# Sivas Cumhuriyet University Educational Sciences Institute Journal

## Classroom Teachers' Self-Efficacy Towards Environmental Education #

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**Research Article**

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**ABSTRACT**

The aim of this study was to investigate the self-efficacy of classroom teachers towards environmental education. A single survey model was used in the study. The sample of the study consists of 332 classroom teachers working in public primary schools in Sivas province in the spring semester of the 2022-2023 academic year, who were selected by quota sampling. The data analysis was carried out with the help of the SPSS-27 package programmed. As a result of the research, it was found that the environmental education self-efficacy of the classroom teachers was very high. At the same time, it was found that there was a significant difference in the level of environmental education self-efficacy of classroom teachers according to their gender, seniority and the settlement units where they work. The self-efficacy of classroom teachers for environmental education according to the gender variable is in favor of male teachers. According to the seniority variable of classroom teachers, their self-efficacy towards environmental education is in favor of classroom teachers with 21 years and above. In addition, the significant difference in environmental education self-efficacy of classroom teachers according to the residential unit variable is in favor of classroom teachers in the city center. Considering this research on classroom teachers' environmental education self-efficacy, it can be recommended to investigate the environmental education self-efficacy of teachers of different disciplines and to increase the number of studies on environmental education that consider different methods.

*Keywords:* Classroom teacher, environment, environmental education, science education, environmental self-efficacy

## Sınıf Öğretmenlerinin Çevre Eğitimine Yönelik Öz Yeterlikleri

**ÖZ**

Bu araştırmanın amacı, sınıf öğretmenlerinin çevre eğitimine yönelik öz yeterliklerinin incelenmesidir. Araştırmada tekil tarama modeli kullanılmıştır. Araştırmanın örneklemini 2022-2023 eğitim öğretim yılı bahar döneminde Sivas ilinde resmi ilkokullarda görev yapan ve kota örneklem ile seçilen 332 sınıf öğretmeni oluşturmaktadır. Verilerin çözümlenmesi SPSS-27 paket programı yardımı ile gerçekleştirilmiştir. Araştırma sonucunda sınıf öğretmenlerinin çevre eğitimi öz yeterliklerinin çok yüksek olduğu tespit edilmiştir. Aynı zamanda sınıf öğretmenlerinin cinsiyet, kıdem ve çalıştığı yerleşim birimlerine göre çevre eğitimine yönelik öz yeterlik düzeylerine ilişkin anlamlı bir farklılık olduğu tespit edilmiştir. Sınıf öğretmenlerinin cinsiyet değişkenine göre çevre eğitimi öz-yeterlikleri erkek öğretmenlerin lehinedir. Sınıf öğretmenlerinin kıdem değişkenine göre çevre eğitimine yönelik öz yeterlikleri ise 21 yıl ve üzeri olan sınıf öğretmenlerinin lehinedir. Ayrıca sınıf öğretmenlerinin çalıştığı yerleşim birimi değişkenine göre çevre eğitimi öz-yeterliklerinde görülen anlamlı fark şehir merkezindeki sınıf öğretmenleri yönündedir. Sınıf öğretmenlerinin çevre eğitimine yönelik öz yeterliklerinin ele alındığı bu araştırma dikkate alındığında; farklı disiplinlere yönelik öğretmenlerin çevre eğitimi öz yeterliklerinin araştırılması ve farklı yöntemleri de dikkate alan çevre eğitimine yönelik araştırmaların sayısının artırılması önerilebilir.

*Anahtar Kelimeler:* Sınıf öğretmeni, çevre, çevre eğitimi, fen eğitimi, çevre öz-yeterliği

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## Introduction

Global population growth, technological advances and the pressures of consumer demands on the natural world are causing many environmental problems and concerns (Reddy, 2021). The solution to environmental problems is possible through environmental education. Among the situations affecting environmental education, teachers' beliefs, attitudes and self-efficacy perceptions can be mentioned many factors. The most important of these factors is the self-efficacy perception (Ilgaz, Bülbül, & Çuhadar, 2013). It is very important to determine the self-efficacy levels of teachers for qualified environmental education.

Changing people's behavior towards the environment is very effective in solving environmental problems (Mercan & Köseoğlu, 2023). Although people are the basis of environmental problems, the solution of this problem also depends on people and environmental education. One of the most basic solutions is the protection of the natural environment. In solving environmental problems, it is very important that people recognize the environment they live in, take responsibility and protect the natural environment.

The survival of human beings depends on the elements of the environment, and they benefit from them according to their environment. It is well known that a self-renewing process dominates the relationship between nature and man. The reason for this is that the human impact on nature is limited and nature can eliminate these negative effects. However, with the deterioration of the natural balance after the industrial revolution, environmental problems have become more noticeable. Environmental problems can, in the most general terms, be described as the negative effects of human activities (Erten, 2004).

The most important task of all humanity is to leave a livable environment for the next generation. The solution or prevention of environmental problems depends on raising environmental awareness in children through education from an early age (Uzun & Sağlam, 2005). Although many countries have made large investments to find solutions to environmental problems, environmental education has an important share among these investments (Gagliardi & Alfthan, 1994). The way to find solutions to environmental problems and act is through environmental education (Özbuğutu, Karahan, & Tan, 2014).

