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An Investigation of Students' Research Self-Efficacy and Research Anxiety Levels

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ABSTRACT

The goal of the current research was to present students' scientific research self-efficacy and research anxiety levels as well as to investigate the relationship between these two factors regarding various variables (department, gender, education level, profession, and having a scientific publication) in three departments; Special Education, English Language Teaching, and Science Education at Tokat Gaziosmanpaşa University. The findings of this study showed that research anxiety levels of the participants were low, and gender, scientific publication status, and department had no effect on students' research anxiety levels. However it was found that participants' education and profession levels significantly affected these anxiety levels. Additionally, the participants' scientific research self-efficacy levels were generally moderate, and factors including gender, current educational attainment, employment status, prior scientific publication, and program type had no discernible effects on these levels. Additionally, a moderately positive and significant relationship was found between students' self-efficacy levels for scientific research and their anxiety levels.

Keywords: Gender, research anxiety levels research self-efficacy, undergraduate students

Öğrencilerin Araştırma Özyeterlikleri ve Araştırma Kaygı Düzeylerinin İncelenmesi

Bilgi
**Sorumlu yazar*

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ÖZ

Bu çalışmanın hedefi, bir devlet üniversitesinin üç anabilim dalındaki (İngilizce öğretmenliği, Özel Eğitim ve Fen bilgisi Öğretmenliği) lisans ve lisansüstü öğrencilerinin bilimsel araştırma öz-yeterlik ve araştırma kaygı düzeylerini ortaya koymak ve bu iki faktör arasındaki ilişkiyi çeşitli değişkenler (bölüm, cinsiyet, eğitim düzeyi, meslek ve bilimsel yayına sahip olmak) açısından incelemektir. Bu çalışmanın bulguları, katılımcıların araştırma kaygı düzeylerinin düşük olduğunu, cinsiyet, bilimsel yayın durumu ve bölümün öğrencilerin araştırma kaygı düzeylerini etkilemediğini ancak katılımcıların eğitim ve meslek düzeylerinin bu kaygı düzeylerini önemli ölçüde etkilediğini göstermiştir. Ek olarak, katılımcıların bilimsel araştırma öz-yeterlik düzeyleri genellikle orta düzeyde olduğunu ve cinsiyet, mevcut eğitim durumu, çalışma durumu, önceki bilimsel yayın ve program türü gibi faktörlerin bu düzeyler üzerinde fark edilebilir bir etkisi olmadığını göstermiştir. Ek olarak, öğrencilerin bilimsel araştırmaya yönelik öz-yeterlik dereceleri ile bilimsel araştırmaya yönelik kaygı düzeyleri arasındaki ilişkinin orta düzeyde pozitif ve anlamlı olarak bulunmuştur.

Anahtar Kelimeler: Araştırma kaygısı düzeyleri, araştırma öz-yeterliği, cinsiyet, lisans öğrencileri

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Introduction

Scientific research is the act of gathering, analyzing, interpreting, assessing, and reporting data using deliberate and appropriate procedures and techniques in order to develop reliable and usable solutions by enclosing any recognized issues within a specific context (Erkuş, 2011). Research is "a process of searching, learning, making the unknown known, shedding light on the darkness, that is, and a brief phase of illumination," according to Karasar (2009). Affective, cognitive, and psychomotor competencies or attributes are all present in research culture, which is one of the fundamental characteristics of modern cultures. Individuals can develop this culture through education. Universities are crucial educational institutions in this regard because they enable students to develop fundamental viewpoints and research skills while simultaneously acquiring their identity as researchers (Campisi & Fin, 2011).

According to Bandura (1997), self-efficacy is a qualification that affects prospective teachers' self-judgments and behaviors regarding their ability to organize and successfully perform activities. The degree to which students are assured about conducting a range of research tasks, from library research to organizing and managing practical research projects, is referred to as their level of research self-efficacy (Holden et al., 1999; Unrau and Beck, 2004). According to Mullikin et al. (2007), research self-efficacy refers to one's confidence in achieving research-related goals. According to studies, teachers who hold high levels of self-efficacy have a tendency to become more eager about what they do (Allinder, 1994), motivated to use more humanistic classroom management techniques (Woolfolk, Rosoff, & Hoy, 1990), and ready to adopt modern innovations to better serve their students (Allinder, 1994; Ghaith & Yaghi, 1997; Guskey, 1984). People with a high degree of self-efficacy are individuals that are highly motivated and believe they can complete their academic tasks successfully (Bong ve Skaalvik, 2003).

One of the negative affective factors, research anxiety, describes the aspects and activities of research that a student finds uncomfortable and which may have a detrimental impact on their ability to work well (Higgins & Kotrlik, 2006). Studies have revealed that self-efficacy and anxiety are strongly, and negatively correlated in a variety of settings (Shelton & Mallinckrodt, 1991). According to Papanastasiou and Zembylas (2008), pupils who feel less confident in their ability to complete a task are more likely to feel anxious. Another significant finding was that undergraduate students who believed that research was essential to their professional development were more anxious.

