  $p = 0.002 < 0.05$ ,  $X_{\text{female}} = 205.46$  and  $X_{\text{male}} = 187.82$ ) toward teaching profession demonstrate a significant difference in terms of gender, whereas the attitudes of 4th year pre-service teachers ( $t_{(69)} = 0.605$ ,  $p = 0.547 > 0.05$ ,  $X_{\text{female}} = 218.67$  and  $X_{\text{male}} = 215.75$ ) showed no significant difference in terms of this variable. When we look at the mean attitudes scores of both the freshman and senior students, the attitudes of females were found to be relatively more positive than those of the males. Based on this finding, female students may be claimed to have a more positive attitude toward the profession. Besides, the mean attitude scores of 4th year students were found to be more positive than the mean attitude scores of 1st year students. This finding obtained in favor of female pre-service teachers seems to be aligning with the results of various studies conducted on pre-service teachers by Çakır (2005), Çapa and Çil (2000), Çapri and Çelikkaleli (2008), Çetinkaya (2009), Oral (2004) and Saracaloğlu (1991), Tanrıoğen (1997). However, it does not align with the results of the works by Çakır, Kan and Sünbül (2006), Erdem and Anılan (2000) and Gürbüz and Kışoğlu (2007) on students of faculties of education or a masters program (without thesis). This may be interpreted that females are more predisposed to teaching profession due to some social and psychological reasons. Particularly when we consider the social structure of Turkish society, it's thought that the attitudes of females are higher than males because girls are encouraged to teaching profession more frequently than boys. Several studies supported this interpretation. In their study on demonstrating the profiles of pre-service teacher in four different countries, Coultas and Lewin (2002) determined that the number of females preferring teaching profession in Malawi was 42%, in Trinidad and Tobago approximately 70%, and in Ghana it was found to increase 38%.

### *Findings Related to The Order of Preference Variable*

The results of the independent t-test performed in order to determine whether there was a statistically significant difference among the attitudes of pre-service teachers toward teaching profession in terms of the order of preferring teaching profession in the UEE are presented in Table 2.

Table 2: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of The Order of Preference

Order of Preference	1st Year			4th Year		
	f	x	p	f	x	p
Between 1-5	92	203.25	$t_{(139)} = 1.841$ $p = 0.068$	32	216.65	$t_{(69)} = 0.187$ $p = 0.857$
6 and more	49	193.06		39	217.56	

In terms of the variable of the order of preferring teaching profession in the UEE, no statistically significant difference was found between the attitudes of 1st year ( $t_{(139)} = 1.841$ ,  $p = 0.068 > 0.05$ ,  $X_{\text{between 1-5}} = 203.25$  and  $X_{6 \text{ and more}} = 193.06$ ) and 4th year ( $t_{(69)} = 0.187$ ,  $p = 0.857 > 0.05$ ,  $X_{\text{between 1-5}} = 216.65$  and  $X_{6 \text{ and more}} = 217.56$ ) students toward teaching profession. When we look at the mean values, the pre-service teachers preferring the teaching profession in the top five were found to have a more positive attitude toward teaching profession, whereas in the 4th year students this difference seems to vanish. Moreover the attitudes of the 4th year pre-service teachers showed a more positive change than those of the 1st year pre-service teachers.

Çetinkaya (2009) found that the attitudes of pre-service Turkish language teachers changed according to the order of preference in the UEE. The attitude scores of the students who preferred this profession in the top five were found higher compared to the other group. Various studies conducted by Çapa and Çil (2000), Gürbüz and Kışoğlu (2007) and Oral (2004) also reached similar results. However, this result does not align with the results of the works by Çeliköz and Çetin (2004), Erdem and Anılan (2000) and Tanrıöğen (1997). This result makes us think that one who prefers a profession by his/her own will have a strong attitude toward this profession. Temel (2010) stated that more than one factor is influential in the profession selection of an individual and the most important of these factors is the individual's own demands and dreams.