There is an urgent need to integrate environmental education more into education (Jung & Dos Santos, 2022). Environmental education is sustainable education, and effective environmental education has a positive impact on students' thinking skills. Today, it is very important to educate individuals to be environmentally literate. Environmentally literate individuals are individuals who take responsibility for environmental issues and try to find solutions to environmental problems. Through environmental education, individuals learn what needs to be done in many subjects such as environmental problems, pollution, global warming and the measures to be taken in environmental problems (Doğan, 2007).

Early environmental education plays an important role in the formation of positive attitudes and behaviors towards the environment (Erten, 2000). Behaviors acquired in the preschool years form the basis of future behaviors. Through fun activities and games from an early age, children can be made sensitive to the environment (Erten, 2004). Thanks to environmental education, children recognize their environment and have a positive environmental awareness (Güler, 2009).

The importance of environmental awareness, which is a multidimensional concept, was first raised in 1977 in the Tbilisi Declaration (Kısa, 2008). Environmental awareness is a positive attitude and behavior that enables people to establish a balanced interaction with nature (Keleş, 2015). Environmental awareness includes behaviors that protect the environment as well as knowledge about the factors that protect and damage the environment (Gökdemir, 2021).

The first foundations for the formation of environmental awareness are laid in the family. In the following years, the aim is to raise environmentally conscious individuals by supporting formal education (Selanik Ay, 2010). Teachers have an important role in raising environmental awareness and solving environmental problems (Yıldırım, Kışoğlu, & Salman 2018). At the same time, teachers are the most effective people in educating children and youth as tomorrow's leaders in environmental protection (Esa, 2010).

An examination of the curricula shows that there is no separate course on the environment. At the primary level, environmental education is mostly taught in the context of science, social studies and life sciences courses. According to Yücel and Morgil (1998), environmental education can be taught in different courses. In addition, for environmental education to effectively contribute to sustainable development, teachers need to be aware of their basic roles and be adequately prepared through teacher education programs (Sikhosana, 2022). The aim of environmental education is to ensure that students develop positive behaviors and attitudes towards the environment throughout their lives. The acquisition of correct and sufficient environmental awareness in primary school also affects the later education and training of students. Teachers therefore have an important role to play.

Individuals' experiences influence their self-efficacy perceptions and behaviors. Self-efficacy beliefs reflect an individual's belief in themselves. Individuals with high self-efficacy beliefs will try to do the job, even if they do not have sufficient equipment. However, individuals with low self-efficacy beliefs do not try (Bandura, 1997). Teachers' belief that they can deliver environmental education in a qualified way can be defined as environmental education self-efficacy (Moseley, Reinke, & Bookout, 2002). If teachers think that they can teach environmental issues to all students and create environmental awareness, it

means that their environmental self-efficacy belief is high; if they think that they cannot teach environmental issues due to various reasons, it means that their self-efficacy perception is low (Armor et al, 1976). Experience provides the formation of environmental education self-efficacy beliefs (Bandura, 1994). Spending time with nature from an early age increases environmental education self-efficacy beliefs (Gardner, 2009).

Teachers' professional qualifications, sense of duty and responsibility are directly proportional to their belief structures. It is very important to determine teachers' self-efficacy beliefs for qualified environmental education. Therefore, it can be suggested to carry out different guiding studies by evaluating the current situation.

When the literature is examined, it is seen that there are few environmental self-efficacy studies in the field of environmental classroom teaching. Şimşekli (2004) stated in his study that environmental education awareness in primary schools is not high. Güler (2009) stated that teachers' current knowledge and skills about environmental education are insufficient. Kayalı (2010) stated that pre-service teachers generally have positive attitudes towards environmental problems. In their research on environmental education in Turkey, Demir and Yalçın (2014) emphasized that environmental education should be given more attention in teacher training programs, especially in programs that train classroom teachers, considering the importance of the qualifications of teachers in raising future generations.

The aim of this study was to determine the self-efficacy of classroom teachers towards environmental education. The problem statement of the research is 'What is the environmental education self-efficacy of classroom teachers' and the sub-problems in the research are as follows:

1. What are the self-efficacy levels of classroom teachers towards environmental education?

2. In the self-efficacy levels of classroom teachers towards environmental education.

a) Is there a significant difference in terms of gender variable?

b) Is there a significant difference in terms of seniority variable?

c) Is there a significant difference in terms of the residential unit variable?

## Method
### Research Design

A single survey model was used in the research. In the single survey model, the variables belonging to the situation and unit such as subject, event, group, individual, institution are tried to be described separately (Karasar, 2023).

### Population and Sampling

The population of the study consists of a total of 2324 classroom teachers (1904 central, 420 district and village teachers) working in public primary schools in Sivas province (MEB, 2022). The sample size of the study based on the population was determined as 330 with 95% confidence interval for 2324 teachers working in public primary schools in Sivas province in the spring term of the 2022-2023 academic year (Bal, 2001). The sample was selected using quota sampling among teachers in the center and outside the center (district and village). Quota sampling considers the proportion of groups in the population (Kish, 1965). The reason for selecting a quota sample is that it better illuminates the situation selected in the study and provides more information (Christensen, Johnson, & Turner. 2015). Information about the 332 teachers selected for the quota sample is presented in Table 1. The total proportion of the selected sample in the population is approximately 15%.

