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Exploring Pre-Service Mathematics Teachers' Occupational Anxiety and Academic Hopelessness in Shaping Academic Success

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Abstract

This explanatory mixed method study aimed to investigate the impact of occupational anxiety and academic hopelessness on pre-service mathematics teachers' academic achievement. The study also aimed to explore pre-service mathematics teachers' perspectives on this effect and to determine how these levels vary according to gender and grade level variables. In addition to a quantitative approach using the relational survey model, a qualitative approach with a case study design was also used in the study. The participants consisted of 184 prospective mathematics teachers who were selected using random sampling method. The qualitative dimension of the research was carried out with 12 pre-service teachers who were voluntarily selected among the participants. The measurement tools used in the study included the "Professional Anxiety Scale for Student Teachers", the "Academic Hopelessness Scale", the final semester "Weighted Grade Point Average" to assess academic achievement, and a semi-structured interview form developed by the researchers. The results show that pre-service mathematics teachers exhibit high levels of academic hopelessness and moderate levels of occupational anxiety. Gender was found to have a significant effect on occupational anxiety levels with a high effect size, and grade level was found to make a difference in favor of 4th graders in terms of academic hopelessness levels. Finally, there was a low level of positive correlation between pre-service teachers' academic hopelessness levels and their academic achievement.

Keywords: Academic achievement, Academic hopelessness, Mathematics education, Occupational anxiety, Pre-service teachers

Article Type: Research article

Ethics Declaration:

This study followed all the rules stated to be followed within the "Higher Education Institutions Scientific Research and Publication Ethics Directive" scope. None of the actions specified under the title of "Actions Contrary to Scientific Research and Publication Ethics," which is the second part of the directive, were not carried out.

Ethics committee permission information

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Matematik Öğretmen Adaylarının Mesleki Kaygıları ve Akademik Umutsuzluklarının Akademik Başarıya Etkisinin İncelenmesi

Öz

Bu açıklayıcı karma yöntem çalışması, mesleki kaygı ve akademik umutsuzluğun matematik öğretmeni adaylarının akademik başarıları üzerindeki etkisini araştırmayı amaçlamıştır. Çalışmada ayrıca, öğretmen adaylarının bu etkiye ilişkin bakış açılarını keşfetmek ve bu düzeylerin cinsiyet ve sınıf düzeyi değişkenlerine göre nasıl değiştiğini belirlemek hedeflenmiştir. Araştırmada ilişkisel tarama modelini kullanan nicel bir yaklaşımın yanı sıra durum çalışması deseniyle nitel bir yaklaşım da kullanılmıştır. Katılımcılar, rastgele örnekleme yöntemi kullanılarak seçilen 184 matematik öğretmeni adayından oluşmaktadır. Araştırmanın nitel boyutu ise katılımcılar arasından gönüllülük esasına göre seçilen 12 öğretmen adayı ile gerçekleştirilmiştir. Araştırmada kullanılan ölçme araçları arasında “Öğretmen Adayları İçin Mesleki Kaygı Ölçeği”, “Akademik Umutsuzluk Ölçeği”, akademik başarıyı değerlendirmek için son dönem “Ağırlıklı Not Ortalaması” ve araştırmacılar tarafından geliştirilen yarı yapılandırılmış bir görüşme formu yer almaktadır. Sonuçlar, matematik öğretmen adaylarının yüksek düzeyde akademik umutsuzluk ve orta düzeyde mesleki kaygı sergilediklerini göstermektedir. Cinsiyetin mesleki kaygı düzeylerini yüksek bir etki büyüklüğü ile anlamlı olarak etkilediği, sınıf düzeyinin ise akademik umutsuzluk düzeyleri açısından 4. sınıflar lehine fark yarattığı görülmüştür. Son olarak, öğretmen adaylarının akademik umutsuzluk düzeyleri ile akademik başarıları arasında düşük düzeyde pozitif anlamlı bir korelasyon gözlenmiştir.

Anahtar Kelimeler: Akademik başarı, Akademik umutsuzluk, Matematik eğitimi, Mesleki kaygı, Öğretmen adayları.

Introduction

Education and the teaching profession are the cornerstone of social development, shaping not only individual futures but also fostering innovation, critical thinking, and the collective progress of societies. Teaching is a high-quality profession that promotes the dissemination of knowledge in a growing and developing society (Hiebert et. al., 2002). Enhancing the caliber of this profession is intricately linked to the education provided to pre-service teachers and their motivation to pursue this career path.

Promoting the teaching profession is essential to engage academically proficient individuals in the workforce, foster their growth, address regional disparities through enhanced teaching conditions, and thereby advance societal progress and development. Considering that teachers appointed under current conditions spend many years in the labor market, it is thought that the education of pre-service teachers should go beyond theoretical courses in faculties and include practical applications. The first condition for this is that pre-service teachers have strong morale and motivation both professionally and academically (Lohbeck & Frenzel, 2022). However, in Turkey, pre-service teachers' expectations regarding their profession and future expectations remain below expectations (Bek, 2007; Ulutaş, 2017). It is thought that this situation is due to some reasons, especially the society's negative perception of the teaching profession. Pişkin and Parlar (2021) revealed that Turkish people primarily pay attention to factors such as wage income and job guarantee when determining the social status of a profession. Being a profession that is beneficial to society has remained in the background. While the teaching profession plays a crucial role in societal development, there lacks a comprehensive perspective on its significance in Turkey, often attributed to factors like teacher salaries and working hours.

Additionally, Telef (2011) pointed out issues such as frequent changes in education policies, economic difficulties, excessive workload and social apathy, and argued that these problems lead to progressive teacher burnout. On the other hand, Mutluer and Yüksel (2019) stated that especially employment problems are an important factor affecting the professional

status of the teaching profession in Turkey. As a result, such situations can lead to negative behaviors such as occupational anxiety and academic hopelessness in pre-service teachers.

The literature extensively supports the idea that pre-service teachers experience high levels of stress throughout their academic programs (Hardacre et al., 2021). Although the number of universities has increased, unfortunately, job opportunities have not increased at the same pace. The problem of not being appointed after completing their education and the lack of job opportunities cause students to experience hopelessness and professional anxiety about the future. As a result, it can be concluded that future stress contributes to occupational anxiety and academic despair (Zhang et al., 2022).

Literature Review

Occupational Anxiety in Pre-service Teachers

Generally, anxiety refers to the state of stress and worry experienced by individuals in response to a subjective situation (Şahin, 2019). Although the exact causes of anxiety are not fully understood, individuals who feel secure and content tend to experience lower anxiety levels. Conversely, it is widely recognized that stress is a significant source of anxiety in academic life and affects students in higher education. Persistent stress has a detrimental effect on students' learning experiences and academic performance (Pascoe et al., 2020). In this regard, the higher the level of stress to which students are exposed, the greater their degree of anxiety (Amate-Romera & Fuente, 2021). The conditions surrounding the teaching profession in Turkey, alongside its associated difficulties, contribute to the emergence of occupational stress among pre-service teachers, intensifying occupational anxiety.