**Findings Related to Family Income Variable**

The results of one-way ANOVA performed in order to determine whether there was a statistically significant difference in terms of family income variable among the attitudes of pre-service teachers toward teaching profession are presented in Table 3.

Table 3: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of Family Income

Family Income	1st Year			4th Year		
	f	x	p	f	x	p
Income less than expenses	30	198.33	$F_{(2-138)} = 0.069$ $p = 0.933$	12	218.00	$F_{(2-68)} = 0.741$ $p = 0.481$
Income equal to expenses	45	201.02		33	220.57	
Income more than expenses	66	199.43		26	214.15	

In terms of family income variable, the attitudes of 1st ( $F_{(2-138)} = 0.069$ ,  $p = 0.933 > 0.05$ ) and 4th ( $F_{(2-68)} = 0.741$ ,  $p = 0.481 > 0.05$ ) year pre-service teachers toward teaching profession showed no significant difference. But when we look at mean attitude scores of students of both the 1st and 4th year students,

the pre-service teachers having family incomes parallel to their expenditures showed more positive attitudes toward teaching profession.

### ***Findings Related to Parents' Level of Education Variable***

The results of one-way ANOVA performed in order to determine whether there was a statistically significant difference among the attitudes of pre-service teachers toward teaching profession in terms of parents' level of education variable are presented in Table 4.

*Table 4: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of Family Income*

Educational Background of Parents		1st Year			4th Year		
		f	x	p	f	x	p
Mother	Primary school or lower	95	198.00	$F_{(2-138)} = 0.439$ $p = 0.646$	48	215.54	$F_{(2-68)} = 0.885$ $p = 0.418$
	High School	35	198.30		17	218.23	
	Higher Education	11	204.05		6	227.00	
Father	Primary school or lower	46	194.47	$F_{(2-138)} = 1.503$ $p = 0.226$	28	218.64	$F_{(2-68)} = 2.124$ $p = 0.127$
	High School	61	203.02		25	211.04	
	Higher Education	34	204.19		18	223.33	

According to mother's education level variable, the attitudes of 1st year ( $F_{(2-138)} = 0.439$ ,  $p = 0.646 > 0.05$ ) and 4th ( $F_{(2-138)} = 0.885$ ,  $p = 0.418 > 0.05$ ) pre-service teachers toward teaching profession showed no significant difference. But when we look at the mean scores, both 1st year and 4th year pre-service teachers whose maternal level of education are higher than others showed more positive attitudes. Likewise, similar results were found in terms of father's level of education variable. It can be seen that, these findings are not completely in line with the results of the work of Çeliköz and Çetin (2004) which found a positive relationship between the father's level of education and students' attitudes toward teaching profession and showed that as maternal level of education decreased, the attitudes toward teaching profession increased.

### ***Findings Related to Parents' Profession Variable***

The results of one-way ANOVA performed in order to determine whether there was a statistically significant difference among the attitudes of pre-service teachers toward teaching profession in terms of parents' level of education variable are presented in Table 5.

*Table 5: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of Parents' Profession*

Parents' Profession		1st Year			4th Year		
		f	x	p	f	x	p
Profession of Mother	Housewife	117	199.37	$F_{(2-138)} = 0.050$ $p = 0.951$	62	215.75	$F_{(2-68)} = 1.187$ $p = 0.311$
	Teacher / Retired Teacher	9	202.66		5	227.80	
	The Other Officials	15	200.53		4	225.50	
Profession of Father	Teacher	17	202.58	$F_{(2-138)} = 0.391$ $p = 0.677$	14	221.85	$F_{(2-68)} = 1.947$ $p = 0.151$
	Government Employee	69	201.31		28	219.14	
	Self Employment	55	196.80		29	211.65	