Table 1. Population, sample and the percentages they represent for quota sampling

| Group | Population | Representation Rate (%) | Sampling | Representation Rate (%) |
|---|---|---|---|---|
| Centre (Province) | 1904 | 82 | 273 | 82 |
| Out of Centre (District and Village) | 420 | 18 | 59 | 18 |
| Total | 2324 | 100 | 332 | 100 |

When analyzing the demographic information of the classroom teachers, 179 of the classroom teachers are male and 153 of them are female, and according to their seniority, the majority (48%) are 21 years and older. More detailed demographic information about the classroom teachers is given in Table 2.

Table 2. Demographic information on classroom teachers

| Variable | | N | % |
|---|---|---|---|
| Gender | Female | 153 | 46 |
| | Male | 179 | 54 |
| Seniority | 0–10 years | 53 | 16 |
| | 11–20 years | 118 | 36 |
| | 21 years and over | 161 | 48 |
| Residential Unit | Centre | 273 | 82 |
| | District-Village | 59 | 18 |
| | Total | 332 | 100 |

### Data Collection Tools

The 'Environmental Education Self-Efficacy Scale' developed by Özlü, Keskin and Gül (2013) were used for the data of the study. In the first part of the scale, personal information about the teachers was included. Among the personal information, there are expressions to determine their seniority, gender, educational level, class level and the settlement unit where they work. The second part was the Environmental Education Self-Efficacy Scale.

The Environmental Education Self-Efficacy Scale consisted of two sub-dimensions as 'Field Knowledge' and 'Teaching Strategies' and a total of 24 items were included. The field knowledge sub-dimension consisted of 10 items and the teaching strategies sub-dimension consisted of 14 items. The overall Cronbach alpha reliability coefficient of the scale was calculated to be 0.97. The reliability coefficient for content knowledge was 0.93 and the reliability coefficient for teaching strategies was 0.96. In addition, the 0-100 scale was used in the scale instead of the Likert-type scale (Özlü, Keskin and Gül, 2013). In this study, the reliability coefficient for content knowledge was 0.92, the reliability coefficient for teaching strategies was 0.96, and the reliability coefficient for the total scale was 0.97.

### Data Collection

The necessary permissions for the research were obtained from the Directorate of National Education. The environmental self-efficacy scale used to collect quantitative data in the study was administered during the spring term of the 2022-2023 academic year. The scale was administered to 338 classroom teachers. 6 of the 338 scales were removed because they were not suitable for analysis. As a result of the application, 332 data from classroom teachers were analyzed.

### Analyzing the Data

The quantitative data obtained in this study were analyzed using SPSS 27 package program. Frequency (f) and percentage (%) were used to describe the personal information of the classroom teachers. Arithmetic mean (X) and standard deviation (SD) were calculated to determine the frequency of teachers' participation in the statements of the scale. The scores to be given to the questions in the environmental education self-efficacy scale are between 0 and 100. When interpreting the mean scores obtained by the teachers from the scale, the lowest score of 0 and the highest score that can be obtained from the scale were accepted as 2400 and the interpretation was made over the total scores.

Skewness and kurtosis values were analyzed to determine whether the quantitative data were normally distributed. Skewness and kurtosis values between -1.5 and +1.5 indicate that the data are normally distributed (Tabachnick & Fidell, 2013). In the analyses conducted for 332 teachers, 5 data with outlier values were removed and overall analyses were conducted using data from 327 teachers. These values for each subgroup formed for the research problems are shown in Table 3, and all the data show a normal distribution.

Table 3. Skewness and kurtosis values for subgroups

| Variable | | N | Skewness | Kurtosis |
|---|---|---|---|---|
| Gender | Female | 149 | -.914 | .782 |
| | Male | 178 | -.963 | .747 |
| Seniority | 0–10 years | 52 | -.747 | .593 |
| | 11–20 years | 117 | -.740 | -.127 |
| | 21 years and over | 158 | -.713 | .664 |
| Residential Unit | Centre | 269 | -.879 | .531 |
| | District-Village | 58 | -.895 | .539 |
| | Total | 327 | | |

Independent groups t-test and one-way analysis of variance (ANOVA) were used to analyze the quantitative data using SPSS 27 software.

### Findings

Table 4. Distribution of classroom teachers' scores from the scale

| Score Range | Evaluation | N | $\bar{x}$ | Min. | Max. | % |
|---|---|---|---|---|---|---|
| 0-1200 | Low | - | - | - | - | - |
| 1201-1600 | Middle | 5 | 1493,40 | 1360 | 1600 | 1,50 |
| 1601-2000 | High | 81 | 1866,78 | 1630 | 2000 | 25,00 |
| 2001-2400 | Very High | 241 | 2196,57 | 2010 | 2400 | 73,50 |
| Total | Very High | 327 | 2104,13 | 1360 | 2400 | 100,00 |

When analyzing Table 4, the arithmetic mean of 73.5% of the classroom teachers is 2196.57 and their environmental self-efficacy scores are very high. At the same time, when all classroom teachers are considered, it can be said that the arithmetic mean is 2104.13 points and

### Findings Related to Classroom Teachers' Self-Efficacy in Environmental Education

The distribution of the scores obtained from the scale related to the self-efficacy levels of classroom teachers towards environmental education was given in Table 4.

with this score they have a very high environmental self-efficacy.