A study conducted by Büyüköztürk (1999) demonstrated that university students had a negative attitude toward scientific research. It is stated that this negative attitude observed in students might result from research anxiety. Lei (2008) states that a high level of anxiety also reduces students' sense of self-efficacy and cause them to have negative attitudes toward scientific research. Academic anxiety directly affects academic success and performance. The student might become reluctant to take action on a matter of concern and to learn new knowledge (Levine, 2008). Some behavioral patterns were observed in individuals with high research anxiety such as not feeling ready for research or avoiding responsibility in cases that required study (Cokluk Bökeoğlu and Yılmaz, 2005).

Therefore, the objective of the current research was to explore undergraduate and graduate students' scientific research self-efficacy and research anxiety levels as well as to look into the relationship between these two factors regarding various variables (department, gender, education level, profession, and having a scientific publication) in three departments; Special Education, ELT, and Science Education at a state university. The following questions were addressed by the current study:

1. What are the research anxiety levels of undergraduate and graduate students?

a. Do students' research anxiety levels significantly differ in terms of some variables (gender, education level, profession, number of academic studies, and department of students)?

2. What are the research self-efficacy levels of undergraduate and graduate students?

a. Do students' research self-efficacy levels significantly differ in terms of some variables (gender, education level, profession, number of academic studies, and department of students)?

3. Are there any correlations between undergraduate and graduate students' research anxiety levels and their research self-efficacy levels in terms of some variables (gender, education level, profession, number of academic studies, and department of students)?

Methodology

In this study, a correlational research design was adopted in order to answer the research questions. Creswell (2002) asserts that correlation designs, one of the quantitative methods, provide forecasting of results and an explanation of the relationship between variables. Correlational designs can be used to link two or more variables and determine how they affect each other. The correlational research uses quantitative data analysis to determine the coefficient correlation index between two variables (Atmowardoyo, 2018).

In this study, quantitative information was gathered using two questionnaires. The first questionnaire was carried out to collect data about participants' research anxiety levels and the second questionnaire aimed to collect information about their research self-efficacy levels in terms of some variables. Moreover, data about demographic characteristics were also collected.

Participants

The sample of this study, which was determined by using the purposeful sampling method, consisted of students at a state university in the Black Sea region in Turkey, and the study was conducted in the fall term of the 2022-2023 academic year. 269 undergraduate and graduate students from Tokat Gaziosmanpaşa University's departments of English Language Teaching, Special Education, and Science Education participated in this study. Table 1 demonstrates the participants' demographics.

Table 1 shows that 176 of the students (65.4%) were females and 93 (34.5%) were males. While 220 (81.8%) of the participants were undergraduate students, 49 (18.2%) were graduate students. While 90 (33.5%) respondents were actively working in a job, 179 (65.5%) respondents were not actively working in a job. While 98 (36.4%) of the participants had a scientific publication before, 171 (63.6%) of them did not have any scientific publications before. In addition, 76 (28.3%) of the participants were from the Department of English Language Teaching, 119 (44.2%) of them were from the Special Education Department and 74 (27.5%) of them were from the Department of Science Education at the Faculty of Education, at Tokat Gaziosmanpaşa University.

Data Collection Instruments

In relation to the study's objectives, through the use of Google Forms, pertinent data were gathered online. Two distinct surveys that were used to gather quantitative data are detailed below. The research-oriented anxiety survey, scientific research self-efficacy survey, and demographic information questionnaire made up the three parts of the questionnaire.

The "Research-oriented Anxiety Scale," created by Büyüköztürk (1997) as a data collection tool to gauge the anxiety levels of undergraduate and graduate students at Tokat Gaziosmanpaşa University, was one of the instruments utilized in this study. The scale, a one-dimensional, five-point Likert-type exam with 12 items, proved to be trustworthy and valid for measuring students' degrees of apprehension concerning scientific research. The scale's reliability was evaluated using the questionnaire's Cronbach Alpha internal consistency coefficient, which was .87 in the original research. In the current study, the reliability of the questionnaire was measured as 0.83. Cronbach's alpha value should be greater than .7 or it should be equal to .7 (Cho & Kim, 2015). Therefore, the questionnaire served as a viable and reliable instrument to gauge participants' degrees of research anxiety.

The "Scientific Research Self-Efficacy Scale," created by Alçöltekin (2019), was the other tool utilized in this study to gather information on undergraduate and graduate students' self-efficacy levels toward scientific research. There were six categories and 37 items in the questionnaire, which was a Likert-style test. The questionnaire's Cronbach Alpha value was calculated to be 0.92 in the initial study. In the current study, the overall reliability of the questionnaire was measured as 0.87. Cronbach's alpha value should be greater than .7 or it should be equal to .7 (Cho & Kim, 2015). Therefore, the questionnaire was also determined to be a viable and trustworthy tool for assessing the participants' levels of research self-efficacy.