In terms of maternal level of education variable, the attitudes of 1st ( $F_{(2-138)} = 0.050$ ,  $p = 0.951 > 0.05$ ) and 4th ( $F_{(2-68)} = 1.187$ ,  $p = 0.311 > 0.05$ ) year pre-service teachers toward teaching profession showed no significant difference. But when we look at mean scores, pre-service teachers with their mother being a working or a retired teacher were found to demonstrate more positive attitudes toward the profession. Similar findings for the father's profession variable are shown in Table 5. This result aligns with the results of the study by Lasek and Wiesenbergoва (2007) which showed that pre-service teachers whose parents are teachers have more positive attitudes toward teaching profession. Pre-service teachers whose parents are teachers and female pre-service teachers were found to have more positive attitudes than the others. One of the reasons for this finding may be that these pre-service teachers may be influenced from the social perceptions about the teaching profession of their parents such as holiness and prestige.

**Findings Related to the Type of the School of Graduation Variable**

The results of one-way ANOVA performed in order to determine whether there was a statistically significant difference among the attitudes of pre-service teachers toward teaching profession in terms of the type of high school of graduation variable are presented in Table 6.

Table 6: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of the Type of High School of Graduation

High School of Graduation	1st Year			4th Year		
	f	x	p	f	x	p
Anatolian Teacher Training High School	56	201.01	$F_{(2-138)} = 0.314$ $p = 0.731$	5	222.62	$F_{(2-68)} = 4.727$ $p = 0.012$
Anatolian / Super / Science / Private School	70	199.64		43	210.08	
Public High School	15	193.86		23	202.60	

According to the variable of high school of graduation, 1st year ( $F_{(2-138)} = 0.314$ ,  $p = 0.731 > 0.05$ ) pre-service teachers showed no statistically significant difference. But 4th year ( $F_{(2-68)} = 4.727$ ,  $p = 0.012 > 0.05$ ) pre-service teachers' attitudes toward teaching profession reveal a statistically significant

difference in terms of this variable. When we examine the mean attitude scores of both the 1st and 4th year students, those who have graduated from Anatolian Teacher Training High Schools revealed more positive attitudes toward the profession than those who have not. Furthermore, in terms of high school of graduation variable, the attitudes of 4th year pre-service teachers were found to be more positive than the attitudes of 1st year pre-service teachers. The most positive attitudes toward teaching profession were found to be in Anatolian Teacher Training High School graduates and then respectively in the graduates of Anatolian High School, Super Lycee, Science and Private High Schools respectively. This demonstrates the importance of orientation for teaching profession during secondary education. This finding appears to be in line with the results of the study by Şimşek (2005) on students studying in a masters program (without thesis).

### ***Findings Related to Secondary Education Achievement Score Variable***

The results of one-way ANOVA performed in order to determine whether there was a statistically significant difference among the attitudes of pre-service teachers toward teaching profession in terms of secondary school GPA variable are presented in Table 7.

*Table 7: The Attitudes of Pre-Service Teachers toward Teaching Profession in Terms of Secondary School GPA*

Secondary School Cumulative Grade Point Average	1st Year			4th Year		
	f	x	p	f	x	p
Between 70 and 79	28	196.28	$F_{(2-138)} = 1.194$ $p = 0.306$	23	212.95	$F_{(2-68)} = 1.208$ $p = 0.305$
Between 80 and 89	58	196.50		17	215.35	
Between 90 and 100	55	204.83		31	221.25	

According to the variable of secondary school cumulative GPA, the attitudes of both the 1st ( $F_{(2-138)} = 1.194$ ,  $p = 0.306 > 0.05$ ) and 4th ( $F_{(2-68)} = 1.208$ ,  $p = 0.305 > 0.05$ ) year students toward teaching profession showed no statistically significant difference. But when we look at average scores, it can be seen that the attitudes are more positive as the secondary school GPA increases. This finding aligns with the results of the works by Sözer (1996) and Şimşek (2005) which indicated that the attitudes of pre-service teachers toward teaching profession showed no significant difference in terms of secondary school GPA. On the contrary, it contradicts with the findings of Çeliköz and Çetin (2004) which showed that as the academic achievement of students increase, their attitudes toward teaching profession also increased. This demonstrates that an interpretation such as thinking students whose secondary school GPAs are high will also have higher attitudes toward teaching profession may not always hold true. In other words, this finding may also be interpreted that there's not always a uniform relationship between secondary school GPA and attitudes toward teaching profession.

