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Geography Education Research in Turkey: A Teacher's Perspective

Türkiye'de Coğrafya Eğitimi Araştırmaları: Bir Öğretmen Bakış Açısı

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Abstract

It is difficult to measure the impact of geographical education research (GER) on the process of teaching and learning geography. Many studies have suggested that GER should have an impact on geography education and a connection should be established between GER and classroom environment. This study examined the effectiveness and impact of GER in Turkey from the viewpoint of geography teachers. Teachers' attitudes towards using the findings of GER in their courses and the constraints preventing them from benefiting from GER in classes are investigated. Results suggest that GER is not yet a part of their teaching agendas although the majority of teachers appreciate the benefits of GER in strengthening student learning, student motivation, and the quality of geography courses. Geography teachers do not consider the factors such as time and class size to be significant barriers to using GER in their courses, but a significant number of teachers believe that GER is primarily theoretical which does not have a direct connection with the classroom environment.

Keywords: Geography education research, Turkey, geography teachers

Öz

Coğrafyayı öğrenme ve öğretme süreci içerisine herhangi bir coğrafya eğitimi araştırmasının (CEA) etkisinin ölçülmesi oldukça güçtür. Coğrafya eğitimi araştırmaları üzerinde yapılan birçok çalışma CEA'nın coğrafya eğitimi üzerinde bir etkisinin olması gerektiğini, dolayısıyla sınıf ortamı ile CEA arasında bir bağlantının kurulması gerektiğini öne sürmüşlerdir. Bu çalışma, Türkiye'de gerçekleştirilen CEA'nın coğrafya eğitimi ve öğretimi üzerindeki etkinliğini ve etkisini coğrafya öğretmenlerinin bakış açısından irdelemektedir. Bu çalışma ayrıca, coğrafya öğretmenlerinin CEA'nın bulgularının sınıf ortamında kullanılmasına yönelik tutumlarını incelemektedir. Araştırma sonuçları, CEA'nın coğrafya derslerinde kullanılmasının coğrafya öğretmenleri tarafından öğrenimi kolaylaştırıcı, öğrenci motivasyonunu ve coğrafya derslerinin kalitesini artırıcı olarak değerlendirilmesine karşın, onların öğretim gündemlerinin henüz bir parçası haline gelmediğine işaret etmektedir. Coğrafya öğretmenleri genel olarak zaman ve sınıf mevcutlarını CEA'nın sınıf ortamında kullanılmasının önünde önemli bir engel olarak görmezken, öğretmenlerin önemli bir kısmı CEA'yı teorik olan ve sınıf ortamı ile doğrudan bağlantısı olmayan çalışmalar olarak görmektedir.

Anahtar Sözcükler: Coğrafya eğitimi araştırmaları, Türkiye, coğrafya öğretmenleri.

Introduction

Effectiveness and impact of geography education research (hereafter GER) with its impact on different sectors and agents such as the policy makers, classroom teachers, publishers and other researchers has been debated in the last few decades. Some researchers, including Williams (2003, p. 259), argued that effective research can be measured by the correspondence of the research objectives and findings and the impact of the research findings on the audience. Butt

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(2010, p. 1030) also indicated that the choice of methods used in GER has a direct impact on the quality of the research and the research findings. Therefore, the GER research method should be carefully selected. Firth and Morgan (2010, p. 111) emphasized that the method should consider the quality of educational research in relation to the capacity to engage theory.

Lidstone and Williams (2006) discussed the relationship between theory and practice in the effectiveness of GER, stating that there are not enough references to GER in the developing educational policies and legislations of many countries. Even worse, it is difficult to determine how research impacts classroom practice, practitioners, and especially school teachers who are not often willing to follow journals and books on GER (Williams, 2003, p. 261).

The benefits of incorporating GER into geography education depend on a number of factors such as their attitudes towards such studies, their beliefs in the benefits of using these studies in their courses, their experience using GER in their courses, and the availability of such sources. Studies on the relationship between GER and geography education revealed that GER is insufficiently used in geography courses, primarily due to teachers' negative perceptions of GER (Naish, 2002; Slater, 2003; Roberts, 2000; Hannon, 1998).

Roberts (2000) and Butt (2003) argued that GER should have practical impact on the teaching and learning process, suggesting that a connection should be established between GER and classroom instruction. They suggest that research-based teaching should be emphasized to achieve this goal. Hargreaves (1998) stated that when integrating different ideas, concepts, and findings derived from education research, the quality of this research should be questioned. Some education research is not taken into account by teachers because it does not meet the needs of classroom teaching or the general standards of social science research (pp. 119-135). However, Roberts (2010) inserted that a significant amount of knowledge on GER could, in theory, inform practice, but there are accessibility issues. Teachers have little opportunity or time to read most research published in academic journals or books (p. 93).

