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Volunteering in the Earthquake Region: A Comparative Analysis of Pre-service Teachers' Levels of Self-Competence, Individual Social Responsibility Taking and Resilience

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Abstract

This study aims to examine the relationship between self-efficacy, individual social responsibility, and resilience levels of pre-service teachers who participate in and do not participate in volunteering activities in the earthquake region. In this context, the relational model, one of the quantitative research methods, was used to examine the relationship between self-efficacy, taking individual social responsibility, and resilience levels of pre-service teachers who participate and do not participate in volunteering activities in the earthquake zone. On February 6, 2023, after the earthquake centered in Kahramanmaraş and affected a large region, the "Life and Development Campus" established in Hatay started to carry out supportive activities for preschool children. The research study group consists of 104 pre-service teachers who voluntarily participated in these activities and 196 pre-service teachers who did not participate in this project. As a result of this study, it was determined that taking individual social responsibility and resilience levels and voluntary participation in activities in the earthquake region significantly predicted pre-service teachers' self-efficacy levels.

Introduction

To be successful in education, teachers who perform a profession that requires unique expertise must be of high quality. It is important that quality and qualified teachers are trained, that these teachers are hardworking and idealistic, and that they adopt the ideal of lifelong learning (Altan & Özmusul, 2022; Bircan, 2024). Bandura (1977) evaluated an individual's belief in his/her own skills and competencies when overcoming a challenge or solving a problem, i.e., his/her competence in this regard, as the sum of his/her beliefs about how well he/she can do what he/she needs to do in terms of his/her ability to overcome a situation and perform a task. He also stated that individuals with high self-efficacy strive harder to overcome a task, can control environmental conditions, and are not afraid of gaining new experiences. İpek and Demirel (2012) state that as self-efficacy belief increases, effort, endurance, and perseverance also increase. Due to the nature of life, human beings encounter difficulties occasionally. In such cases, the individual's self-belief in overcoming difficulties contributes significantly to the perseverance and determination required.

Teaching and learning activities also involve difficulties due to the teaching environment, environmental conditions, students, and/or many other reasons. In such cases, teachers' high self-efficacy will make it easier for them to cope with these problems effectively. Usluel and Seferoğlu (2003) define teacher self-efficacy as a teacher's self-determination about his/her capacity to identify and organize the activities necessary for a particular achievement and to perform them successfully. For pre-service teachers, self-efficacy is the confidence they have in their ability to cope with the difficulties they face in their educational processes. Pre-service teachers' perceptions of self-efficacy are shaped by their experiences in the education process and affect their attitudes toward the teaching profession (Alan, 2021; Karahüseyin, 2023; Sarıbaş & Özgün, 2022).

As mentioned above that self-efficacy is related to the effort, endurance, and perseverance required to overcome the problem. Another characteristic that enhances individuals' ability to cope with challenges is resilience. Resilience is a process that involves the interaction of individuals' lifestyles and life experiences. It is stated that resilience is not a fixed personality trait; on the contrary, it changes with individuals' developmental life experiences (Karataş et al., 2023). In this context, resilience is considered as a process that increases individuals' ability to cope with difficulties. The development of resilience is possible through various strategies and approaches. Resilience is the capacity to use one's abilities to struggle against and adapt to the negativities in one's life (Leipold & Greve, 2009). In a study, the relationship between students' emotional autonomy and resilience was examined, and it was found that these two concepts support each other (Abasli & Polat, 2019). The two concepts mentioned so far, self-efficacy and resilience, are expressed as the potential to make efforts in line with the desire to overcome the problems experienced by the individual. The strength of the will brings the necessary endurance and perseverance to overcome the problem. Therefore, it can be said that overcoming or helping to overcome a problem requires a willingness to solve the problem.