## *Findings Related to Environmental Education Self-Efficacy Levels of Classroom Teachers According to Their Gender*

An independent (unrelated) groups t-test was carried out to determine whether the scores of the 'expertise' sub-dimension of the environmental education self-efficacy scale differed according to the gender variable of the classroom teachers. Levene's test showed that the variances were equal. Table 5 shows the results of the t-test of the 'field knowledge' sub-dimension of the environmental education self-efficacy scale according to the gender variable of the classroom teachers.

Table 5. T test results of environmental education self-efficacy scale 'field knowledge' subscale according to gender variable of classroom teachers

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| Female | 149 | 866,27 | 79,76 | 325 | -4,01 | ,001 |
| Male | 178 | 898,60 | 66,19 | | | |

Looking at Table 5, according to the gender variable of the classroom teachers, the sub-dimension 'field knowledge' of the environmental education self-efficacy scale is statistically significant and in favor of male teachers (t(325)=-4,01; p<,05).

An independent (unrelated) groups t-test was conducted to determine whether the scores of the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale differed according to the gender variable of the classroom teachers. Levene's test showed that the variances were equal. Table 6 shows the results of the t-test for the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale according to the gender variable of the classroom teachers.

Table 6. T test results for the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale by gender variable of classroom teachers

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| Female | 149 | 1198,70 | 125,56 | 325 | -3,08 | ,002 |
| Male | 178 | 1238,32 | 107,31 | | | |

Looking at Table 6, according to the gender variable of the classroom teachers, the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale is statistically significant and in favor of male teachers (t(325)=-3,08; p<,05).

An independent (unrelated) groups t-test was performed to determine whether the total scores of the environmental education self-efficacy scale differed according to the gender variable of the classroom teachers. Levene's test showed that the variances were equal. Table 7 shows the t-test results for the total scores of the environmental education self-efficacy scale according to the gender variable of the classroom teachers.

Table 7. T test results for total scores of environmental education self-efficacy scale according to gender variable of classroom teachers

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| Female | 149 | 2064,96 | 200,63 | 325 | -3,52 | ,001 |
| Male | 178 | 2136,92 | 169,47 | | | |

When comparing the total scores on the environmental education self-efficacy scale according to the gender variable of the classroom teachers in Table 7, the difference between the arithmetic means is statistically significant and in favor of male teachers. (t(325)=-3,52; p<,05).

## *Findings Related to Environmental Education Self-Efficacy Levels of Classroom Teachers According to Their Seniority*

The descriptive results of the classroom teachers' self-efficacy towards environmental education according to the seniority variable are presented in Table 8.

Table 8. Descriptive findings related to environmental education self-efficacy levels of classroom teachers according to seniority variable

| Scale | Seniority | N | $\bar{x}$ | S |
|---|---|---|---|---|
| | 0–10 years | 52 | 861,04 | 82,13 |
| Field Knowledge | 11–20 years | 117 | 866,67 | 84,19 |
| | 21 years and over | 158 | 904,11 | 56,93 |
| | 0–10 years | 52 | 1190,12 | 138,83 |
| Teaching Strategies | 11–20 years | 117 | 1193,59 | 132,88 |
| | 21 years and over | 158 | 1249,94 | 87,33 |
| | 0–10 years | 52 | 2051,15 | 218,35 |
| Total | 11–20 years | 117 | 2060,26 | 212,15 |
| | 21 years and over | 158 | 2154,05 | 139,21 |

The ANOVA test was used to investigate whether there was a significant difference in the sub-dimensions of the Environmental Education Self-Efficacy Scale and the total scale according to the seniority variable of the classroom teachers. Levene's test showed that the variances were not homogeneous. To find the direction of the significant difference according to the seniority variable, multiple comparisons were made using Tamhane's T2 test, which can be used when the variances are not equal. Table 9 shows the ANOVA results for the sub-dimensions of the environmental education self-efficacy scale and the total scale according to the seniority variable of the classroom teachers.

Table 9. ANOVA results for environmental education self-efficacy scale sub-dimensions and the whole scale according to the seniority variable of classroom teachers

| Scale | Groups | Sum of Squares | df | Mean Square | F | p | Difference |
|---|---|---|---|---|---|---|---|
| Field Knowledge | Between Groups | 126484,20 | 2 | 63242,10 | 12,23 | ,001 | 3>2 |
| | Within Groups | 1675227,87 | 324 | 5170,45 | | | 3>1 |
| | Total | 1801712,08 | 326 | | | | |
| Teaching Strategies | Between Groups | 269626,40 | 2 | 134813,20 | 10,32 | ,001 | 3>2 |
| | Within Groups | 4229498,98 | 324 | 13054,00 | | | 3>1 |
| | Total | 4499125,38 | 326 | | | | |
| Total | Between Groups | 764895,93 | 2 | 382447,96 | 11,58 | ,001 | 3>2 |
| | Within Groups | 10695860,67 | 324 | 33011,91 | | | 3>1 |
| | Total | 11460756,60 | 326 | | | | |

Looking at Table 9, in the sub-dimension 'content knowledge', it is significant in favor of classroom teachers with a seniority of 21 years and above compared to those with a seniority of 0-10 years and 11-20 years $(F(2,324)=12.33; p<,001)$. Similarly, in the sub-dimension 'teaching strategies', it is significant in favor of classroom teachers with a seniority of 21 years and above compared to those with a seniority of 0-10 years and 11-20 years $(F(2,324)=10.32; p<,001)$. When we look at the total self-efficacy scale for environmental education according to the seniority variable of classroom teachers, classroom teachers with 21 years and above are significantly higher than teachers with less seniority $(F(2,324)=11.58; p<,001)$.