Professional anxiety is the one of the primary challenges hindering the professional growth of pre-service teachers (Bullard et al., 2017). This anxiety can be attributed to various factors, including the challenge of securing employment after completing education, economic difficulties, conflicts between school and family obligations, and limited job opportunities (Aydın & Çiftel, 2013). It is also believed that the anxiety of pre-service teachers who potentially continue their roles as educators during their educational journey may continue throughout their professional lives (Bekdemir, 2010). This notion is supported by Sinclair and Ryan (1987), who suggest that pre-service teachers with elevated levels of occupational anxiety may also experience anxiety in their subsequent professional endeavors. Fuller (1969) classified pre-service teachers' anxiety regarding their profession into three categories: self-centered, task-centered, and student-centered. Cabı and Yalçınalp (2013) attributed self-centered anxiety to concerns about their future professional success, task-centered anxiety to worries about being an effective teacher, and student-centered anxiety to apprehension about meeting the interests and needs of their students.

One of the important factors contributing to the professional concerns of pre-service teachers is their concerns about not being appointed to the teaching staff (MEB, 2017). The belief that they will not be able to find a job after graduation and that they will not be able to continue their chosen profession causes loss of motivation and increased professional anxiety in pre-service teachers. Another factor that increases professional anxiety is exam stress. In Turkey, pre-service teachers are required to take a competitive exam known as the Public Personnel Selection Examination (KPSS) for job placement after completing their education. This exam causes serious anxiety, especially in the later years of undergraduate education, and can negatively affect academic performance. This situation was also expressed by Pişkin and Parlar (2021). Research findings consistently show that test anxiety negatively affects students' performance and contributes to academic disruptions (Banks and Smyth, 2015; Cassady and Johnson, 2002; Gallagher and Millar, 1996; Hardacre et al., 2021; Luttenberger et al., 2018; Mahmoud et al., 2012; McDonald, 2001; Priebe and Kurtz-Costes, 2022; Spencer et al., 1999). On the other hand, when the literature on occupational anxiety is examined, girls are more anxious than boys (Aslan, 2015; Aycan and Üzümlü, 2019; Aydın and Çiftel, 2013; Bayraktar et al., 2014; Ceviz, 2022; Sadıkoğlu et al., 2018; Saraç, 2015; Suner, 2019; Trifoni & Shahini, 2011; Ünal

Karagüven, 1997) and low-income individuals have been observed to experience high levels of anxiety compared to high-income individuals (Aydın & Çiftel, 2013; Ceviz, 2022; Süner, 2019).

Academic Hopelessness in Pre-Service Teachers

Hopelessness is a cognitive behavior characterized by negative expectations about the future and dominant feelings of disbelief and hopelessness (Lima et al., 2021). It is a serious mental issue that can lead to behaviors that impact an individual's productivity, such as depression and exhaustion (O'Connor & Sheehy, 2000). When these feelings of hopelessness specifically relate to school life and future academic prospects, they are referred to as academic hopelessness (Gökalp & Soykan, 2020). Academic hopelessness is a serious psychological problem seen especially in pre-service teachers in Turkey (İnce Aka and Yılmaz, 2018; Yılmaz, 2019). Currently, the most significant problem causing academic hopelessness among pre-service teachers is the lack of job appointments (Yetişensoy & Şahin, 2020; Yılmaz, 2019). Apart from this, Ghasemi (2022) stated that factors such as self, family, society, work environment and colleagues trigger hopelessness in teachers and pre-service teachers. The feeling of hopelessness can negatively impact the academic performance of pre-service teachers by undermining their optimistic outlook on the future. It is anticipated that individuals who willingly select their profession will encounter reduced levels of academic hopelessness compared to those who enter the field involuntarily. Additionally, there exists a direct relationship between the degree of hopelessness and the extent of occupational anxiety (Adalı et al., 2019).

Yetişensoy and Şahin (2020) revealed in their study that academic hopelessness in pre-service teachers negatively affects their attitudes towards the teaching profession. According to Putwain and Symes (2018), hopelessness is an important factor that negatively affects academic performances.

Current Study

Like many contemporary fields, the field of education also faces significant obstacles. In various studies, it has been stated that education in Turkey faces problems such as the lack of a healthy education system (Yaraş & Turan, 2021), inability to be appointed to the teaching profession (Çınkır & Kurum, 2017), insufficient income level (Habacı et al., 2013), and decreasing professional prestige (Esen et al., 2017). These conditions cause psychological problems, especially among pre-service teachers who are in the midst of preparations for entering the profession. These concerns were related to occupational anxiety and academic hopelessness. It is thought that prospective educators who experience high levels of anxiety and hopelessness have difficulty adapting to undergraduate education, which may lead to a decrease in academic performance. In order to improve the quality of the teaching profession, it is very important to reveal these problems clearly, discuss their reasons in depth and make suggestions that may shed light on future studies.

Upon conducting a comprehensive review of the relevant scholarly literature, it becomes apparent that previous studies have individually investigated the effects of occupational anxiety and academic hopelessness on the academic performance of aspiring educators. To date, no study has investigated the collective consequences of these two interconnected factors. In addition, the effects of these two factors on teacher education and the teaching profession have not been sufficiently examined. It is believed that quality studies that can reveal the negative effects of these factors on teacher education can improve the quality and preferability of the teaching profession. Therefore, this study is positioned as ground-breaking, presenting a novel perspective, and contributing a valuable addition to the existing literature and teacher education.

The objective of this study was to investigate how occupational anxiety and academic hopelessness influence the academic achievements of individuals aspiring to become mathematics teachers. Moreover, this study aims to provide practical and implementable recommendations derived from the results. The research questions that informed this investigation were formulated as follows:

RQ₁: What is the extent of the occupational anxiety and academic hopelessness experienced by individuals aspiring to become mathematics teachers?

RQ₂: Is there a significant difference in the levels of occupational anxiety and academic hopelessness between male and female aspiring math teachers as well as across different grade levels?

RQ₃: Is there a correlation between levels of occupational anxiety and academic hopelessness among prospective math teachers and their academic attainment?

RQ₄: To what extent can the levels of occupational anxiety and academic hopelessness among prospective math teachers serve as significant predictors of academic achievement?

RQ₅: What are the perspectives of pre-service mathematics teachers towards the teaching profession and the professional issues they will face?

METHOD

Research Design

This study used an explanatory mixed model design. For the quantitative aspect, it employs a commonly used relational survey model. Additionally, case study was used for the qualitative dimension. As this study investigates whether the occupational anxiety and academic hopelessness levels of pre-service mathematics teachers predict their academic achievement, the research is well-suited to the relational survey model. The sample of the study consisted of 184 pre-service mathematics teachers who could be reached among those enrolled in the courses at the faculty of education of a state university in Turkey in the 2022-2023 academic year. Since the researchers were working at this faculty, convenience sampling was used in the study. Table 1 provides an overview of the demographic characteristics of the sample students.