Volunteering can be defined as the act of individuals voluntarily helping others or contributing to a social purpose without any financial gain or obligation. These actions can occur under different conditions due to developing technology and complex social structures, and they are activities in which individuals participate with their free will (Devecioğlu et al., 2020; Güzel et al., 2022). Vinickyte et al. (2020) emphasized that emotional intelligence and intercultural competence significantly affect the productivity of volunteers and stated that these skills are developed through volunteer experiences. Volunteers are open to individual and social development and can take responsibility for working individually and as a team. Volunteer work includes training or tutoring, fundraising, collecting, assembling, distributing service materials, providing care and transportation services, counseling, or administrative work. Türkiye has dramatically needed these volunteering activities due to the recent earthquake disaster.

On February 6, 2023, an earthquake centered in Kahramanmaraş had economic, social, and psychological effects in Turkey. In the aftermath of the earthquake, various volunteering activities were organized to meet the psychosocial needs of individuals living in earthquake-affected regions and to contribute to their re-normalization processes. The "Life and Development Campus" established by XXXXXXXXXXXX Distribution Company (XXXXX) in Hatay on a non-profit basis is one of these volunteering activities. To ensure that the activities carried out here can be carried out in an effective and qualified manner, XXXXXXXX collaborated with XXXXXXXXXXXX University, and as a result of this collaboration, the "Hatay Life and Development Campus Project," where supportive activities are carried out to meet the quality of life, educational and social-emotional needs of preschool children, became operational. In this context, starting from July 2023, volunteer preschool and classroom education teacher candidates took turns to work in Hatay for one week each. They carried out various educational activities for children affected by the earthquake.

Volunteering is a characteristic that requires complete dedication, taking responsibility, and being solution-oriented. In this context, volunteers should fulfill their duties regarding the process throughout the activity they participate in, and they should have the skills to produce solutions to possible problems and cope with issues. These activities reinforce individuals' social responsibility values and strengthen social ties (Pelenk, 2019).

What has been explained so far shows that a link between individual social responsibility, self-efficacy, resilience, and volunteerism can be established. However, no study in the literature addresses these four concepts together. The starting point of this study is that determining the relationship between these four characteristics will enable studies to encourage individuals with high self-efficacy and resilience to take responsibility, primarily to participate in volunteer activities to solve crises. It is also thought that studies to be conducted in this direction will increase the social participation of pre-service teachers and all individuals and contribute to positive social changes. Major disasters such as earthquakes leave psychological, social, and educational effects on individuals, especially the roles assumed by pre-service teachers are critical in benefiting society and their professional development. Therefore, this study's results are important in revealing whether pre-service teachers' voluntary participation in post-disaster social support processes affects their self-efficacy, individual social responsibility, and resilience levels. This information is thought to guide the design of teacher training programs and social responsibility projects more effectively. Therefore, this study will contribute to the field.

Aims of the study

The study aims to comparatively examine the relationship between self-efficacy, taking individual social responsibility, and resilience levels of pre-service teachers who voluntarily participated and did not participate in activities in the earthquake zone. In this context, answers to the following questions were sought:

1. Do pre-service teachers' self-efficacy, individual social responsibility, and resilience levels differ according to their participation in volunteering activities in the earthquake zone?
2. Is there a significant relationship between pre-service teachers' participation in volunteering activities in the earthquake zone and their self-efficacy, individual social responsibility, and resilience levels?
3. Do pre-service teachers' participation in volunteering activities in the earthquake zone, their levels of resilience, and taking individual social responsibility predict their self-efficacy?

Methods

This study examined the relationship between self-efficacy, individual social responsibility, and resilience levels of pre-service teachers who participated and did not participate in volunteer activities in the earthquake zone. The relational model, one of the quantitative research methods, was used in the study. The relational model is applied to determine the relationship between two or more quantitative variables and to analyze the links between these variables through the correlation coefficient (Büyüköztürk, 2012; Fraenkel & Wallen, 2005). This method contributes to a better understanding of the related phenomena by defining the relationships between variables.

Ethical Approval and Informed Consent Statement

This study was approved by the Ethics Committee of Social and Human Sciences Research and Publication at Bursa XXXXXX University (Meeting Date: 03.05.2024 / Meeting Number: 2024-04). Following this approval, additional permission was obtained from the Provincial Directorate of National Education. All research procedures were conducted in accordance with the ethical standards of the institutional and national research committees, as well as the 1964 Helsinki Declaration and its later amendments.

