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

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Öğrencilerin Araştırma Özyeterlikleri ve Araştırma Kaygı Düzyeinerinin İncelenmesi

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 ilişki çişetti değerlendirmek (bölüm, cinsiyet, eğitim düzeyi, meşle ve bilimsel yayına sahip olma) açısından incelemektir. Bu çalışmanın bulguları, katılımcıların araştırma kaygı düzeylerini düşük olduğunu, cinsiyet, bilimsel yayına dair durumu ve bölümün öğrencilerin araştırma kaygı düzeylerini etkilediği ancak katılmaların eğitim ve meslek düzeylerinin bu kaygı düzeylerini önemli ölçüde etkilediği göstermiştir. Ek olarak, katılmaların bilimsel araştırma öz-yeterlik düzeyleri genellikle orta düzeyde olduğunu ve cinsiyet, mevcut eğitim durumu, çalışma durumu, öncesi bilimsel yayına ve program türü gibi faktörlerin bu düzeyler üzerinde farklı edilebilir bir etkisi olmadığını göstermiştir. Ek olarak, öğrencilerin bilimsel araştırma yaparak yeterlik derecelerini ile bilimsel araştırmaya yönelik kaygı düzeyleri arasındaki ilişkinin orta düzeyde pozitif ve anlamlı olarak bulunmuştur.

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

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 & Kotlik, 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 Bokeoglu and Yilmaz, 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 -1.674 and 1.49 for Skewness and 0.78 and -1.5 for Kurtosis. Therefore, the values of Skewness and Kurtosis were 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, p<0.05]. 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 mean score of the students who were not currently working in any job (X̄: 43.87) were higher than the students who are currently working in an active job (X̄: 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

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

Table 2. Skewness and kurtosis values

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distortion</td>
<td>-0.26</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.29</td>
</tr>
<tr>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>0.29</td>
</tr>
</tbody>
</table>

Table 3. Normality values

<table>
<thead>
<tr>
<th>Kolmogorov- Smirnov</th>
<th>Statistics</th>
<th>N</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.03</td>
<td>269</td>
<td>0.10</td>
</tr>
</tbody>
</table>
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 \[t(267) = 0.04, p>0.05\]. 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 4. Research Anxiety Levels

<table>
<thead>
<tr>
<th>Research Anxiety Levels</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Ÿ</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0</td>
<td>76</td>
<td>193</td>
<td>45.39</td>
<td>8.35</td>
</tr>
<tr>
<td>%</td>
<td>0</td>
<td>28.3</td>
<td>71.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Research anxiety scores in terms of gender

<table>
<thead>
<tr>
<th>“Research-Oriented Anxiety Scale”</th>
<th>Gender</th>
<th>N</th>
<th>Ÿ</th>
<th>S</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Results</td>
<td>Female</td>
<td>176</td>
<td>46.02</td>
<td>8.09</td>
<td>1.70</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>93</td>
<td>44.21</td>
<td>8.74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>“Research-Oriented Anxiety Scale”</th>
<th>Education Level</th>
<th>N</th>
<th>Ÿ</th>
<th>S</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Results</td>
<td>Undergraduate</td>
<td>220</td>
<td>45.95</td>
<td>8.09</td>
<td>2.34</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>49</td>
<td>42.90</td>
<td>9.11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>“Research-Oriented Anxiety Scale”</th>
<th>Profession</th>
<th>N</th>
<th>Ÿ</th>
<th>S</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Results</td>
<td>Yes</td>
<td>90</td>
<td>43.87</td>
<td>9.57</td>
<td></td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>179</td>
<td>46.18</td>
<td>7.58</td>
<td>2.15</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Students’ research anxiety scores in terms of having scientific publication
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 educational 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. Table 15 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.
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
participanı's 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 (Gmelich, 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. Students 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


**Yöntem**

**Sonuç**
Bu çalışmanın amacı, İngilizce öğretmenliği, Özel Eğitim ve Fen bilgisi Öğretmenliği lisans ve lisansüstü öğrencilerinin bilimsel araştırma öz-yeterlilik ve araştırma kaygısı düzeylerini ortaya çıkarmak ve bu iki faktör arasındaki ilişkiyi çeşitli değişkenler (bölüm, cinsiyet, eğitim düzeyi, meslek ve bilimsel yaşam sahibi olmak) bakımından araştırmaktır. Bu çalışmanın sonuçunda katılımcıların araştırma kaygısı düzeylerini düşük olduğu, cinsiyet, bilimsel yaşam durumu ve bölümün öğrencilerin araştırma kaygısı düzeylerini etkilediği ancak katılımcıların eğitim ve meslek düzeylerini kaygısı düzeyleri arasında önemli ölçüde etkilediği görülmüştür. Bunun yanı sıra, katılımcıların bilimsel araştırma öz-yeterlilik düzeyleri genellikle orta düzeyde olduğunu ve cinsiyeti, mevcut eğitim durumu, çalışma durumu, önceki bilimsel yaygın ve program türlü gibi faktörlerin bu düzeyler üzerinde farklı etkisi olduğu görülmüştür. Son olarak da, öğrencilerin bilimsel araştırmaya yönelik öz-yeterlilik derecelerini ile bilimsel araştırma yönlendirme kaygısı düzeyleri arasındaki ilişkinin orta düzeyde pozitif ve anlamlı olduğu görülmüştür.

**Tartışma**

**Öneri**

References


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