Table 1.
Demographic characteristics of the research sample

Variable	Sub-dimension	Frequency (f)	Percentage (%)
Gender	Female	145	76.3
	Male	45	23.7
Grade	1	46	24.2
	2	58	30.5
	3	56	29.5
	4	30	15.8

Semi-structured interviews were carried out with 12 pre-service teachers, who volunteered from a pool of 184 pre-service teachers. The pre-service teachers to be interviewed were determined to be equal in number at each grade level. In addition, in order to observe and compare the effects of the factors examined within the scope of the research, care was taken to ensure a balanced distribution of the pre-service teachers determined for the interviews at low, medium and high levels according to their academic performance.

Data Collection

The data collection for this study was carried out using two established instruments: the Prospective Teachers' Occupational Anxiety Scale (OAS) constructed by Cabı and Yalçınalp (2013), and the Academic Hopelessness Scale devised by Gökalp and Soykan (2020). Written consent was obtained from the scale owners for using both scales.

To assess the academic achievements of the participants, the researchers used the Weighted Grade Point Average (CGPA) obtained from the most recent academic term.

Furthermore, a semi-structured interview questionnaire created by the researchers was used to obtain the perspectives of pre-service teachers.

Occupational Anxiety Scale (OAS) for Prospective Teachers

Cabi and Yalçınalp (2013) developed the Occupational Anxiety Scale (OAS) for Prospective Teachers, which is a comprehensive instrument consisting of 45 items. The validation process, which aimed to establish the reliability of the study, involved 283 pre-service teachers. Different methodologies, including assessments of content and construct validity, t-tests, adjusted item-total correlations, Cronbach's alpha, and two-half test correlations, were employed to analyze distinctions between the means of the top 27% and bottom 27% groups. The results revealed that the correlations between the adjusted item scores and total scores of the factors varied between 0.23 and 0.73. Cronbach's alpha coefficients were computed and were found to range from 0.94 to 0.67. Additionally, all comparisons between the average scores of the top 27% and bottom 27% groups showed statistically significant differences. The scale exhibits a reliability coefficient of 0.95. The scale utilizes a 5-point Likert-type response format, with a scoring range of 45 to 225. Elevated levels of occupational anxiety are associated with higher scores on this scale. The evaluation standards for this scale are presented in Table 2.

Table 2.

The evaluation criteria utilized in the occupational anxiety scale

Evaluation	Low	Medium	High
Score Range	45.00-104.99	105.00-164.99	165.00-225.00

Academic Hopelessness Scale

The Academic Hopelessness Scale, devised by Gökalp and Soykan (2020), consists of 16 items and utilizes a 4-point Likert-type response format. The scale was subjected to a comprehensive evaluation process involving a sample of 310 university students to ascertain its validity and reliability. The reliability analysis revealed a significant level of internal consistency, indicated by a Cronbach's alpha coefficient of .83. Content validity was established by incorporating input from experts in the relevant field, whereas construct validity was rigorously assessed through a comprehensive analysis that included both exploratory and confirmatory factor analysis methodologies.

The findings from the exploratory factor analysis unveiled a three-factor arrangement that accounted for 48.3% of the total variance. The aforementioned structure was subsequently subjected to confirmatory factor analysis, which revealed a satisfactory level of fit. The construct validity assessment identified three dimensions: behavioral (comprising seven items), cognitive (comprising four items), and environmental (comprising five items). The composite score spans from 16 to 64, with higher scores indicating an increased perception of academic hopelessness. The evaluation criteria for the interpretation of the outcomes of the scale are elaborated in Table 3.

Table 3.

The evaluation criteria utilized in the academic hopelessness scale

Evaluation	Low	Medium	High
Score Range	16.00-31.99	32.00-47.99	48.00-64.00

Interview Form

The researchers devised a semi-structured interview form comprising six open-ended questions. This form aims to gather insights from prospective teachers concerning their perceptions of the teaching profession. The questions delve into various aspects, including their understanding of their chosen career path, their reflections on the role of teaching in society,

their familiarity with prevailing issues in Turkey, their encounters with occupational anxiety and academic hopelessness, and the potential impact of these emotional states on their academic achievement.

To establish the interview form's content validity, the researchers consulted four professionals who held academic degrees from educational faculties and two actively involved mathematics teachers. By incorporating the insights of these experts, the interview form aimed to gather comprehensive and meaningful responses from the participants, providing valuable insights into their thoughts and experiences related to the teaching profession. The form was finalized in line with the feedback received from the experts regarding the clarity of the questions, their suitability for the purpose of the interview, and their adequacy. The experts requested corrections especially on the clarity of the questions rather than their appropriateness.

Data Collection Process

Before the data collection process, the researchers obtained the necessary permissions from the scale owners. The scales were then digitized using Google Forms, allowing students to access and complete them via their mobile phones in a classroom setting.

Before initiating the scale application, the students were provided with general information and asked for their consent to participate. The interviews, which were conducted via Zoom and lasted approximately 15-20 minutes, were recorded with the consent of the participating pre-service teachers. To ensure compliance with ethical considerations and maintain the confidentiality and rights of the participants, the researchers adhered to these procedures throughout the data collection process.

Data Analysis

The research data were analyzed utilizing the SPSS-22 software package. Before selecting the appropriate statistical techniques, the researchers checked the data for normal distribution and homogeneity of variance. Descriptive statistics were used to determine the levels of occupational anxiety and academic hopelessness among pre-service teachers (RQ1). The normality assumption of the data was considered when assessing the potential variations in these levels concerning variables, such as gender and grade level (RQ2). T-tests and univariate ANOVA were used when the data met the assumption of normality. In cases where the data did not meet the normality assumption, the Mann-Whitney U and Kruskal-Wallis H techniques were utilized.

Correlation analysis was used to investigate the interplay between occupational anxiety, academic hopelessness, and academic achievement among pre-service teachers (RQ3). Furthermore, multiple regression analysis was employed to ascertain whether these levels had a substantial predictive impact on academic achievement (RQ4). Through the application of these statistical methods, researchers sought to thoroughly analyze the data and provide insightful answers to research inquiries.

Multiple regression analysis necessitates the fulfillment of several assumptions (Büyüköztürk, 2008). Therefore, before conducting the regression analysis, various checks were performed to assess the normality of the data. These checks included examining the mode, median, and arithmetic mean values; creating histogram graphs; evaluating skewness and kurtosis values; analyzing scatter diagrams; and conducting the Kolmogorov-Smirnov test. Based on these assessments, it was determined that the data exhibited a suitable level of normality. Furthermore, for multiple regression analysis, the sample size (n) should exceed a threshold of $n > 50 + 8m$, where m represents the number of independent variables used (Tabachnick & Fidell, 2007). There were two independent variables in the present study: pre-service teachers' academic hopelessness and occupational anxiety levels. Hence, a sample size greater than 66 was deemed appropriate for this analysis.