Study Group

On February 6, 2023, following an earthquake centered in Kahramanmaraş that affected a large region, XXXXXXXXX established the "Life and Development Campus" in Hatay. For the activities to be carried out on this campus, the "Hatay Life and Development Campus Project" was realized in cooperation with XXXXXXXXXX University, and supportive activities for preschool children were carried out. Beginning in July 2023, volunteer preschool and primary school pre-service teachers took turns working in Hatay for one week at a time, providing various support activities for children affected by the earthquake. During their stay, these pre-service teachers lived in a container within a container city and conducted their activities in two specially designed containers set up as classrooms. The weekly program included a range of activities, such as games, drama, reading, and art. Each day, the teachers held sessions for two hours in the morning and two hours in the afternoon, followed by evening activities that included games and movie nights. All activities were planned under the supervision of relevant faculty members. This process was repeated each week with different groups of pre-service teachers, ensuring that the activities varied and were not duplicated. The research study group consists of 104 pre-service teachers studying preschool and classroom education who participated in the Hatay Life and Development Campus and 196 pre-service teachers who did not participate in this project. A simple random sampling method was used to determine the pre-service teachers included in the study. All pre-service teachers participating in Hatay Life and Development Campus were tried to be reached and approximately 80% of them were reached. Ten of the pre-service teachers who participated in volunteering activities were male, 94 were female; 25 of the pre-service teachers who did not participate in volunteering activities in the earthquake zone were male, and 171 were female. In addition, 82 of the pre-service teachers who participated in volunteering activities were studying preschool education, 22 of them were studying classroom teaching, 70 of the pre-service teachers who did not participate in volunteering activities were studying preschool education, and 126 were studying classroom teaching.

Data Collection Tools

In the study, the participants were administered a personal information form consisting of three questions about their gender, the department they studied, and their voluntary participation in activities in the earthquake zone, the Generalized Self-Competence Expectancy Scale developed by

Jerusalem and Schwarzer (1979) and adapted into Turkish by Yeşilay (1993), the Individual Social Responsibility Scale developed by Asan (2017) and the Resilience Scale developed by Gürgan (2006).

Generalized Self-efficacy Expectancy Scale: This scale, developed to measure general self-efficacy perception, aims to assess individuals' ability to cope with daily problems and adapt after stressful experiences. The scale is intended for adults, including adolescents, and takes an average of 4 minutes to administer. The scale is answered with a 4-point rating system and is scored as 1 (not true), 2 (somewhat true), 3 (more accurate) and 4 (entirely true). The evaluation is based on the sum of the answers given to the 10 items. The scale developed by Jerusalem and Schwarzer (1979) was translated into Turkish by Yeşilay in 1993. In the reliability study, the Cronbach Alpha coefficient was found to be .83. In the study of Basım et al. (2008), the Cronbach Alpha coefficient of the scale was found to be .83. Çetin and Fıkırkoca (2010) found Cronbach Alpha coefficient .80. All these data reveal that the Generalised Self-Efficacy Expectancy Scale is a valid and reliable measurement tool in our country. In this study, the reliability coefficient of the scale was calculated as .85.

Individual Social Responsibility Scale: The Individual Social Responsibility Scale was developed by Asan (2017) to measure individual social responsibility. An exploratory factor analysis was conducted to determine the scale's construct validity. The Bartlett test result ($p = 0.000 < 0.05$) indicated a significant relationship among the variables included in the factor analysis. The overall reliability of the remaining 23 items was found to be Cronbach's alpha coefficient of 0.817. The Individual Social Responsibility Scale was determined to be a valid and reliable measurement tool based on the reliability and explained variance values. In this study, the reliability coefficient of the scale was calculated as 0.89.