### Findings Related to Environmental Education Self-Efficacy Levels of Classroom Teachers According to the Residential Units Where They Work

An independent (unrelated) groups t-test was carried out to determine whether the scores of the sub-dimension 'field knowledge' of the environmental education self-efficacy scale differed according to the housing unit in which the classroom teachers worked. Levene's test showed that equality of variances was not ensured. Table 10 shows the results of the t-test of the 'field knowledge' sub-dimension of the environmental education self-efficacy scale according to the variable of the housing unit in which the classroom teachers work.

Table 10: T test results of environmental education self-efficacy scale 'field knowledge' sub-dimension according to the residential unit in which classroom teachers work

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| City Centre | 269 | 889,27 | 69,30 | 71,96 | 2,41 | ,019 |
| Outside City Centre | 58 | 858,79 | 90,84 | | | |

Looking at Table 10, there is a statistically significant difference in the 'expertise' sub-dimension of the environmental education self-efficacy scale according to the residential unit in which the classroom teachers work, in favor of the teachers in the city center $(t(71,96)=2.41; p<,05)$.

An independent (unrelated) groups t-test was performed to determine whether the scores of the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale differed according to the variable of the housing unit in which the classroom teachers worked. Levene's test showed that equality of variances was not ensured. Table 11 shows the results of the t-test for the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale according to the housing unit in which the classroom teachers work.

Table 11. T test results of environmental education self-efficacy scale 'instructional strategies' sub-dimension according to the residential unit in which classroom teachers work

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| City Centre | 269 | 1228,51 | 109,71 | 72,08 | 2,33 | ,023 |
| Outside City Centre | 58 | 1182,00 | 143,28 | | | |

Looking at Table 11, the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale is statistically significant according to the housing unit variable in which the classroom teachers work, and in favor of the teachers in the city center $(t(72,08)=2.33; p<,05)$.

An independent (unrelated) groups t-test was performed to see if the total scores of the environmental

education self-efficacy scale differed according to the housing unit variable. Levene's test showed that equality of variances was not ensured. Table 12 shows the results of the t-test for the total scores of the environmental education self-efficacy scale according to the housing unit in which the classroom teachers work.

Table 12. T test results for total scores of environmental education self-efficacy scale according to the residential unit variable in which classroom teachers work

| Group | N | $\bar{x}$ | S | df | t | p |
|---|---|---|---|---|---|---|
| City Centre | 269 | 2117,78 | 174,27 | 71,64 | 2,40 | ,019 |
| Outside City Centre | 58 | 2040,79 | 230,88 | | | |

When the total scores on the environmental education self-efficacy scale are compared according to the housing unit variable, the difference between the arithmetic means is statistically significant and in favor of the inner-city teachers (t(71,64)=2,40; p<,05).

## Discussion, Conclusion and Recommendations

The present study aimed to examine the environmental education self-efficacy levels of classroom teachers and to determine the impact of various variables on these levels. To this end, the environmental education self-efficacy scale developed by Özlü, Keskin and Gül (2013) were employed. The findings of the study indicate that the arithmetic mean of 73.5% of the environmental education self-efficacy of classroom teachers is high, with their environmental education self-efficacy scores being particularly elevated. Consequently, when all classroom teachers were considered collectively, it was determined that the mean score was high and that they exhibited markedly high levels of environmental self-efficacy.

The high level of self-efficacy observed among teachers can be attributed to their allocation of time for environmental education within their lessons and their belief that they possess the requisite knowledge and skills to provide effective environmental education. Erkol and Erbasan (2018) investigated the relationship between various variables and teachers' self-efficacy in environmental education, and their findings indicated that teachers exhibited high levels of self-efficacy in this domain. Sarişan Tungaç (2015) also conducted research with science teachers, and his results demonstrated that science teachers demonstrated high levels of self-efficacy in out-of-school environmental education. These findings align with the results of the present study.

The study aimed to analyze the findings related to the self-efficacy levels of classroom teachers for environmental education according to gender, seniority and residential units where they work. The results revealed that, with regard to gender, the 'field knowledge' sub-dimension of the environmental education self-efficacy scale was found to be statistically significant and in favor of male teachers (t(325)=-4.01; p<0.05). With regard to the gender variable of the classroom teachers, the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale was found to be statistically significant and in favor of male teachers (t(325)=-3.08; p<0.05). Furthermore, a comparison of the total scores on the environmental education self-efficacy scale according to the gender variable of the classroom teachers revealed a statistically significant difference in favor of male teachers (t(325)=-3.52; p<0.05). In his study,

Ekici (2006) found that male teachers exhibited a higher level of environmental education self-efficacy. The findings of this study are consistent with those of Korkut and Babaoğlan (2012) and Gökyer and Bakcak (2018). Like the findings in this study, Öztürk et al. (2015) stated in their study that men's environmental education self-efficacy perception scores were higher than women's self-efficacy perception scores in classroom teaching candidates.