Another assumption for multiple regression analysis is the independence of the errors in the observed data. This was evaluated by examining the Durbin-Watson statistic, which ideally falls between 1.5 and 2.5 (Field 2009). In this analysis, the Durbin-Watson value was 1.533, indicating the independence of the observations. Additionally, it is crucial to ensure that there is no multicollinearity problem in multiple regression analysis, meaning that there should be no linear relationship between two or more independent variables. The analysis results were scrutinized for the Variance Inflation Factor (VIF) and tolerance values. VIF values less than 10 and tolerance values greater than 0.2 are generally regarded as acceptable in statistical analysis. The present study observed VIF values of 1.02 and Tolerance values of .980, suggesting the absence of multicollinearity.

To assess the fulfillment of the assumption of a multivariate normal distribution, (Büyüköztürk, 2014) suggested examining Mahalanobis distance values. In this study, because all Mahalanobis values were less than 25, it can be concluded that there were no outliers, and the assumption of multivariate normality was satisfied. Accordingly, in this study, a model in which all independent variables were included in the analysis was preferred to predict the achievement of pre-service teachers.

Regarding the qualitative analysis of the research, content analysis was conducted using the Nvivo software package (RQ5). In this context, the interviews with each of the interview participants, which were recorded on a voice recorder, were listened to one by one, transcribed into sentences and converted into written texts. The raw data obtained during these processes were placed into categories determined by the researchers and these data were divided into appropriate subcategories. Then, the data placed in all categories were subjected to content analysis and codes were determined. The frequencies and percentages of the responses to each code were calculated and presented in tables within the scope of the research.

By thoroughly evaluating these assumptions and performing necessary analyses, the researchers ensured the robustness and validity of their findings.

Ethics Declaration

This study followed all the rules stated to be followed within the “Higher Education Institutions Scientific Research and Publication Ethics Directive” scope. None of the actions specified under the title of “Actions Contrary to Scientific Research and Publication Ethics,” which is the second part of the directive, were not carried out.

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Results

The results of the descriptive analysis revealing the levels of anxiety towards the teaching profession and academic hopelessness among pre-service mathematics teachers in accordance with sub-problem 1 of the study are presented in Table 4.

Table 4.

Descriptive analysis results

Variables	N	Min	Max	\bar{X}	sd
Academic Hopelessness	190	16.0	64.00	48.19	7.52
Occupational Anxiety	190	45.0	225.0	136.6	41.6

When the results are evaluated according to Tables 2 and 3, it can be said that pre-service mathematics teachers had high levels of academic hopelessness and moderate levels of occupational anxiety.

In accordance with the second sub-problem of the research, an analysis was conducted to investigate the variations in occupational anxiety and academic hopelessness levels among pre-service mathematics teachers, considering gender and grade level. Initially, the normal distribution of the data was assessed, as presented in Tables 5 and 6.

Table 5.

Normality results of occupational anxiety scores according to gender and grade level

Variables	\bar{X}	Median	Skewness	Kurtosis	Kolmogorov Smirnov		
					Statistic	df	Sig.
Gender	144.37	142.00	-.041	-.091	.069	145	.088*
	112.68	110.00	.104	-.936	.089	45	.200*
Grade Level	142.56	141.00	.339	-.233	.085	46	.200*
	129.05	131.00	-.122	-.567	.110	58	.077*
	140.10	141.50	-.095	-.134	.082	56	.200*
	137.20	130.50	.008	-.507	.107	30	.200*

* $p > .05$ (F: Female; M: Male)

Upon reviewing the data in Table 5, it becomes evident that the anxiety scores of pre-service mathematics teachers regarding the teaching profession exhibit a normal distribution across both gender and grade level categories.

Table 6.

Normality results of academic hopelessness scores according to gender and grade level

Variable	\bar{X}	Median	Skewness	Kurtosis	Kolmogorov Smirnov		
					Statistic	df	Sig.
Gender	48.25	48.00	-.570	1.585	.065	145	.200*
	48.00	48.00	-.167	.009	.061	45	.200*
Grade Level	48.65	50.00	-.280	-.523	.150	46	.012
	47.24	47.00	-.434	.233	.080	58	.200*
	46.98	47.00	-.646	2.317	.116	56	.059*
	51.60	51.50	-.152	-.889	.083	30	.200*

* $p > .05$ (F: Female; M: Male)

When Table 6 is examined, it is decided that the academic hopelessness scores of pre-service mathematics teachers are normally distributed according to gender, whereas they are not normally distributed according to grade level. The results of the independent sample t-test are shown in Table 7.

Table 7.

T-test results of occupational anxiety and academic hopelessness scores according to gender

Variable		N	\bar{X}	sd	t	df	p	Cohen's d
Occupational Anxiety	F	145	144.37	39.59	4.674	188	.000*	.794
	M	45	112.68	40.15				
Academic Hopelessness	F	145	48.25	7.46	.198	188	.843	-
	M	45	48.00	7.79				

(F: Female; M: Male)

Upon reviewing Table 7, a statistically significant difference in pre-service teachers' anxiety scores based on their gender is evident ($t = 4.674$; $p \leq .05$). Upon further examination of the average anxiety scores of pre-service teachers towards their occupation, it became apparent that this difference favored female students. However, merely observing a statistically significant difference between the two groups through an unpaired t-test does not provide sufficient information about the magnitude of the difference. Therefore, it is necessary to assess the effect size to obtain meaningful statistical results, as recommended by the APA (2010). Cohen (1988) proposed interpreting effect sizes based on the d value, where a value of .20 represents a small effect size, .50 denotes a medium effect size, .80 indicates a large effect size, and values exceeding .80 suggest a very large effect size. Upon evaluating the obtained Cohen's d value for the effect size, it becomes apparent that gender has a very large effect on pre-service teachers' anxiety levels toward their occupations.

Table 8 presents the outcomes of the analysis of variance, revealing whether there were discrepancies in anxiety scores among pre-service teachers based on their grade levels.

Table 8.

One-Way ANOVA results of occupational anxiety scores according to grade level

Source of Variance	Sum of Squares	df	Mean of Squares	F	p
Between groups	5627.404	3	1875.801	1.072	.362
Within groups	325566.306	186	1750.356		
Total	331193.711	189			

Upon reviewing Table 8, it is evident that there is no significant disparity in occupational anxiety scores among pre-service mathematics teachers across different grade levels ($p > .05$). Table 9 displays the outcomes of the Kruskal Wallis H test that was performed to examine potential variations in academic hopelessness scores among pre-service mathematics teachers based on their respective grade levels.