Additionally, a "Personal Knowledge Form" prepared by the researchers was exploited in this study to gather information on the demographic details of the respondents, including gender, degree of education, career, and possession of a scientific publication.

Data Collection Procedure

The data collection instruments were offered in a digital form (using the Google Forms application) of the "Personal Information Form", the "Research-Oriented Anxiety Scale" and the "Scientific Research Self-Efficacy Scale", respectively, in three parts, and the students were expected to fill them digitally at once. An online survey was chosen since it was more convenient in terms of time, the analysis process, and simultaneously reaching huge numbers of people. During the data collection process, students were informed about the ethical guidelines and the purpose of the study. It took about 10 minutes for the students to fill out the digital form.

Data Analysis

Calculations of frequency and percentages, descriptive statistical analyses like arithmetic means and standard deviation, as well as analyses of the effects of demographic factors on the level of anxiety toward carrying out scientific research and self-efficacy were used to ascertain the students' level of anxiety and to check whether the data's normality assumption was met. Tables 2 and 3 provided the results.

The values of Skewness and Kurtosis varied between -.674 and.149 for Skewness and.078 and -.29 for Kurtosis. When the values of the kurtosis and skewness are between -1.5 and +1.5, the dispersion is regarded as standard. (Tabachnick and Fidell, 2013). The impacts of gender, education level, employment position, and prior scientific publications on students' levels of anxiety regarding undertaking scientific research were investigated using an independent groups t-test, and the impact of program type was investigated using a one-way ANOVA.

Using the Pearson correlation analysis method, it was possible to reveal the relationships between students' scientific research self-efficacy and their anxiety about conducting scientific research. These associations included gender, education level, employment status, and having previously published scientific research.

In order to gauge a person's level of anxiety, the "Research-Oriented Anxiety Scale" contains 12 items with alternatives such as "Totally Agree," "Agree," "Undecided," "Disagree," and "Totally Disagree." For the affirmative statements on the scale, "I fully agree" receives 5 points, "Agree" receives 4 points, "I am undecided" receives 3 points, "Disagree" receives 2 points, and "Totally disagree" receives 1 point to indicate

a state of no concern. The "Research-Oriented Anxiety Scale" has a 22–110 score range. Individuals with scores between 22 and 50 are considered to have low levels of research anxiety, those between 51 and 80 are considered to have moderate levels, and those between 81 and 110 are considered to have high levels of worry. The "Scientific Research Self-Efficacy Scale," has a 37-185 score range. In this research, participants who had a means score of 37–86 had a low level of self-efficacy, 87–136 had a medium degree, and 137–185 had a high degree of self-efficacy in scientific research.

Findings

This section offers the results of the research with tables, respectively. According to Table 4, although the mean was 45.39 (N: 269) and the standard deviation was 8.35 across the scale, none of the education faculty students had a high level of anxiety towards scientific research. 28.3% (N: 76) of the participants had a medium anxiety level, and 71.7% (N: 193) of them had a low research anxiety level. Therefore, it was revealed that the anxiety level of education faculty students towards scientific research was mostly below the average and low level of anxiety.

In order to answer the first sub-research question of the study, the independent t-test was conducted whether there were gender differences or not. Table 5 shows the results of the “Research-oriented Anxiety Scale”. In Table 5, there was no statistically significant gender difference in the participants' anxiety level toward participating in scientific study [t (267) = 1.70, p>0.05]. Table 5 demonstrates that female participants had higher scores (X: 46.02) than male ones (X: 44.21) on the research anxiety scale. As a consequence, it can be seen that students' research anxiety levels were not significantly affected by the gender variable.

The results from the "Research-oriented Anxiety Scale," broken down by the students' educational levels, are shown in Table 6 for the study's second sub-research question. In Table 6, there was a significant difference in the students' level of anxiety regarding scientific research based on their scores on the overall scale for educational attainment [t (267) = 2.34, p0.05]. It is clear from Table 6 that graduate students' research anxiety mean scores (X: 42.90) were lower than those of undergraduate students (X: 45.95). In this situation, it can be said that graduate students significantly had lower anxiety levels than their undergraduate counterparts.

The results of the independent groups t-test for the "Research-Oriented Anxiety Scale" are shown in Table 7 for the third question in the research. Research anxiety levels changed statistically significantly depending on the occupation, as shown in Table 7 [t (267) = -2.15, p<0.05]. 90 of the participants were actively employed in their current jobs, whereas 179 of the participants were unemployed. It is understood that the research anxiety means score of the students who were not currently working in any job ($\bar{X}$: 43.87) were higher than the students who are currently working in an active job ($\bar{X}$: 46.18). In this case, it is seen that the variable of the profession makes a remarkable difference in the research anxiety degrees in favor of the students who work in an active job.