The relationship between the environmental education self-efficacy levels of classroom teachers and their seniority was examined. The results indicated that in the 'field knowledge' sub-dimension, there was a significant difference between teachers with a seniority of 21 years and above and those with a seniority of 0-10 years and 11-20 years (F(2,324)=12.33; p<0.001). Similarly, in the sub-dimension of 'teaching strategies', a significant difference was observed in favor of classroom teachers with a seniority of 21 years and above compared to those with a seniority of 0-10 years and 11-20 years (F(2,324)=10.32; p<0.001). Upon examination of the total self-efficacy scale for environmental education according to the seniority variable of classroom teachers, it was concluded that classroom teachers with 21 years and above exhibited significantly higher scores than teachers with lower seniority (F(2,324)=11.58; p<0.001).

It can be posited that teachers' experience in the profession has a positive effect on their environmental education self-efficacy, with self-efficacy levels increasing in line with seniority. The reason for this situation can be shown as the environmental observations and practices of the teachers increasing in parallel with their years of experience. In their study on prospective science teachers, Kiremit and Gökler (2010) observed that as the variable of seniority increases, so too do the self-efficacy levels of prospective teachers. Gürbüz, Konakçı, and Töman (2019) reached the conclusion in their study with science teachers that when the experience factor in the professional field was taken into consideration, the participants aged 40 years and over exhibited high self-efficacy scores in the 'Field Knowledge' and 'Teaching Strategies' sub-dimensions of environmental education self-efficacy levels. Erkol and Erbasan (2018) reached the conclusion that teachers with a seniority of 21 years and above exhibited higher levels of environmental self-efficacy. In the study conducted by Aydın (2008), it was found that students who took environmental science courses held higher levels of self-efficacy beliefs. It was also concluded that the seniority variable affects self-efficacy beliefs.

Upon examination of the relationship between the environmental education self-efficacy levels of classroom teachers and the residential unit variable, it was found that the 'field knowledge' sub-dimension of the environmental education self-efficacy scale was statistically significant and in favor of teachers in the city center according to the residential unit variable (t(71.96)=2.41; p<0.05). The results indicate that the 'teaching strategies' sub-dimension of the environmental education self-efficacy scale is statistically significant and in favor of teachers in the city center, according to the residential unit in which they work (t(72,08)=2.33; p<0.05). A comparison of the total scores on the environmental education self-efficacy scale according to the residential unit variable revealed a statistically significant difference in favor of teachers in the city center (t(71.64)=2.40; p<0.05). It can be posited that the presence of classroom teachers in the city center has a positive impact on the level of environmental education self-efficacy. This may be since teachers in the city center

have more experience and practice. Erkol and Erbasan (2018) observed that the environmental education self-efficacy of teachers working in urban settings was higher than that of their counterparts in more rural locations.

Considering the study, which discusses the self-efficacy of classroom teachers about environmental education, it would be beneficial to investigate the environmental education self-efficacy of teachers in different disciplines and to increase the number of studies on environmental education that consider different methods. In addition, this study is an environmental self-efficacy study based on a scale, and it is recommended to conduct different studies such as applied studies and observation studies in environmental education with teachers.

This research was conducted with the approval of Sivas Cumhuriyet University Scientific Research and Publication Ethics Committee dated 30.11.2022 and numbered 2022/235595.

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## Genişletilmiş Özet

### Giriş

Kişilerin deneyimleri öz yeterlik algılarını ve davranışlarını etkilemektedir. Öz-yeterlik inancı bireyin kendine olan inancını yansıtmaktadır. Öz-yeterlik inancı yüksek olan bireyler yeterli donanımı olmasa dahi o işi yapmak için çaba gösterirler. Ancak öz-yeterlik inancı düşük olan bireyler mücadele göstermezler (Bandura, 1997). Öğretmenin çevre eğitimini nitelikli bir şekilde yürütebileceğine olan inancı çevre eğitimi öz-yeterliliği olarak tanımlanabilir (Moseley, Reinke ve Bookout, 2002). Öğretmenlerin tüm öğrencilere çevre konularını öğretebileceğini ve çevre bilinci oluşturabileceğini düşünüyorsa çevre öz-yeterlik inancı yüksek, çeşitli sebeplerden dolayı öğretemeyeceğini düşünüyorsa öz-

yeterlik algısı düşük olduğu anlamına gelmektedir (Armor vd., 1976). Deneyimler çevre eğitimi öz-yeterlik inancının oluşmasını sağlamaktadır (Bandura, 1994). Küçük yaşlardan itibaren doğayla iç içe vakit geçirmek çevre eğitimi öz yeterlilik inancını artırmaktadır (Gardner, 2009).