Resilience Scale: The 50-item Resilience Scale, which will be used to examine the resilience characteristics of individuals in the study, was developed by Uğur Gürgan (2006). The scale consists of eight dimensions: "being strong, being entrepreneurial, being optimistic/connected to life, communication/relationship building, foresight, goal achievement, being a leader, and being a researcher." In addition, the scale also gives a total resilience score. The resilience scale consists of items 2,3,7,10,18,19, 21,23,24,26,28,29,34,36,37,40,42. and 48 about being strong, items 1,9,16,20,30,32,35,39. and 50 about being an entrepreneur; items 14,27,31,38. Moreover, 43 about being optimistic/connected to life; items 17, 33,44. and 45th items; 25th, 46th and 47th items related to foresight; 8th, 11th, 22nd and 41st items related to goal achievement; 4th, 5th, 6th, 15th and 49th items related to being a leader; 12th and 13th items associated with being a researcher. The score range of the scale is between 50-250. As a result of the analyses, the test-retest consistency coefficient was .89, and the internal consistency coefficient was .78 in the first application and .87 in the second application. In this study, the reliability coefficient of the scale was found to be .87. Being strong was determined as .92, being entrepreneurial as .82, being optimistic/connected to life as .74, communication/relationship building as .67, foresight as .61, goal achievement as .75, being a leader as .69 and being a researcher as .57.

Data Collection

After obtaining the ethics committee's approval, the Google forms were delivered to the pre-service teachers studying in the Departments of Preschool Teaching and Classroom Education, and they were asked to fill out the forms.

Data Analysis

The data obtained within the scope of the research prepared for the analysis process. In this direction, skewness, kurtosis, Mahalanobis, and Cook's distance calculations were made for extreme value analysis at the first stage. Skewness and kurtosis values are presented in Table 1. About Tabachnick and Fidell (2013), it was determined that the data were normally distributed. No data loss was found in the sample.

Table 1. Kurtosis and skewness values of the scales

	Sub Dimensions	n	Min	Max	Skewness		kurtosis	
					Value	Error	Value	Error
Individual Social Responsibility	Total	300	46.00	115.00	-.099	.141	-.293	.281
Generalized Self-competence	Total	300	16.00	40.00	.145	.141	-.509	.281
	Being Strong	300	18.00	90.00	-.234	.141	-.054	.281
	Becoming an Entrepreneur	300	9.00	42.00	.636	.141	.108	.281
Resilience	Being Optimistic	300	5.00	25.00	1.191	.141	1.362	.281
	Communication/Relationship building	300	4.00	20.00	.766	.141	.787	.281
	Foresight	300	3.00	15.00	-.118	.141	.147	.281
	Achieving the goal	300	6.00	20.00	-.118	.141	.147	.281
	Becoming a Leader	300	5.00	25.00	.777	.141	1.491	.281
Being a Researcher	300	2.00	10.00	-.603	.141	.662	.281	
Total	300	118.00	175.00	-.034	.141	.122	.281	

As shown in Table 1, the skewness and kurtosis values of the total scores and subscales of the Individual Social Responsibility Scale, Generalized Self-Competence Scale, and Resilience Scale range between -0.099 and 1.491. The kurtosis and skewness values for the scales and subscales fall within the acceptable range of -1.96 to +1.96, indicating a normal distribution (Kalaycı, 2006; Tabachnick & Fidell, 2013).

Multiple regression analyses were conducted as part of the study. The results indicated relationships between pre-service teachers' voluntary participation in activities in the earthquake zone and their self-efficacy, individual social responsibility, and resilience levels. No multicollinearity issues were detected among these relationships, and the regression assumptions—such as normal distribution, linear relationships, appropriate Tolerance and VIF values, and suitable Mahal and Cook's distances—were met (Abu-Bader, 2021; Bennett et al., 2023; Field, 2013).

Within the scope of the research, the relationship between pre-service teachers' self-efficacy, individual social responsibility, resilience levels, and their voluntary participation in earthquake zone activities was examined using point-biserial correlation analysis. In correlation analyses, the coefficient (r-value) ranges from -1 to +1, representing the strength of the relationship between two variables (Cohen, 1988; Coolidge, 2021; Pallant, 2020).