Table 1. The characteristics of the Respondents

		f	%
Gender	Female	176	65.4
	Male	93	34.5
Department	ELT	76	28.3
	Science Education	74	27.5
	Special Education	119	44.2
Level of Education	Undergraduate	220	81.8
	Graduate	49	18.2
Scientific Publication	Yes	98	36.4
	No	171	63.6
Profession	Yes	90	33.5
	No	179	65.5
Total		269	100

Table 2. Skewness and kurtosis values

	Statistics	Std. Error
Distortion	-0.26	0.14
Kurtosis	-0.29	0.29

Table 3. Normality values

Kolmogorov- Smirnov			
	Statistics	N	Significance
Total	0.03	269	0.10

Table 4. Research Anxiety Levels

Research Anxiety Levels							
High		Medium		Low		$\bar{X}$	S
N	%	N	%	N	%	45.39	8.35
0	0	76	28.3	193	71.7		

Table 5. Research anxiety scores in terms of gender

"Research-Oriented Anxiety Scale"	Gender	N	$\bar{X}$	S	t	p
Overall Results	Female	176	46.02	8.09	1.70	0.91
	Male	93	44.21	8.74		

Table 6. Students' research anxiety scores in terms of education level

"Research-Oriented Anxiety Scale"	Education Level	N	$\bar{X}$	S	t	p
Overall Results	Undergraduate	220	45.95	8.09	2.34	0.02
	Graduate	49	42.90	9.11		

Table 7. Students' research anxiety scores in terms of profession

"Research-Oriented Anxiety Scale"	Profession	N	$\bar{X}$	S	t	p
Overall Results	Yes	90	43.87	9.57	-	0.03
	No	179	46.18	7.58	2.15	

In order to answer the fourth sub-research question, the independent groups t-test was conducted to find out whether there were significant differences or not in the anxiety levels of students regarding academic studies. According to Table 8, the level of anxiety of the education faculty students towards conducting scientific research in line with the scores they got from the overall scale did not have a statistically significant difference regarding the level of scientific publication [t(267) = -0.27, p>0.05]. As shown in Table 8, out of the sample of 269 participants, 98 of them made a scientific publication before, while 171 of them did not make a scientific publication. The results stated that the research anxiety scores of the participants who didn't have scientific publications yet ($\bar{X}$: 45.50) were slightly higher than the students who made scientific publications before ($\bar{X}$: 45.21). Table 8 demonstrates no statistically significant difference in the research anxiety degrees of the participants in terms of having scientific publication

In order to reveal whether there was a remarkable correlation between the "Research-Oriented Anxiety Scale" scores and the program type for the fifth sub-problem of the study, a one-way analysis of variance (ANOVA) was carried out. Tables 9 and 10 present the following conclusions. Table 9 shows that 76 participants came from the English Language Teaching department, 119 from Special Education, and 74 from Science Education program. Table 10 displays the findings of the one-way analysis of variance (ANOVA) which was conducted to reveal significant differences in the mean scores in terms of department variable. In table 10, there was no statistically significant difference between the department and the education faculty students' scores on their level of anxiety regarding undertaking scientific research [F (2-266) =0.04, p>0.05]. Table 10 demonstrates that the participants' research anxiety levels were not significantly affected by the department factor.

The findings for the second research question of the study are given in Table 11 with descriptive statistics. Table 11 shows that although the whole scale had an arithmetic mean of 134.68 (N: 269) and a standard deviation of 23.42, 43.5% of the students in the education faculty had high scientific research self-efficacy levels (N: 117) and 53.5% of the participants had medium levels (N: 144). 3.0% of the students (N: 8) had low levels of self-efficacy for conducting scientific research. As a result, the results showed that most of the respondents' self-efficacy levels toward scientific research were at a medium level. The following findings are presented in Table 12 for the first sub-research question of the study, which looked at the gender-adjusted outcomes of the students' responses to the "Scientific Research Self-Efficacy Scale". Table 12 demonstrates that there was no statistically significant gender difference in scientific research self-efficacy levels of the students of the education faculty [t (267) = 1.73, p>0.05]. The results showed that among the sample of 269 participants, which included 176 female and 93 male respondents, the average score for female participants' scientific research self-efficacy (X: 135.28) was greater than that of male participants (X: 133.53). Because of this, the results showed that there was no statistically significant difference between gender and students' self-efficacy levels toward scientific research.