Öğretmenlerin mesleğin yeterliliklerini taşıması, görev ve sorumluluk bilincine sahip olmaları, inanç yapıları ile doğru orantılıdır. Nitelikli bir çevre eğitimi için öğretmenlerin öz yeterlik inançlarının belirlenmesi oldukça önemlidir. Böylelikle mevcut durumun değerlendirmesi yapılarak yol gösterici farklı çalışmalar yapılması önerilebilir. Bu araştırmanın amacı, sınıf öğretmenlerinin çevre eğitimine yönelik öz yeterliklerinin tespit edilmesidir.

### Yöntem

Araştırmada genel tarama modellerinden ilişkisel tarama modeli kullanılmıştır. İlişkisel tarama modeli iki ve daha fazla sayıdaki değişken arasında birlikte değişimin varlığını belirlemeyi hedefleyen tarama yöntemidir (Karasar, 2023). Araştırmanın evrenini Sivas ilinde resmi ilkokullarda görev yapan 1904 merkez, 420 ilçe ve köy olmak üzere toplam 2324 sınıf öğretmeni oluşturmaktadır (MEB, 2022). Araştırmanın evrene dayalı örneklem sayısı; 2022-2023 eğitim öğretim yılı bahar döneminde Sivas ili resmi ilkokullarında görev yapan 2324 öğretmen için %95 güven aralığında 330 olarak belirlenmiştir (Bal, 2001). Bu evrene bağlı olarak kullanılan kota örneklemle 332 öğretmen seçilmiş olup seçilen örneklemin evrendeki toplam oranı ise yaklaşık olarak %15'tir.

Araştırmanın verileri için Özlü, Keskin ve Gül (2013) tarafından geliştirilen "Çevre Eğitimi Öz-Yeterlik Ölçeği" kullanılmıştır. Çevre Eğitimi Öz-Yeterlik Ölçeği "Alan Bilgisi" ve "Öğretim Stratejileri" olarak iki alt boyuttan oluşmuş olup, toplam 24 maddeye yer verilmiştir. Alan bilgisi alt boyutu 10, öğretim stratejileri alt boyutu ise 14 maddeden oluşmuştur. Bu araştırmada, alan bilgisi için güvenirlik katsayısı 0.92, öğretim stratejileri için güvenirlik katsayısı 0.96 ve ölçeğin geneli için ise güvenirlik katsayısı 0.97 olarak hesaplanmıştır.

### Sonuç

Araştırma sonucunda sınıf öğretmenlerinin çevre eğitimi öz yeterliklerinin %73,5'inin aritmetik ortalaması yüksek olup çevre eğitimi öz yeterlik puanları çok yüksektir. Aynı zamanda sınıf öğretmenlerinin tamamı dikkate alındığında aritmetik ortalamanın yüksek olduğu ve puanlara bakıldığında çok yüksek çevre öz yeterliğine sahip oldukları sonucuna ulaşılmıştır.

Araştırmada sınıf öğretmenlerinin cinsiyet, kıdem ve çalıştığı yerleşim birimlerine göre çevre eğitimine yönelik öz yeterlik düzeylerine ilişkin bulgular incelenmiştir. Sınıf öğretmenlerinin cinsiyet değişkenine göre çevre eğitimi öz-yeterlik ölçeği "alan bilgisi" alt boyutu istatistiksel olarak anlamlı olup erkek öğretmenlerin lehine olduğu tespit edilmiştir (t(325)=-4,01; p<,05). Sınıf öğretmenlerinin cinsiyet değişkenine göre çevre eğitimi öz-yeterlik ölçeği "öğretim stratejileri" alt boyutu istatistiksel olarak anlamlı olup erkek öğretmenlerin lehine olduğu tespit edilmiştir (t(325)=-3,08; p<,05). Ayrıca sınıf öğretmenlerinin cinsiyet değişkenine göre çevre eğitimi öz-yeterlik ölçeği toplam puanları karşılaştırıldığında aritmetik ortalamalar arasındaki fark istatistiksel olarak anlamlı olup erkek öğretmenlerin lehine olduğu sonucuna ulaşılmıştır (t(325)=-3,52; p<,05).

Sınıf öğretmenlerinin çevre eğitimi öz yeterlik düzeyleri ile kıdem değişkeni arasındaki ilişki incelendiğinde "alan bilgisi" alt boyutunda kıdemleri 21 yıl ve üzeri olan sınıf öğretmenlerinin lehine kıdemleri 0-10 yıl ve 11-20 yıl olanlara göre anlamlı olduğu tespit edilmiştir (F(2,324)=12,33; p<,001). Benzer şekilde "öğretim stratejileri" alt boyutunda kıdemleri 21 yıl ve üzeri olan sınıf öğretmenlerinin lehine kıdemleri 0-10 yıl ve 11-20 yıl olanlara göre anlamlı olduğu tespit edilmiştir (F(2,324)=10,32; p<,001). Sınıf öğretmenlerinin kıdem değişkenine göre çevre eğitimine yönelik öz yeterlik ölçeği toplamına bakıldığında da 21 yıl ve üzeri olan sınıf öğretmenleri daha düşük kıdeme sahip öğretmenlere göre anlamlı olarak daha yüksek olduğu sonucuna ulaşılmıştır (F(2,324)=11,58; p<,001).