A t-test was conducted to examine whether pre-service teachers' self-efficacy, individual social responsibility, and resilience levels differed significantly based on their volunteering status. Before performing the analysis, Levene's test was applied to assess the homogeneity of variances. In cases where variances were not homogeneous, the test results were interpreted accordingly. Effect sizes were also calculated, and Cohen’s d value was used to determine the magnitude of significant differences. According to Cohen (1988), an effect size of less than 0.2 indicates a weak effect, 0.5 represents a moderate effect, and values greater than 0.8 indicate a strong impact (Özsoy & Özsoy, 2013).

Findings

The descriptive statistical results of pre-service teachers' individual social responsibility, self-efficacy, and resilience levels are shown in Table 2.

Table 2. Descriptive analysis results of the scales

Scales	Sub Dimensions	n	$\bar{x}$	Sd.
Individual Social Responsibility	Total	300	86,41	11,76
Generalized Self-competence	Total	300	28,83	5,64
Resilience	Being Strong	300	67,43	11,55
	Becoming an Entrepreneur	300	18,07	6,07
	Being Optimistic	300	8,99	3,49

Communication/Relationshipbuilding	300	7,73	3,02
Goal Achievement	300	15,74	3,03
Foresight	300	11,55	2,07
Becoming a Leader	300	10,3	3,41
Being a Researcher	300	8,25	1,40
Total	300	148,06	9,81

As seen in Table 2, the mean scores of the pre-service teachers on the individual social responsibility scale were $\bar{x}$= 86.41, the mean scores on the generalized self-efficacy scale were $\bar{x}$= 28.83, and the mean scores on the resilience scale were $\bar{x}$= 148.06.

The findings related to the first question of the study, "Do the self-efficacy, individual social responsibility, and resilience levels of pre-service teachers differ according to their voluntary participation in activities in the earthquake zone?" are given in Table 3.

Table 3. T-test results for self-efficacy, taking individual social responsibility, and resilience levels of pre-service teachers according to their voluntary participation in activities in the earthquake zone

Scales	Participation Status	n	X	ss	t	sd	p
Individual Social Responsibility	Yes	104	89,97	11,43	-3,911	298	,000
	No	196	84,52	11,52			
Generalized self- efficacy	Yes	104	29,88	5,59	-2,349	298	,019
	No	196	28,28	5,6			
Resilience Total	Yes	104	148,72	10,03	,850	298	,396
	No	196	147,71	9,7			
Being Strong	Yes	104	71,47	10,91	4,555	298	,000
	No	196	65,29	11,33			
Becoming an Entrepreneur	Yes	104	15,76	5,48	-4,983	298	,000
	No	196	19,29	6,02			
Being Optimistic	Yes	104	7,88	2,72	-4,531	268.5	,001
	No	196	9,59	3,71			
Communication/Relat ionship building	Yes	104	7,05	2,75	-2,890	298	,004
	No	196	8,1	3,11			
Goal Achievement	Yes	104	16,69	2,47	4,368	260.3	,001
	No	196	15,23	3,21			
Foresight	Yes	104	12,08	2,01	3,291	298	,001
	No	196	11,27	2,04			
Becoming a Leader	Yes	104	9,11	2,94	-4,544	298	,001
	No	196	10,93	3,48			
Being a Researcher	Yes	104	8,68	1,28	4,015	298	,001
	No	196	8,01	1,42			

Table 3 shows the t-test results of the pre-service teachers' individual social responsibility, self-efficacy, and resilience scales according to their voluntary participation in activities in the earthquake zone. According to the results of the Levene test, it was determined that the sub-dimensions of "being optimistic" and "reaching the goal" (Levene=,000, p<0,05), which are sub-dimensions of the resilience scale, did not show homogeneous distribution, and the other sub- dimensions showed homogeneous distribution, and the test results were interpreted by considering this situation.