Table 8. Students' research anxiety scores in terms of having scientific publication

"Research-Oriented Anxiety Scale"	Scientific Publication	N	X̄	S	t	p
Overall Results	Yes	98	45.21	7.94	-	0.77
	No	171	45.50	8.60	0.27	

Table 9. Students research anxiety scores in terms of the department

"Research-Oriented Anxiety Scale"	Department	N	X̄	S
Overall Results	English Language Teaching	76	45.21	7.89
	Special Education	119	45.39	8.98
	Science Education	74	45.61	7.86
	Total	269	45.39	8.35

Table 10. One-way-ANOVA outcomes of students' research anxiety scores in terms of department

	Sum of Squares	Sd	Mean Square	F	P
"Between Groups"	5.95	2	2.97		
"Within Groups"	18690.49	266	70.27	0.04	0.96
Total	18696.44	268			

Table 11. Students' self-efficacy levels toward scientific research

Scientific research self-efficacy level						Overall Scale	
High		Medium		Low		X̄	S
N	%	N	%	N	%	134.68	23.42
117	43.5	144	53.5	8	3.0		

Table 12. Students' scientific research self-efficacy scores in terms of gender

Scientific Research Self-efficacy Scale	Gender	N	X̄	S	t	p
Overall Results	Female	176	135.28	22.89	1.73	0.56
	Male	93	133.53	24.47		

The findings of the students' responses to the "Scientific Research Self-Efficacy Scale" in relation to their educational background are shown in Table 13 for the second sub-research question of the current study. Table 10 demonstrates that there was no statistically significant difference between the scientific research self-efficacy of the education faculty students' overall scale score and their educational level [t(267) = 0.74, p>0.05]. The results showed that undergraduate students had a higher mean score for scientific research self-efficacy (X: 134.91) than graduate students (X: 133.65). Because of this, the respondents' levels of scientific research self-efficacy were not significantly affected by the education level variable.

The results of the independent groups' t-test based on the students' scores on the "Scientific Research Self-Efficacy Scale" for the third sub-research question of the study are shown in Table 14. Table 14 shows that there was no statistically significant difference in the participants' levels of scientific research self-efficacy based on their employment status in any job [t(267) = -2.45, p>0.05]. According to Table 14, the average score of participants who were not now employed in any job (X: 134.18) and the average score of individuals who were actively employed in an active job (X: 134.93) were nearly comparable. As a consequence, it could be concluded that students' research self-efficacy levels were not significantly affected by their profession.

Table 15 presents the independent groups t-test results for the study's fourth sub-problem. Table15 shows that there was no statistically significant difference between the participant groups' levels of scientific research self-efficacy in terms of scientific publication [t(267) = -0.13, p>0.05]. According to Table 15, participants who did not produce any scientific articles (X: 134.92) had slightly greater levels of research anxiety than participants who published previously (X: 134.54). Table 15 revealed that the possession of a scientific publication had no bearing on a person's confidence in their ability to do scientific research.

In order to determine whether there was a significant relationship between the "Scientific Research Self-Efficacy Scale" scores and the kind of program for the fifth sub-problem of the study, a one-way analysis of variance (ANOVA) was carried out.

Table 13. Students' scientific research self-efficacy scores in terms of education level

"Scientific Research Self-efficacy Scale"	Education Level	N	X̄	S	t	p
Overall Results	Undergraduate	220	134.91	23.14	0.34	0.74
	Graduate	49	133.65	24.84		

Table 14. Students' scientific research self-efficacy scores in terms of profession

Scientific Research Self-efficacy Scale	Profession	N	X̄	S	t	p
Overall Results	Yes	90	134.18	26.10	-2.45	0.81
	No	179	134.93	22.02		

Table 15. Students' scientific research self-efficacy scores in terms of scientific publication

Scientific Research Self-efficacy Scale	Scientific Publication	N	X̄	S	t	p
Overall Results	Yes	98	134.92	23.92	-0.13	0.90
	No	171	134.54	23.19		

Table 16. Students' scientific research self-efficacy scores in terms of department

Scientific Research Self-Efficacy Scale	Department	N	X̄	S
Overall Results	English Language Teaching	76	135.02	22.65
	Special Education	119	133.56	24.00
	Science Education	74	136.10	23.44
	Total	269	134.68	23.42

Table 17. One-way-ANOVA results of students' scientific research self-efficacy scores in terms of department

	Sum of Squares	Sd	Mean Square	F	P
Between Groups	305.50	2	154.25	0.28	0.76
Within Groups	116626.36	266	551.23		
Total	146934.86	268			

Table 18. A parametric Pearson correlation analysis Scores

Scales	N	X̄	S	r	p
"Research Anxiety Scale"	269	45.39	8.35	0.37	0.00
"Scientific Research Self-Efficacy Scale"	269	134.68	23.41		

The results are shown in Tables 16 and 17. Table 16 shows that 76 individuals were enrolled in the English Language Teaching department, 119 were enrolled in the Special Education department, and 74 were enrolled in the Science Education department. Table 17 displays the findings of the one-way analysis of variance (ANOVA) which was conducted to reveal a significant distinction between the mean scores and the department component. As illustrated in Table 17, there was no statistically significant difference between the department factor and the degrees of scientific research self-efficacy [F (2-266) = 0.28, p>0.05]. In other words, the department had no impact on their self-efficacy in conducting scientific research.

A parametric Pearson correlation analysis was done between the overall scores of the "Scientific Research Self-Efficacy Scale" and the "Research-Oriented Anxiety Scale" in order to respond to the third research question. Table 18 displays the results of the Pearson correlation. A moderately positive and significant relationship between students' anxiety towards scientific research and their level of scientific research self-efficacy was discovered by the Pearson correlation analysis, which was carried out to investigate the relationship between undergraduate and graduate students' research anxiety levels and their level of scientific research self-efficacy (p< 0.01).