Table 9.

Kruskal wallis h test results of academic hopelessness scores according to grade level

Grade Level	N	Rank Mean.	df	\bar{X}	p	Difference (Dunnnett's C)
1	46	99.68	3	8.064	.045*	
2	58	88.78				4>2
3	56	86.50				4>3
4	30	118.87				

Upon reviewing Table 9, it becomes apparent that there are notable variations in academic hopelessness scores among pre-service mathematics teachers based on their grade levels, particularly observed between the 4th, 2nd, and 3rd grades.

The results of the correlation analysis, exploring the association between pre-service mathematics teachers' occupational anxiety, academic hopelessness levels, and academic achievement, are presented in Table 10. This analysis corresponds to the third sub-problem addressed in the study.

Table 10.

Correlation analysis results between occupational anxiety, academic hopelessness levels, and academic achievement scores

Variables	Occupational Anxiety	Academic Hopelessness	Academic Achievement
Occupational Anxiety	1		
Academic Hopelessness	-.141	1	
Academic Achievement	-.050	.276*	1

* $p > .05$

Upon reviewing Table 10, a positive, low-level significant relationship was observed between the academic hopelessness levels of pre-service mathematics teachers and their academic achievement ($r = .276$; $p < .05$). However, there was a low, insignificant negative relationship between anxiety towards the occupation, academic hopelessness, and academic achievement.

The results of the multiple linear regression analysis conducted to determine whether pre-service mathematics teachers' occupational anxiety and academic hopelessness levels predicted their academic achievement at a significant level are presented in Table 11.

Table 11.

Multiple linear regression results

Variable	B	Standard Error	β	t	p
Constant	56.073	6.619		8.472	.000*
Academic Hopelessness	.444	.115	.274	3.863	.000*
Occupational Anxiety	-.003	.021	-.011	-.160	.873
R=.276	R ² =.076				
F _(2,187) =7.715	p=.001*				

Upon reviewing Table 11, a notable correlation was found between academic hopelessness and occupational anxiety levels among pre-service math teachers, as well as their corresponding academic achievement scores ($R = .276$; $R^2 = .076$; $F(2,187) = 7.715$, $p < 0.05$). These variables explained approximately 8% of the observed variance in academic achievement. The study findings suggest that academic hopelessness ($\beta = 0.444$) has a stronger predictive influence on academic achievement than occupational anxiety ($\beta = -0.003$), which has a negligible impact. Academic hopelessness ($p < .05$) demonstrated a statistically significant predictive association with academic achievement, whereas occupational anxiety ($p > .05$) did not exhibit such a relationship. Therefore, the regression equation for forecasting academic performance is

$$\text{Academic achievement} = (56.073) + (0.444 * \text{Academic Hopelessness Score}) - (0.003 * \text{Occupational Anxiety Score})$$

The fifth sub-problem examined pre-service mathematics teachers' perspectives about teaching profession and the professional issues they will face. The perspective analysis results are presented in Table 12.

Table 12.
Content analysis consequences of the opinions

Categories	Codes	Frequency (f)	Percentage (%)
Occupational feelings	Love the occupation	12	100
	Occupational anxiety	11	91.66
	Academic hopelessness	11	91.66
	Believe to be successful	10	83.33
	Don't choose willingly	7	58.33
	Choose willingly	5	41.66
	Don't believe to be successful	2	16.66
The society's perspective on occupation	Loss of prestige	12	100
	Seen as worthless	12	100
	Seen as easily accessible	4	33.33
Occupational issues	Economic problems	12	100
	Inability to be appointed	12	100
	Academic uncertainty	10	83.33
	Ignoring education	8	66.66
	Curricula	4	33.33
	Infrastructure deficiencies	4	33.33
	Education system	3	25
	Insufficient lesson times	2	16.66
Academic Success	Exams	2	16.66
	Negatively affected	11	91.66
	Not affected	1	8.33

This study examined pre-service teachers' views in four categories: professional feelings, social perceptions, professional concerns and academic achievement. All preservice teachers expressed a positive outlook on their future profession (F=12; 100%) and a strong belief in their ability to succeed (F=10; 83.33%), although some preservice teachers reported uncertainty in choosing a major. However, the study uncovered that pre-service mathematics teachers encounter occupational anxiety (f=11; 91.66%) and academic hopelessness (f=11; 91.66%) in Turkey. A pre-service teacher reflected on their experience, stating,

T₂: I feel high levels of anxiety regarding the teaching profession in Turkey, especially given the increasing problem of not being appointed, which worsens every year. Unfortunately, my concerns are heightened due to the uncertain future.

Pre-service teachers have highlighted the decrease in the prestige of the teaching profession in Turkey in recent years, citing various factors (f=12; 100%). They are concerned that this trend contributes to the devaluation of occupation within society (f=12; 100%). In particular, they attribute this devaluation to the perception that entering the field of teaching is easily achievable (f=4; 33.33%). A pre-service teacher shared their view on this issue:

T₃: I regret that the teaching profession has lost its standing in society due to the loosening of entry requirements, which leads to a prevailing belief that almost anyone can pursue teaching, ultimately diminishing the respect for the profession

Pre-service teachers reported that the teaching profession in Turkey faces significant challenges, including economic concerns (f=12; 100%), uncertainties in appointments (f=12;

100%), academic uncertainties (f=10; 83.33%), and the undervaluation of education (f=8; 66.66%). In summary, the perspective of a pre-service teacher can be outlined as follows:

T₄: Educators in Turkey face significant pressures, including economic challenges that often place them in the lower strata of society. This situation impedes educators from fully devoting themselves to their work, which leads to a lack of seriousness and respect from students and society. Furthermore, obtaining a bachelor's degree does not automatically ensure job opportunities for educators. Unfortunately, there is a lack of transparency in the appointment process, resulting in uncertainties. Furthermore, educators face predicaments such as overcrowded curricula, challenges implementing constructivist learning in classrooms, and inadequate technical infrastructure in educational institutions.

Pre-service teachers reported that the challenges of the teaching profession have led to increased levels of work-related anxiety and academic distress, ultimately impacting their academic achievement negatively (f=11; 91.66%). A quotation from a pre-service teacher's perspective provides further understanding:

T₉: Unfortunately, I am feeling despondent about my academic prospects, and it is affecting my focus. The potential uncertainty of securing a teaching position poses a significant source of concern for me. Should alternate employment opportunities become necessary, the private sector is a potential avenue, despite the likelihood of decreased financial compensation and increased workload. Currently, pursuing an independent school is financially infeasible. Additionally, embarking on an academic career presents unique challenges. Although I am working to improve my skills in various areas, these uncertainties are causing me significant distress and hindering my progress.