As a result of the research, according to the voluntary participation of pre-service teachers in the activities in the earthquake zone, it was found that pre-service teachers' individual social responsibility levels (t(298)=-3, 911, p<.05), self-efficacy (t(298)= -2,349, p<.05), resilience (t(298)=4,555, p<.05), goal attainment (t(260.3)=4,368 p<.05), foresight (t(298)=3,291 p<.05) and investigative (t(298)=4,015, p<.05). It was determined that individual social

responsibility levels (η2=,47), self-efficacy (η2=,29), being strong (η2=,55), reaching the goal (η2=,49), foresight (η2=,40) and being a researcher (η2=,49) from the sub- dimensions of resilience had a moderate effect on the voluntary participation of pre-service teachers in activities in the earthquake zone.

The findings of the Pearson Correlation Analysis conducted to answer the question "Is there a significant relationship between self-efficacy, taking individual social responsibility, and resilience levels of pre-service teachers?" are given in Table 4.

Table 4. The relationship between self-efficacy, taking individual social responsibility, and resilience levels of pre-service teachers

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1.Individual Social Responsibility	1											
2. Self-efficacy	.552**	1										
3. Being Strong	.499**	.762**	1									
4. Becoming an Entrepreneur	-.447**	-.592**	-751**	1								
5. Being Optimistic	-.368**	-.510**	-.672**	.781**	1							
6. Communication/Relationship Building	-.362**	-.456**	-.582**	.630**	.606**	1						
7. Foresight	.395**	.583**	.748**	-.563**	-.501	-.495	1					
8. Goal Achievement	.378**	.539**	.787**	-.670**	-.644	-.482	.332**	1				
9. Becoming a Leader	-.371	-.548**	-.720**	.673**	.622**	.603**	.204**	-.621	1			
10. Being a Researcher	.390**	.455**	.596**	-.393**	-.379**	-.444**	.354**	.576**	-476	1		
11. Resilience Total	.196**	.375**	.531**	.058	.092	.121*	.587**	.432**	-.068**	.446**	1	
12. Participation status	-.221**	-.135**	-.255**	.277**	.233**	.165**	-.187**	-.228**	.255**	-.227**	-.049	1

*p<0,05

** p<0,01

When Table 4 was examined, it was found that there was a high level of positive relationship (r=0,552; p<0,01) between taking individual social responsibility and self-efficacy levels of pre-service teachers. In addition, a low-level positive relationship (r=0,196; p<0,01) was determined between the total score of resilience and individual social responsibility. A high-level positive relationship was found between individual social responsibility and being assertive (r=0,499; p<0,01), and a medium-level positive relationship was found between individual social responsibility and being inquisitive (r=0,390; p<0,01), goal achievement (r=0, 378; p<0,01) and foresight (r=0,395). While a low-level negative relationship was found between individual social responsibility and being an entrepreneur (r=-0,273 p<0,01), a moderate-level negative relationship was found between individual social responsibility and being optimistic (r=-0,368; p<0,01) and communication/relationship building (r=-0,362; p<0,05). There was no significant relationship between individual social responsibility and being a leader (r=-0,371; p>0,05).

A moderate positive relationship existed between self-efficacy and resilience (r=0.375; p<0.01). In addition, a high-level positive relationship was found between self-efficacy and being assertive (r=0,762; p<0,01), foresight (r=0,583; p<0,01), and goal achievement (r=0,539; p<0,01), while a medium level positive relationship was found between self-efficacy and being a researcher (r=0,455; p<0,01). A high-level negative relationship was found between self-efficacy and being an entrepreneur (r=-0,592; p<0,01), being optimistic (r=-0,510; p<0,01), communicating/relating (r=-0,548; p<0,05) and being a leader (r=-0,548; p<0,01).

It was determined that there was a highly negative (r=-0,221; p<0,01) and negative (r=-0,135; p<0,01) statistically significant relationship between voluntary participation in activities in the earthquake zone and taking individual social responsibility. On the other hand, it was determined that there was no statistically significant relationship between the voluntary participation of pre-service teachers in activities in the earthquake zone and their level of resilience (r=-0,049; p>0,01).