Discussion and Conclusion

The aim of this study was to reveal the scientific research self-efficacy and research anxiety levels of graduate and undergraduate students in three departments (English Language Teaching, Special Education and Science Teaching) of a state university in Türkiye. By examining the effects of students' gender, current education level, employment status, prior scientific publication, and department factors, this research sought to reveal the correlation between students' levels of anxiety toward carrying out scientific research and levels of scientific research self-efficacy. The findings of this study showed that participants' levels of research anxiety were low, and gender, scientific publication status, and department have no bearing on students' levels of research anxiety. However it was found that participants' levels of education and profession significantly affected those levels. Additionally, the

participants' levels of scientific research self-efficacy were generally moderate, and factors including gender, current educational attainment, employment status, prior scientific publication, and program type had no discernible effects on these levels. Additionally, a relationship between students' degrees of self-efficacy in scientific research and their levels of anxiety regarding it was found to be moderately positive and significant.

The findings of this research align with earlier studies that found a connection between students' levels of anxiety about undertaking scientific research and their self-efficacy in that area (Lei, 2008; Senler, 2016; Shelton & Mallinckrodt, 1991). According to Lei (2008), students who owned high degrees of anxiety also had lower levels of self-efficacy and had negative attitudes about scientific inquiry. Academic performance and achievement were directly impacted by academic anxiety. The results of the present study were consistent with those of Büyüköztürk's (1999) study, which showed that research experience was a significant predictor of research anxiety and individuals who conducted research had less anxiety than those who did not. However, it was discovered in the same study that gender did not significantly affect students' research anxiety. According to Higgins & Kotrlik (2006), three categories of variables might become predictors of research anxiety; educational degrees, individual features, and professional atmosphere. According to the study conducted by Higgins & Kotrlik (2006), gender, one of the personal characteristics, was found to be irrelevant to research anxiety which supports the result of the current study. However, this result did not support several studies that found significant differences between gender and research anxiety (Gmelch, Wilke, & Lovrich, 1986; Smith, Anderson, & Lovrich, 1995). Moreover, another finding of Higgins & Kotrlik's (2006) research was that the professional environment and educational level explained a large amount of variance in research anxiety. This result was in line with the finding of the current study.

Another finding of the study was the moderate research self-efficacy levels of the participants and no factor significantly affected the research self-efficacy degrees of the participants. The study conducted by Memduhoğlu and Çelik (2015) investigated the self-efficacy levels of university students regarding some factors such as gender, year, type of faculty, and high school background. The results indicated that the self-efficacy views of the participants were close to the medium level which was consistent with the finding of the current study. However, unlike the findings of the current study, gender and year remarkably influenced the self-efficacy degrees of the participants. Zhao, McCormick, and Hoekman (2008) conducted a study in which gender had a significant effect on the level of self-efficacy in which female faculty members reported lower self-efficacy levels for research than males.

The last finding of the current study was the significant positive correlation between research self-efficacy levels and research anxiety levels of the participants. This finding was parallel with the previous literature (Papanastasiou and Zembylas, 2008; Shelton & Mallinckrodt, 1991; Razavi, Shahrabi & Siamian, 2017). Razavi, Shahrabi & Siamian (2017) investigated the connection between research anxiety and self-efficacy of students at Islamic Azad University. As a result of the study, research anxiety was found to be considered a good predictor for efficacy as there were multiple correlations between these two variables. The findings of the study were a remarkable negative correlation between research anxiety and self-efficacy and no connection between demographic characteristics and self-efficiency which correspond with the findings of the current study.

This study emphasizes key pedagogical implications. It was seen that level of education was a remarkable predictor of research anxiety. Strudents in graduate programs prepared themselves for a position in university had less research anxiety. For this reason, instructors might ensure that students are recommended to participate in research projects more during their graduate experience. In light of these results, it can be suggested that undergraduate and graduate students should focus on method courses offered as electives in addition to compulsory method courses and focus on academic studies. In this way, their anxiety about research could decrease, and their scientific research self-efficacy levels can increase via these courses. It can be emphasized that it is crucial for the development of students to review a large number of articles in order to increase their academic self-efficacy levels. In addition, it can be stated that they should benefit more from counseling courses, especially in their thesis period. Finally, a curriculum could be developed to improve the academic self-efficacy of undergraduate students.

Ethics Committee Permission

Ethical permission of this research was obtained from the ethics committee of Tokat Gaziosmanpaşa University Social and Humanities Research with the decision dated 26.10.2022 and numbered as 13.22.