Sınıf öğretmenlerinin çevre eğitimi öz yeterlik düzeyleri ile çalıştığı yerleşim birimi değişkeni arasındaki ilişki incelendiğinde sınıf öğretmenlerinin çalıştığı yerleşim birimi değişkenine göre çevre eğitimi öz-yeterlik ölçeği "alan bilgisi" alt boyutu istatistiksel olarak anlamlı olup şehir merkezindeki öğretmenlerin lehine olduğu tespit edilmiştir (t(71,96)=2,41; p<,05). Sınıf öğretmenlerinin çalıştığı yerleşim birimi değişkenine göre çevre eğitimi öz-yeterlik ölçeği "öğretim stratejileri" alt boyutu da istatistiksel olarak anlamlı olup şehir merkezindeki öğretmenlerin lehine olduğu tespit edilmiştir (t(72,08)=2,33; p<,05). Sınıf öğretmenlerinin çalıştığı yerleşim birimi değişkenine göre çevre eğitimi öz-yeterlik ölçeği toplam puanları karşılaştırıldığında aritmetik ortalamalar arasındaki fark istatistiksel olarak anlamlı olup şehir merkezindeki öğretmenlerin lehine olduğu sonucuna ulaşılmıştır (t(71,64)=2,40; p<,05).

### Tartışma

Öğretmenlerin öz-yeterliklerinin çok yüksek olması öğretmenlerin derslerde çevre eğitimine zaman ayırdıklarına ve nitelikli çevre eğitimi verilebilmesi konusunda kendilerinin yeterli bilgi ve beceriye sahip olduklarını düşünmelerine bağlanabilir. Erkol ve Erbasan (2018), öğretmenlerin öz yeterliklerini çeşitli değişkenler açısından incelediği araştırmasında öğretmenlerin çevre eğitimi öz yeterliklerinin yüksek olduğunu tespit etmiştir. Sarışan Tungaç (2015), fen bilgisi öğretmenleri ile yaptığı araştırmasında, fen bilgisi öğretmenlerinin okul dışı çevre eğitimi öz yeterlik düzeyinin yüksek olduğunu tespit etmiştir. Yapılan araştırmalar bu çalışmanın sonuçlarını destekler niteliktedir.

Sınıf öğretmenlerinin çevre eğitimi öz yeterlik düzeyinin kadın öğretmenlerden yüksek olması erkek öğretmenlerin farklı çevre eğitim uygulamalarından kaynaklandığı söylenebilir. Ekici (2006) yaptığı çalışmasında erkek öğretmenlerin çevre eğitimi öz-yeterlik düzeyinin daha yüksek olduğunu tespit etmiştir.

Korkut ve Babaoğlan (2012) ile Gökyer ve Bakcak (2018) araştırmalarında bu araştırma sonuçlarıyla benzer sonuçlara ulaşmışlardır.

Öğretmenlerin kıdemleri arttıkça öz yeterlik düzeylerinin de artması öğretmenlerin meslekteki tecrübelerinin çevre eğitimi öz-yeterliklerini olumlu yönde etkilediği söylenebilir. Kiremit ve Gökler (2010) aday Fen Bilimleri öğretmenleri üzerine yaptığı çalışmalarında kıdem değişkeni artıkça, öğretmen adaylarının öz-yeterlik düzeylerinin de arttığını belirtmişlerdir. Erkol ve Erbasan (2018), çevre öz-yeterliklerinin kıdemi 21 yıl ve üzeri olan öğretmenlerin daha yüksek olduğu sonucuna ulaşmışlardır. Aydın'ın (2008) yaptığı araştırmada, çevre bilimi dersi alan öğrencilerin, öz yeterlik inancının daha yüksek olduğu tespit edilmiştir. Ayrıca kıdem değişkeninin öz yeterlilik inancını etkilediği sonucuna ulaşılmıştır.

Sınıf öğretmenlerinin şehir merkezinde görev yapması çevre eğitimi öz yeterlik düzeyini olumlu yönde etkilediği söylenebilir. Erkol ve Erbasan (2018), şehir merkezinde çalışan öğretmenlerin çevre eğitimi öz-yeterliklerinin ilçe ve köyde çalışan öğretmenlere göre yüksek olduğu sonuçlarına ulaşmışlardır.

## *Öneri*

Sınıf öğretmenlerinin çevre eğitimine yönelik öz yeterliklerinin ele alındığı bu araştırma dikkate alındığında; farklı disiplinlere yönelik öğretmenlerin çevre eğitimi öz yeterliklerinin araştırılması ve farklı yöntemleri de dikkate alan çevre eğitimine yönelik araştırmaların sayısının artırılması önerilebilir.

## Araştırmanın Etik Taahhüt Metni

Yapılan bu çalışmada bilimsel, etik ve alıntı kurallarına uyulduğu; toplanan veriler üzerinde herhangi bir tahrifatın yapılmadığı, karşılaşılacak tüm etik ihlallerde "Sivas Cumhuriyet Üniversitesi Eğitim Bilimleri Enstitüsü 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. Bu araştırma, Sivas Cumhuriyet Üniversitesi Bilimsel Araştırma ve Yayın Etiği Kurulu'nun 30.11.2022 tarih ve 2022/235595 sayılı onayı ile yürütülmüştür.