Multiple Regression Analysis was conducted to answer the research question, "Do pre-service teachers' taking individual social responsibility, their level of resilience, and their voluntary participation in activities in the earthquake zone predict their self-efficacy?". The results of the analysis are given in Table 5.

Table 5. Predictors of pre-service teachers' self-efficacy

Model	B	Std. Er.	β	T	p
Individual Social Responsibility	,034	,006	,282	5,618	,001
Resilience	,055	,007	,384	7,821	,001
Voluntary participation in activities in the earthquake zone	-,428	,145	-,145	-2,943	,004
Fixed	-2,098	1,125		-1,864	,063

$R=.561$, $R^2=.314$, $\Delta R^2=.307$, $F(3\text{-}296)=45.23$; $p<.001$

As seen in Table 5, individual social responsibility, resilience levels, and voluntary participation in activities in the earthquake zone make a statistically significant contribution to pre-service teachers' self-efficacy levels. It can be said that the contribution of the variables of individual social responsibility, resilience, and voluntary participation in activities in the earthquake zone to the self-efficacy of pre-service teachers together is 31% (ΔR^2= .307, F(3-296)= 45,23; p<.001) and these variables predict self-efficacy.

Discussion Conclusion and Recommendations

As a result of this research, which aims to comparatively examine the relationship between the self-efficacy, individual social responsibility, and resilience levels of pre-service teachers who participated and did not participate in volunteering activities in the earthquake zone, a significant difference was determined in favor of those who participated voluntarily in the earthquake zone in the levels of individual social responsibility, self-efficacy, resilience sub-dimensions of being strong, reaching the goal, foresight and being a researcher. This difference was found to have a moderate effect on the volunteerism related to the activity. Volunteering increases the awareness of serving society and reinforces the feelings of social responsibility in pre-service teachers. It is stated that volunteering activities are effective in developing individuals' skills, emotional awareness, and sense of autonomy; strengthen individuals' social relationships; promote a sense of satisfaction; increase their ability to empathize, be compassionate and accepting; improve self-discipline and self-motivation; enable them to develop better insight and life goals; and improve their ability to understand and be sensitive to the needs of others (Coleman et al., 2021; Erdoğdu, 2022; Greenwood et al., 2013; McEwen, 1996). It is also stated that there is a significant positive relationship between the time individuals spend on volunteering activities and their level of resilience (Llenares et al., 2020). In addition, it has been observed that individuals with volunteering experience have a higher sense of civic responsibility and are more successful by transferring and applying their experiences in the field to their work (Astin & Sax, 1998). In addition, since volunteering requires cooperation and discussion, it is also stated that it facilitates individuals' social competence and communication skills, is effective in developing their social consciousness, develops their leadership potential, and increases their self-confidence (Astin & Astin, 2000; Steffes, 2004; Taylor & Pancer, 2007). In this context, volunteering offers an opportunity for individuals to show sensitivity to social events and actively participate in these events. Volunteer activities are critical for individuals to express themselves and strengthen their social ties. This study determined that the voluntary participation of pre-service teachers in activities in the earthquake region affected their individual social responsibilities, self-efficacy, substantial goal achievement, foresight, and research. In other sub-dimensions, significant results were found in favor of those who did not volunteer in the activities in the earthquake zone. It is thought that this situation is since pre-service teachers continue community service practices compulsorily or take part in different activities in their own lives.

It was found that there was a high positive relationship between taking individual social responsibility and self-efficacy levels of pre-service teachers. In addition, it was determined that there was a low-level positive relationship between the total score of resilience and individual social responsibility. Pre-service teachers' self-efficacy perceptions are critical in developing their teaching skills and forming identities (Er, 2020; Zee & Koomen, 2016). Research shows that pre-service teachers' educational beliefs have a determining effect on their self-efficacy perceptions. When they join educational institutions, these beliefs stem from candidates' prior learning experiences and are often fixed and resistant to change (Er, 2020). It is also among the expected results that candidates or graduates have high social responsibility and self-efficacy as a result of the responsibility activities they carry out within the scope of the courses they take as part of the teaching profession. Therefore, teacher education programs must include strategies to improve candidates' educational beliefs and self-efficacy perceptions (Malinauskas, 2017). In this study, the higher self-efficacy of pre-service teachers who voluntarily participated in activities in the earthquake zone may be since they found a different strategy to improve themselves.