Genişletilmiş Özet

Giriş

Büyüköztürk (1999) tarafından yapılan bir araştırma, üniversite öğrencilerinin bilimsel araştırmaya karşı olumsuz bir tutuma sahip olduklarını göstermiştir. Öğrencilerde gözlenen bu olumsuz tutumun araştırma kaygısından kaynaklanabileceği belirtilmektedir. Lei (2008), öğrencilerin yüksek düzeydeki kaygılarının öğrencilerin öz-yeterlik duygularını da azalttığını ve bilimsel araştırmaya karşı olumsuz tutumlara sahip olmalarına neden olduğunu belirtmektedir. Akademik kaygı akademik başarıyı ve performansı doğrudan etkiler. Öğrenci, endişe duyduğu bir konuda harekete geçme ve yeni bilgiler öğrenme konusunda isteksiz hale gelebilir (Levine, 2008). Araştırma kaygısı yüksek olan bireylerde araştırmaya hazır hissetmeme veya çalışma gerektiren

durumlarda sorumluluktan kaçma gibi bazı davranış kalıpları görülmektedir (Çokluk Bökeoğlu ve Yılmaz, 2005). Bu nedenle bu araştırmanın amacı, lisans ve lisansüstü öğrencilerinin bilimsel araştırma öz-yeterlik ve araştırma kaygılarının derecelerini ortaya koymak ve bu iki faktör arasındaki ilişkiyi çeşitli değişkenler (bölüm, cinsiyet, eğitim düzeyi, meslek ve bilimsel yayına sahip olmak) açısından incelemektir.

Yöntem

Bu çalışmada kullanılan araştırma deseni nicel yöntemlerden biri olan ilişkisel tarama modelidir. Araştırmada bu türden 5'li Likert ölçeği kullanılmıştır. Hedefler doğrultusunda, Tokat Gaziosmanpaşa Üniversitesi'nde, Eğitim Fakültesi İngilizce öğretmenliği, Özel Eğitim ve Fen Bilgisi öğretmenliği bölümlerinde öğrenim gören 269 lisans ve lisansüstü öğrencilerinin araştırma kaygısı ve araştırma öz-yeterlik düzeylerini belirlemek için anket kullanılmıştır. Tokat Gaziosmanpaşa Üniversitesi lisans ve lisansüstü öğrencilerinin kaygı düzeylerini ölçmek amacıyla veri toplama aracı olarak Büyüköztürk (1997) tarafından geliştirilen "Araştırma Yönelimli Kaygı Ölçeği" bu çalışmada kullanılan araçlardan biridir. 12 maddelik, tek boyutlu, beşli Likert tipi bir sınav olan ölçeğin, öğrencilerin bilimsel araştırmalara ilişkin kaygı derecelerini ölçmede geçerli ve güvenilir olduğu kanıtlanmıştır. Anketin ölçeğin güvenilirliğini ölçen Cronbach Alpha iç tutarlılık katsayısı ilk çalışmada .87 olarak ölçülmüştür. Mevcut çalışmada anketin güvenirliği 0.83 olarak ölçülmüştür. Alçöltekin (2019) tarafından geliştirilen “Bilimsel Araştırma Öz-Yeterlik Ölçeği” lisans ve lisansüstü öğrencilerinin bilimsel araştırmaya yönelik öz-yeterlik düzeyleri hakkında bilgi toplamak amacıyla bu çalışmada kullanılan diğer bir araçtır. Likert tipi bir test olan ankette altı kategori ve 37 madde bulunmaktadır. Anketin Cronbach Alpha değeri 0, 92 olarak hesaplanmıştır. Mevcut çalışmada anketin güvenirliği 0.87 olarak ölçülmüştür.

Ayrıca bu araştırmada katılımcıların cinsiyet, eğitim durumu, kariyer, bilimsel bir yayına sahip olma gibi demografik bilgilerini toplamak için araştırmacılar tarafından oluşturulan “Kişisel Bilgi Formu” kullanılmıştır.

Sonuç

Bu araştırmanın amacı, İngilizce öğretmenliği, Özel Eğitim ve Fen bilgisi Öğretmenliği lisans ve lisansüstü öğrencilerinin bilimsel araştırma öz-yeterlik ve araştırma kaygı düzeylerini ortaya çıkarmak ve bu iki faktör arasındaki ilişkiyi çeşitli değişkenler (bölüm, cinsiyet, eğitim düzeyi, meslek ve bilimsel yayına sahip olmak) bakımından araştırmaktır. Bu çalışmanın sonucunda katılımcıların araştırma kaygı düzeylerinin düşük olduğu, cinsiyet, bilimsel yayın durumu ve bölümün öğrencilerin araştırma kaygı düzeylerini etkilemediği ancak katılımcıların eğitim ve meslek düzeylerinin kaygı düzeylerini önemli ölçüde etkilediği görülmüştür. Bunun yanında, katılımcıların bilimsel araştırma öz-yeterlik düzeyleri genellikle orta düzeyde olduğu ve cinsiyet, mevcut eğitim durumu, çalışma durumu, önceki bilimsel yayın ve program türü gibi faktörlerin bu düzeyler üzerinde fark edilebilir bir etkisi olmadığı görülmüştür. Son olarak da, öğrencilerin bilimsel araştırmaya yönelik öz-yeterlik dereceleri ile bilimsel araştırmaya yönelik kaygı düzeyleri arasındaki ilişkinin orta düzeyde pozitif ve anlamlı olduğu görülmüştür.