**Findings Regarding the Attitudes of Students toward Teaching Profession**

The results of the independent t-test performed in order to determine what kind of relation existed among the attitudes of freshmen and senior pre-service teachers toward teaching profession are given in Table 8.

Table 8: The Attitudes of 1st and 4th Year Students toward Teaching Profession

	N	X	sd	t	df	p
1st Year	141	199.70	31.553	4.238	21	0.000
4th Year	71	217.15	20.227			

When we look at Table 8, it can be seen that the attitudes of pre-service mathematics teachers reveal a statistically significant difference in terms of year of study variable ( $t_{(210)} = 4.238$ ,  $p = 0.000 < 0.05$ ). When we look at mean attitude scores, the mean attitude scores ( $X = 217.15$ ) of 4th year pre-service teachers are found to be more positive than the mean attitude scores ( $X = 199.70$ ) of 1st year pre-service teachers. According to this finding, it can be deduced that pre-service teachers are gaining positive attitudes toward teaching profession as they advance in their undergraduate studies.

**Conclusions and Suggestions**

The results and the recommendations of this study based on the findings are listed below:

1) It was concluded that there's a statistically significant difference among the mean attitude scores of 1st and 4th year pre-service teachers toward teaching profession in terms of gender and this difference is more positive in favor of females. This result supports the common belief in our society as teaching profession is a feminine one. It's recommended with this study to further investigate why males show more negative attitudes toward teaching profession than females and to take this fact into account in the education process of pre-service teachers.

2) The pre-service teachers who had preferred teaching profession among top five were found to have more positive attitudes toward teaching profession. This result may indicate that these pre-service teachers had chosen this profession intentionally, are engaged in this profession, have positive beliefs about this profession and are supposed to carry out this profession enthusiastically. Thus, the students are recommended to be oriented toward their future profession preferences and to be guided in their profession selection. This will enable them to carry out their future professions enthusiastically.

3) Although the attitudes of pre-service teachers (both 1st and 4th years students) show no statistically significant difference in terms of family income variable, those having incomes parallel to their expenditures were found to have more positive attitudes toward teaching profession. This indicates that the attitudes of pre-service teachers toward teaching profession are parallel with the economic profiles of their families. In other words, the children of families with constant income-expenditure levels also orient toward professions with constant incomes.

4) Although the attitudes of pre-service teachers (both 1st and 4th years students) show no statistically significant difference in terms of mother's and father's education levels, as the education level of mother and father increases, pre-service teachers seem to have more positive attitudes toward the profession.

5) Although the attitudes of pre-service teachers (both 1st and 4th years students) show no statistically significant difference in terms of mother's and father's profession, those whose parents are teachers were concluded to have more positive attitudes toward teaching profession. This may be stemmed from the fact that children model their parents.

6) Pre-service teachers who are graduates of Anatolian Teacher Training High Schools were found to have more positive attitudes toward teaching profession than those who are not. Because those who are graduates of Anatolian Teacher Training High Schools prepare themselves psychologically and develop mental schemes predisposed to this profession much earlier. Hence, students should be oriented to professions suitable for their capabilities during the transition from elementary to secondary education. Vocational schools should be promoted, the number of these schools should be increased and graduates of these schools should be placed to fields suitable with their backgrounds.

7) Although the attitudes of pre-service teachers (both 1st and 4th years students) show no statistically significant difference in terms of secondary school GPA, as secondary school GPA increased the attitudes toward teaching profession were found to change, somehow .

8) It was deduced that there's a statistically significant difference between the attitudes of pre-service teachers toward teaching profession in terms of year of study, and that 4th year pre-service teachers have more positive views about teaching profession than 1st year pre-service teachers. This may be due to pre-service teachers' internalizing the profession throughout the undergraduate study process.

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