Conclusion and Discussion

This study aimed to investigate how occupational anxiety and academic hopelessness impact the academic achievements of pre-service mathematics teachers. The initial results of the research reveal that academic hopelessness levels among these prospective mathematics teachers are notably high. In the interviews conducted with pre-service teachers, it was understood that this hopelessness was mostly related to the fear of not being appointed. Apart from this, Ghasemi (2022) stated that factors such as self, family, society, work environment and colleagues trigger hopelessness in teachers and pre-service teachers. In addition, academic self-efficacy beliefs can be considered as a factor affecting the academic despair of pre-service teachers. Individuals with low academic self-efficacy beliefs may be expected to cause academic despair, as their mathematics content knowledge will probably also be low. This state of affairs contributes to a sense of academic hopelessness during their undergraduate education, a phenomenon that was reinforced by insights shared by pre-service teachers during interviews. This observation is corroborated by similar research findings found in the existing literature (İnce Aka & Yılmaz, 2018; Yetisensoy & Şahin, 2020; Yılmaz, 2019). Another influential factor shaping pre-service teachers' perceptions of their profession and career is occupational anxiety. Another important result of the research was that prospective mathematics teachers experienced moderate levels of professional anxiety. Pehlevan et al. (2017) stated that an important factor shaping prospective teachers' profession and career perceptions is their professional concerns. In the context of Turkey, a significant challenge faced by those pursuing a teaching career is the specter of post-graduation unemployment. This predicament generates substantial stress and anxiety among pre-service teachers. Although they initially embarked on the path of becoming educators with enthusiasm, their optimism is often overshadowed by apprehensions about securing employment. In the Turkish context, challenges like appointment uncertainties, relatively low salaries, school-related technical and physical issues, and societal attitudes toward the teaching profession all contribute to heightened levels of occupational anxiety among pre-service teachers. This research's outcomes resonate with previous studies in the literature that have explored occupational anxiety levels among pre-service teachers, consistently yielding results similar to those in this study (Gümrukçü Bilgici & Deniz, 2016; Güngör & Gül, 2019; Tabanlı et al., 2016). The narratives shared by pre-service teachers in interviews align harmoniously with these findings as well.

Within this study, the researchers extended their examination to encompass the variation in occupational anxiety and academic hopelessness levels among pre-service mathematics teachers, accounting for their gender and grade level. The findings unearthed a noteworthy distinction in levels of anxiety towards their prospective occupation between male and female pre-service teachers, with female students exhibiting higher levels. This divergence held significant weight, as indicated by a high effect size. Cüceloğlu (1991) underscored the potent influence of culture on individual anxiety. Cultural factors in Turkey are thought to create educational challenges for girls. Gelişli (2004) highlighted that girls, particularly in the country's interior and eastern regions, often grapple with barriers like early marriages and heavy household responsibilities that hinder their pursuit of education. Moreover, post-marriage economic dependency on men can further compound these challenges. These circumstances drive girls' aspirations to establish professions and achieve financial autonomy early on. It is believed that these factors contribute to the heightened occupational anxiety experienced by female pre-service teachers compared to their male counterparts. Akgün et al. (2007) align with this viewpoint, stressing the influence of societal pressures on girls' career choices in Turkey. The presence of similar findings in other studies, where female pre-service teachers also experienced more pronounced occupational anxiety than their male peers, further bolsters this perspective (Gümrukçü Bilgici & Deniz, 2016; Sürücü, 2012; Tabanlı et al., 2016). Conversely, the study did not uncover a substantial difference in academic hopelessness levels between male and female pre-service mathematics teachers. The predicament of post-graduation unemployment is a shared concern among all pre-service teachers in Turkey. Hence, it is surmised that academic hopelessness is prevalent across the board among pre-service teachers, irrespective of gender.

In the process of analysis, it became apparent that the levels of occupational anxiety did not exhibit variance based on the grade levels of pre-service teachers. However, a marked distinction emerged in the degrees of academic hopelessness. To be specific, 4th-grade pre-service teachers displayed notably elevated levels of academic hopelessness in comparison to their counterparts in other grade levels. This discovery holds significant implications, shedding light on the fact that pre-service teachers experience heightened academic hopelessness during their final year, just before graduation. This observation carries profound significance, pointing to a critical juncture where pre-service teachers grapple with these emotions at their zenith before embarking on their professional journey. The economic landscape in Turkey also significantly contributes to this phenomenon. The nation is confronted with economic challenges that impact many families, compelling them to provide education for their children under tight financial constraints. Throughout their academic odyssey, pre-service teachers often rely on their families' financial support, which inherently engenders a sense of obligation to attain self-sufficiency post-graduation, thus alleviating the economic burden on their families. The unique pressure described above has the potential to contribute to heightened levels of academic hopelessness among pre-service teachers as they near the completion of their education.

An additional intriguing revelation stemming from the study is the existence of a positive, albeit low-level, significant correlation between the academic hopelessness levels of pre-service mathematics teachers and their academic achievements. This finding is rather surprising, as conventional expectations would anticipate that elevated academic hopelessness would correspondingly correlate with diminished academic performance. However, the data defies this conventional wisdom, revealing that, counterintuitively, heightened levels of academic hopelessness are linked to increased academic achievement. This counterintuitive outcome prompts speculation that despite grappling with academic hopelessness, pre-service teachers exert substantial effort to uphold a commendable level of academic accomplishment. Such determination could stem from their aspiration to graduate with a sense of optimism, even if that optimism may be somewhat subdued. It's possible that these individuals, recognizing the competitive nature of the teaching job market in Turkey, are spurred to excel academically to bolster their prospects for a more hopeful professional future. In Turkey, teacher appointments constitute a considerable challenge; nonetheless, a specific quota of mathematics teachers is

appointed annually. This relatively advantageous situation for pre-service mathematics teachers could play a role in shaping their behaviors. In Turkey, teacher appointments hinge on the outcomes of the Public Personnel Selection Examination (KPSS), a post-graduation exam that assesses candidates' pedagogical and professional knowledge, as well as their subject-specific expertise. This structure incentivizes pre-service teachers to prioritize their academic performance as they prepare for this crucial exam. Furthermore, the observations of Kiraz & Kurul (2018) and Manav (2022) underscore how unappointed pre-service teachers often seek opportunities in private educational institutions and tutoring centers, where the emphasis on academic performance is paramount, contributing to the overall higher academic performance exhibited by pre-service teachers at the undergraduate level. Notably, the sentiments expressed by some pre-service teachers during interviews corroborated this finding, as they acknowledged grappling with considerable academic hopelessness due to the challenging professional landscape and uncertainties in Turkey. Nevertheless, they made concerted efforts to enhance their prospects by excelling across various domains and maintaining exemplary academic records.