Tartışma

Bu çalışmanın bulguları, öğrencilerin bilimsel araştırma yapma konusundaki kaygı düzeyleri ile bu alandaki öz yeterlilikleri arasında bir bağlantı bulan daha önceki çalışmalarla uyumludur (Lei, 2008; Senler, 2016; Shelton & Mallinckrodt, 1991). Lei'ye (2008) göre, yüksek düzeyde kaygı yaşayan öğrencilerin öz-yeterlik düzeyleri de daha düşük ve bilimsel araştırmaya karşı olumsuz tutumları vardır. Akademik performans ve başarı, akademik kaygıdan doğrudan etkilenmektedir. Araştırmanın bir diğer bulgusu, katılımcıların araştırma öz-yeterlik düzeylerinin orta düzeyde olması ve hiçbir faktörün katılımcıların araştırma öz-yeterlik derecelerini önemli ölçüde etkilememesidir. Memduhoğlu ve Çelik (2015) tarafından yapılan çalışmada lisans öğrencilerinin öz-yeterlik düzeyleri cinsiyet, yıl, fakülte türü ve lise geçmişi gibi bazı faktörlere göre incelenmiştir. Bulgular, katılımcıların öz-yeterlik algılarının orta düzeye yakın olduğunu göstermiş olup bu durum mevcut araştırma bulgusuyla uyumludur. Bu çalışmanın son bulgusu, katılımcıların araştırma öz-yeterlik düzeyleri ile araştırma kaygısı düzeyleri arasında anlamlı pozitif bir ilişki olduğudur. Bu bulgu önceki literatürle paralellik göstermektedir (Papanastasiou ve Zembylas, 2008; Shelton & Mallinckrodt, 1991; Razavi, Shahrabi & Siamian, 2017). Razavi, Shahrabi ve Siamian (2017), İslami Azad Üniversitesi'ndeki öğrencilerin algılarından araştırma kaygısı ile öz yeterlilik arasındaki ilişkiyi araştırmıştır. Araştırma sonucunda, bu iki değişken arasında çoklu korelasyonlar olduğu için araştırma kaygısının etkililik için iyi bir yordayıcı olduğu görülmüştür. Araştırmanın bulguları, araştırma kaygısı ile öz-yeterlik arasında dikkat çekici bir negatif ilişki ve mevcut çalışmanın bulgularıyla paralel olarak demografik özellikler ile öz-yeterlik arasında hiçbir ilişki bulunmamıştır.

Öneri

Bu çalışma temel bazı pedagojik çıkarımları vurgulamaktadır. Eğitim düzeyinin araştırma kaygısının dikkate değer bir yordayıcısı olduğu görülmüştür. Kendini üniversitede bir pozisyona hazırlayan lisansüstü programlardaki öğrencilerin araştırma kaygısı daha azdır. Bu nedenle öğretim elemanları, öğrencilerin lisansüstü deneyimleri sırasında araştırma projelerine daha fazla katılmalarının önerilmesini sağlayabilir. Bu sonuçlar ışığında lisans ve lisansüstü öğrencilerinin zorunlu yöntem derslerine ek olarak seçmeli olarak sunulan yöntem derslerine ağırlık vermeleri ve akademik çalışmalara ağırlık vermeleri önerilebilir. Bu sayede araştırmaya yönelik kaygıları azaltılabilir ve bu kurslar aracılığıyla bilimsel araştırma öz-yeterlik düzeyleri artabilir. Öğrencilerin akademik özyeterlik düzeylerini artırmak için çok sayıda

makaleyi incelemelerinin gelişimleri açısından çok önemli olduğu vurgulanabilir. Ayrıca özellikle tez dönemlerinde psikolojik danışma derslerinden daha fazla yararlanmaları gerektiği ifade edilebilir. Son olarak, lisans öğrencilerinin akademik özyeterliklerini geliştirmeye yönelik bir müfredat geliştirilebilir.

Araştırmanın Etik Taahhüt Metni

"Yapılan bu çalışmada bilimsel, etik ve alıntı kurallarına uyulduğu; toplanan veriler üzerinde herhangi bir tahrifatın yapılmadığı, karşılaşılacak tüm etik ihlallerde "Cumhuriyet Uluslararası Eğitim Dergisi ve Editörünün" hiçbir sorumluluğunun olmadığı, tüm sorumluluğun Sorumlu Yazara ait olduğu ve bu çalışmanın herhangi başka bir akademik yayın ortamına değerlendirme için gönderilmemiş olduğu sorumlu yazar tarafından taahhüt edilmiştir."

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