As a result of the research, it was found that there was a moderate positive relationship between self-efficacy and resilience. Pre-service teachers' perceptions of self-efficacy directly affect their ability to cope with the difficulties they face in their educational processes and their professional identity development. Therefore, it is of great importance that teacher education programs are structured to strengthen pre-service teachers' self-efficacy perceptions (Artino, 2012). Therefore, strengthening pre-service teachers' self-efficacy perceptions will support their professional development and increase their motivation toward teaching (Asenjo et al., 2021; Dinç Bay & Öztürk, 2023).

Taking individual social responsibility and resilience levels and voluntary participation in earthquake zone activities significantly predicted pre-service teachers' self-efficacy levels. According to Kumaş and Sümer (2019); increasing individuals' self-efficacy beliefs is also an effective method in developing resilience. As teachers' self-confidence and perceptions of competence increase, their ability to contribute more effectively to students' learning processes (Hardianto et al., 2022; Zee & Koomen, 2016). In particular, pre-service teachers' beliefs in themselves in certain areas, such as different educational practices, directly affect their success in this field (Kazanopoulos et al., 2022; Sharma et al., 2011). Palaz (2021) also states that volunteering reinforces the sense of social responsibility. As a result of this research, it can be said that the voluntary participation of pre-service teachers in activities is important. Increasing such activities and including them effectively in education programs will contribute positively to pre-service teachers' teaching experiences. For this reason, it is thought that pre-service teachers should be given opportunities to do different volunteering activities.

In addition, it is foreseen that qualitative studies to be conducted in this direction will provide an in-depth examination of the reasons for pre-service teachers' participation or non-participation in volunteer activities, and the data to be obtained will guide both the literature studies and the organization of volunteer activities to be carried out. One limitation of this study is that the pre-service teachers participating in the project consisted of pre-service preschool and classroom education teachers. Studies involving pre-service teachers from different branches can be planned.

Declarations

Ethical Approval

This study was approved by the Ethics Committee of Social and Human Sciences Research and Publication at Bursa Uludağ University (Meeting Date: 03.05.2024 / Meeting Number: 2024-04). Following this approval, additional permission was obtained from the Provincial Directorate of National Education. All research procedures were conducted in accordance with the ethical standards of the institutional and national research committees, as well as the 1964 Helsinki Declaration and its later amendments.

Informed Consent

Before starting the research, all participants were informed about the purpose and procedures of the study. All participants were informed that their information and responses would be kept confidential, and written consent was obtained. Participants were also informed that they had the right to withdraw at any time at their discretion. The data collection process was conducted between July 5, 2024, and September 27, 2024. Data from participants who did not complete the scales or withdrew were not included in the research process.

Conflict of Interest Statement

We declare that we have no conflict of interest.

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Author Contribution

Conceptualization, Pınar Bağçeli Kahraman, Gönül Onur Sezer, Meral Taner Derman, and Ömür Sadioğlu; methodology, Pınar Bağçeli Kahraman, Gönül Onur Sezer, Meral Taner Derman, and Ömür Sadioğlu; validation, Pınar Bağçeli Kahraman, and Meral Taner Derman; formal analysis, Pınar Bağçeli Kahraman and Meral Taner Derman; research, Gönül Onur Sezer and Ömür Sadioğlu; references, Pınar Bağçeli Kahraman; data editing, Meral Taner Derman; writing - original drafting, Pınar Bağçeli Kahraman and Gönül Onur Sezer; writing - review and editing, Pınar Bağçeli Kahraman, Ömür Sadioğlu and Gönül Onur Sezer. All authors have read and accepted the published version of the manuscript.

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Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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