As a result of the positive relationship observed between pre-service teachers' academic hopelessness levels and their academic achievement, it was concluded that academic hopelessness may be a low-level significant predictor of pre-service mathematics teachers' academic achievement. Common intuition might dictate that pre-service teachers' apprehension and despondency concerning their prospects would inevitably cast a shadow over their academic performance. However, the dynamics observed in the previous finding suggest a counterintuitive narrative where such circumstances might paradoxically contribute to heightened academic accomplishments among these individuals. While this study indeed establishes a robust link between pre-service teachers' levels of academic hopelessness and their subsequent academic achievements, the intriguing twist here lies in the positive direction of this relationship. This distinctive outcome sets this study apart from the findings of many other research endeavors in the relevant literature. For instance, Uz Baş & Kabasakal (2013) identified a noteworthy negative correlation between the levels of academic hopelessness among pre-service teachers and their academic achievements. Given this array of divergent results, the present study introduces a fresh and distinct perspective to the ongoing discourse on this subject matter.

Drawing from the qualitative findings of the study, it becomes unmistakably clear that despite harboring genuine affection for the teaching vocation and fostering an unwavering belief in their capabilities, prospective teachers in Turkey are confronted with palpable trepidation about their future and a prevailing sense of academic despair. This unease is rooted in a multitude of challenges that have collectively chipped away at the once-solid prestige and societal reverence for the teaching profession. Foremost among these challenges loom the intricacies surrounding teacher appointments, the enduring specter of meager teacher salaries, the lingering uncertainties within the academic landscape, and broader societal neglect of education's pivotal role. The image of teaching as an easily accessible career option has notably contributed to a gradual erosion of its societal stature. Furthermore, the prevailing economic climate in Turkey, coupled with the distressingly modest remuneration offered to educators, significantly erodes the profession's standing. Additionally, insufficient state funding for education, technological deficiencies in schools and faculties, an excessive content load for mathematics courses, and a lack of classrooms exacerbate the many challenges faced by those seeking a teaching career. This intricate tapestry of issues collectively casts a long shadow on the aspirations and optimism of future educators in Turkey.

Analyzing the qualitative facets of this research, it becomes evident that, despite their profound passion for the teaching realm and their unwavering confidence in their capabilities, prospective educators in Turkey find themselves grappling with profound apprehensions concerning their forthcoming professional journey. Alongside this, there is a prevailing sentiment of academic despondency that pervades their outlook. These concerns trace their

origins to a myriad of challenges, collectively contributing to the gradual erosion of the once-distinguished prestige and societal reverence accorded to the noble teaching profession. At the vanguard of these issues lie the intricate complexities associated with teacher appointments, which often create a haze of uncertainty for these aspiring educators. Furthermore, the issue of modest teacher salaries casts a long shadow over their prospects. Amidst this, the academic environment remains a locus of doubt and unpredictability, further compounding their sense of unease. A wider disregard for education's overarching importance and impact forms another layer of concern. This broad brush of perceiving teaching as a readily attainable pursuit serves to diminish its societal significance. Moreover, the economic landscape of Turkey, combined with the notably meager remuneration awarded to teachers, plays a pivotal role in the steady erosion of the teaching profession's prestige. On top of these, a dearth of state funding for education, coupled with technical deficiencies within educational institutions, the weighty load of mathematics course content, and a scarcity of adequate classrooms create a multifaceted obstacle course that aspiring educators must navigate. This intricate tapestry of challenges, intricately woven, collectively casts a long shadow over the ambitions and optimism of the prospective teaching community in Turkey.

The central aim of this study is to delve into the intricate interplay of psychological factors, particularly the impact of occupational anxiety and academic hopelessness, on the academic prowess of pre-service mathematics teachers. This exploration takes into account the unique backdrop of the teaching profession in Turkey, along with the multifaceted challenges it grapples with. The study's findings have shed light on a pivotal revelation: academic hopelessness emerges as a pronounced psychological concern within the realm of pre-service mathematics teachers. This psychological state exhibits a low-level correlation with their academic performance. Interestingly, the originality of this study's findings lies in the discovery of a positive connection between the levels of academic hopelessness and the academic achievements of pre-service mathematics teachers. This intriguing outcome defies the anticipated negative association that one might presume. To untangle this paradox, the researchers have ventured into potential post-graduation scenarios, intricately woven into the fabric of teaching in Turkey. This atypical result sparks curiosity, motivating the scholars to provide an explanation that goes beyond the conventional narrative. Furthermore, the study casts a spotlight on the significant role that occupational anxiety plays in the lives of pre-service mathematics teachers. While the observed anxiety levels among the participants remain at a moderate level, their impact is by no means trivial. Although the results of this study suggest that professional anxiety does not have a significant impact on the academic performance of pre-service teachers, the interviews revealed that it is not insignificant. This lens allows for a comprehensive understanding of the intricate dynamics shaping the academic journeys of these prospective educators.

Increasing the quality of the teaching profession should be one of the primary goals for the development of our country. For this purpose, there is a need for academic studies that address the problems faced by the profession and offer effective solutions. In our country, for some reasons, factors such as academic hopelessness and professional anxiety have serious effects on prospective teachers. This study clearly revealed this effect in the dimension of academic hopelessness. For professional anxiety, there is a need for scientific studies that can be carried out under different conditions. In order to reduce the effects of these factors on pre-service teachers, the government is expected to review its policies regarding the teaching profession. Serious steps should be taken especially in terms of employment. In addition, reorganizing the curricula of faculties of education according to current approaches is also considered important for the quality of the teaching profession. Increasing teacher qualifications is seen as an important situation that can reduce the destructive effects of these two factors.

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Extended Abstract

Giriş

Öğretmenlik, büyüyen ve gelişen bir toplumda bilginin yayılmasını teşvik eden yüksek kaliteli bir meslektir (Hiebert et. al., 2002). Bu mesleğin kalitesinin artırılması öğretmen adaylarının aldıkları eğitim ve mesleğe yönelik motivasyonları ile yakından ilişkilidir. Buna karşın, Türkiye'de öğretmen adaylarının mesleklerine ilişkin ve geleceğe yönelik beklentileri beklentilerin altında kalmaktadır (Bek, 2007; Ulutaş, 2017). Bu durumun, başta toplumun öğretmenlik mesleğine yönelik olumsuz algısı olmak üzere bazı nedenlerden kaynaklandığı düşünülmektedir. Telef (2011), eğitim politikalarındaki sık değişiklikler, ekonomik zorluklar, aşırı iş yükü ve toplumsal ilgisizlik gibi sorunlara dikkat çekmiş ve bu sorunların öğretmen tükenmişliğinin ilerlemesine neden olduğunu savunmuştur. Öte yandan Mutluer ve Yüksel (2019), özellikle istihdam sorunlarının Türkiye'de öğretmenlik mesleğinin profesyonel statüsünü etkileyen önemli bir faktör olduğunu belirtmiştir. Bu tür durumlar öğretmen adaylarında mesleki kaygı ve akademik umutsuzluk gibi olumsuz davranışlara yol açabilmektedir.

Yüksek düzeyde kaygı ve umutsuzluk yaşayan eğitimci adaylarının lisans eğitimine uyum sağlamakta zorlandığı, bunun da akademik performansta düşüşe yol açabileceği düşünülmektedir. Öğretmenlik mesleğinin niteliğinin artırılması için bu sorunların net bir şekilde ortaya konması, nedenlerinin derinlemesine tartışılması ve gelecek çalışmalara ışık tutabilecek önerilerde bulunulması oldukça önemlidir. Bu faktörlerin öğretmen eğitimi üzerindeki olumsuz etkilerini ortaya koyabilecek nitelikli çalışmaların öğretmenlik mesleğinin kalitesini ve tercih edilebilirliğini artırabileceğine inanılmaktadır. Bu doğrultuda bu çalışmanın amacı, mesleki kaygı ve akademik umutsuzluğun matematik öğretmen adaylarının akademik başarılarını nasıl etkilediğini araştırmaktır. Ayrıca, bu çalışma, sonuçlardan elde edilen pratik ve uygulanabilir öneriler sunmayı amaçlamaktadır. Buna göre, araştırmaya yön veren araştırma soruları aşağıdaki gibidir:

1. Matematik öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeyleri nedir?
2. Matematik öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeyleri cinsiyetlerine ve sınıf düzeylerine göre anlamlı bir farklılık göstermekte midir?
3. Matematik öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeyleri ile akademik başarıları arasında bir ilişki var mıdır?
4. Matematik öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeyleri akademik başarılarının ne ölçüde anlamlı bir yordayıcısı olabilir?
5. Matematik öğretmeni adaylarının öğretmenlik mesleğine ve karşılaştıkları mesleki sorunlara yönelik bakış açıları nelerdir?

Yöntem

Bu çalışmada açıklayıcı karma model tasarımı kullanılmıştır. Nicel boyut için yaygın olarak kullanılan ilişkiyel tarama modeli, nitel boyut için ise durum çalışması kullanılmıştır. Araştırmanın örneklemini 2022-2023 akademik yılında Türkiye'deki bir devlet üniversitesinin eğitim fakültesinde öğrenim gören 184 matematik öğretmeni adayını oluşturmaktadır. Araştırmacılar bu fakültede çalıştıkları için çalışmada kolay ulaşılabilir durum örnekleme kullanılmıştır. Yarı yapılandırılmış görüşmeler, 184 öğretmen adayından oluşan bir havuzdan gönüllü olan 12 öğretmen adayını ile gerçekleştirilmiştir. Görüşme yapılacak öğretmen adayları her sınıf düzeyinde eşit sayıda olacak şekilde belirlenmiştir.

Bu çalışmada, Cabı ve Yalçınalp (2013) tarafından geliştirilen Öğretmen Adaylarının Mesleki Kaygı Ölçeği ile Gökalp ve Soykan (2020) tarafından geliştirilen Akademik Umutsuzluk Ölçeği olmak üzere iki ölçme aracı kullanılmıştır. Her iki ölçeğin kullanımı için ölçek sahiplerinden yazılı izin alınmıştır. Katılımcıların akademik başarılarını değerlendirmek için en son akademik dönemden elde edilen Ağırlıklı Not Ortalaması (AGNO) kullanılmıştır. Ayrıca, öğretmen adaylarının bakış açılarını elde etmek için araştırmacılar tarafından oluşturulan altı açık uçlu sorudan oluşan yarı yapılandırılmış bir görüşme anketi kullanılmıştır.

Araştırma verileri SPSS-22 yazılım paketi kullanılarak analiz edilmiştir. Uygun istatistiksel teknikler seçilmeden önce, araştırmacılar verilerin normal dağılımını ve varyansların homojenliğini kontrol etmiştir. Öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeylerini belirlemek için betimsel istatistiklerden yararlanılmış, bu düzeylerin cinsiyet ve sınıf düzeyi gibi değişkenlere göre olası farklılıkları değerlendirilirken ise varsayımların karşılanıp karşılanmama durumuna göre t-testi, tek değişkenli ANOVA ve Kruskal-Wallis H teknikleri kullanılmıştır. Öğretmen adaylarının mesleki kaygı ve akademik umutsuzluk düzeyleri ile akademik başarı arasındaki etkileşimi araştırmak için korelasyon analizinden, bu düzeylerin akademik başarı üzerinde önemli bir yordayıcı etkiye sahip olup olmadığını tespit etmek için ise çoklu regresyon analizinden yararlanılmıştır. Araştırmanın nitel analizine ilişkin olarak Nvivo yazılım paketi kullanılarak içerik analizi yapılmıştır.

Sonuç

Araştırmanın sonuçları, matematik öğretmen adaylarının akademik umutsuzluk düzeylerinin oldukça yüksek düzeyde, mesleki kaygılarının ise orta düzeyde olduğu şeklindedir. Araştırmada ayrıca, erkek ve kız öğretmen adayları arasında mesleklerine yönelik kaygı düzeylerinde kayda değer bir farklılık olduğu ve kız öğrencilerin daha yüksek düzeyler sergilediği görülmüştür. Bu farklılık, yüksek etki büyüklüğünün de gösterdiği gibi, önemli bir ağırlığa sahiptir. Buna karşılık, bu çalışma erkek ve kadın matematik öğretmeni adayları arasında akademik umutsuzluk düzeylerinde önemli bir fark ortaya koymamıştır.

Araştırmanın bir diğer sonucu, öğretmen adaylarının mesleki kaygı düzeylerinin sınıf düzeylerine göre farklılık göstermediği, akademik umutsuzluk derecelerinde ise 4. Sınıflar lehine belirgin bir farklılık olduğu şeklindedir. 4. sınıf öğretmen adaylarının akademik umutsuzluk düzeyleri diğer sınıf düzeylerindeki meslektaşlarına kıyasla belirgin bir şekilde yüksek çıkmıştır.

Çalışmadan çıkan ilginç bir sonuç ise matematik öğretmeni adaylarının akademik umutsuzluk düzeyleri ile akademik başarıları arasında düşük düzeyde de olsa pozitif yönde anlamlı bir ilişki bulunmasıdır. Bu bulgu oldukça şaşırtıcıdır çünkü geleneksel beklentiler, yüksek akademik umutsuzluğun buna bağlı olarak azalan akademik performansla ilişkili olacağını öngörmektedir. Bununla birlikte, veriler yüksek akademik umutsuzluk düzeylerinin artan akademik başarı ile de bağlantılı olduğunu ortaya koymaktadır. Öğretmen adaylarının akademik umutsuzluk düzeyleri ile akademik başarıları arasında gözlenen pozitif ilişki sonucunda, akademik umutsuzluğun matematik öğretmeni adaylarının akademik başarılarının düşük düzeyde anlamlı bir yordayıcısı olabileceği sonucuna varılmıştır.