It is crucial that teachers know how to access the research in their fields and how to use this research in their courses. To help teachers with GER, education departments can prepare area-specific bibliographies of each course for teachers to overcome time constraints. Hannon (1998) reported that factors in the weak integration between research and courses include insufficient professional development opportunities for teachers, the insufficient place of research in teaching programs and pedagogical proficiency courses, and the difficult working conditions of teachers, including large class sizes. However, Hannon (1998, pp. 151-152) and Roberts' (2002, p. 290) perspectives on GER differ from the mainstream approach by presenting GER as an important tool that should not be directly copied for course use but rather should be used as a tool to help teachers develop insights about educational priorities. Slater (2003) noted that, in general, teachers do not use the findings of GER, and they may even be disdainful and hostile to geographic research. However, she indicated that, in fact, there are different relationships between GER and geography teaching at the personal and theoretical levels (p. 285). Naish (2002) examined the reasons behind why GER cannot find a place in geography courses and concluded that teachers have a healthy skepticism about GER for a number of reasons such as that research is often unrelated to the classroom environment, studies are often conducted to improve the CV of researcher rather than for the benefit of the teachers, schools, and children, and they are published in inaccessible journals and books that are not common to teachers (p. 306).

There are a number of factors affecting the effective use of GER in geography courses, ranging from teachers' attitudes to GER, teachers' backgrounds in GER, pressure on teachers, educational policies, and the quality and relevancy of GER. Radical education reforms (like the one in Turkey in 2004) that change the overall curricula can affect the use of GER in geography courses by deemphasizing GER and making it irrelevant. Moreover, studies that examine the effect of GER on teachers, students, decision makers, and education are quite limited. Consequently, it is crucial that studies measuring the effect of GER on target groups be conducted to fill this gap and determine the future direction of GER. This study considers the impact of GER by examining

the attitudes of geography teachers towards GER, the use of GER by geography teachers, and the factors preventing teachers from effectively using GER in courses in the Turkish context. Moreover, the difference between various independent variables and teachers' use of GER is investigated through this study. Hence, the main purpose of this study is to determine the place and impact of GER in geography courses by investigating the following areas:

- Attitudes of geography teachers towards GER
- Factors preventing geography teachers from using GER in their courses
- Possible statistical differences between independent and dependent variables regarding the demographic features and attitudes of geography teachers towards GER

Method

Based on the above mentioned research goals, a questionnaire with 24 items was prepared and distributed to geography teachers (n = 183) employed in 48 different provinces. The participants were all volunteers. The questionnaire was designed in three parts.

- Demographic questions, including questions regarding the gender and age of the respondents.
- Questions that asked teachers about their professional experience and teaching conditions.
- A statement section, which was developed to determine the attitudes of geography teachers towards GER. In this section, three yes-no questions, one frequency question and ten statements on a five-point Likert scale were used (1 = "Strongly disagree," 2 = "Disagree," 3 = "Neutral," 4 = "Agree," 5 = "Strongly agree"). In the analysis, the Likert scale was inverted for the statements with negative meaning. The statements section was designed to investigate whether teachers read and subscribe to academic journals about GER, whether they use them in their courses, their perceived benefit to the courses, and the factors preventing them from using GER in their courses.

In designing the yes-no questions and the remaining statements, considerations from various studies were taken into account.

- Lidstone and Williams (2006) stated that it is difficult to determine how research impacts classroom practice and practitioners, particularly teachers who are unwilling to follow journals and books on GER.
- Hargreaves (1998) indicated that the quality of research should be questioned, and some teachers do not take research into account because it does not meet the needs of classroom teaching.
- Hannon (1998) noted that factors contributing to the weak integration between research and courses include insufficient professional development opportunities for teachers, difficult working conditions, etc.
- Slater (2003) observed that there are strict relationships between GER and geography teaching at different levels, from the personal to the theoretical.
- Naish (2002) argued that the reasons for the weak integration between GER and geography courses include irrelevance of the research to the classroom environment, publication in inaccessible journals and books, high pressure on teachers, etc.

In this study, descriptive statistics were used to calculate frequencies and percentages. However, non-parametric tests were used, including the Mann-Whitney U test, to analyze the inferential statistics. This test was used because, according to a one-sample Kolmorogov-Smirnov test, the data did not have a normally distributed interval variable ($p<0.05$). The reliability coefficient was 77.6%, based on a factor reliability analysis of the dependent variables (Cronbach's alpha coefficient: 0.776).

Findings

Demographic features

Demographic data indicates that of 182 respondents, the majority of geography teachers were male (69.8%, n=127) and 30.2% of them (n=55) were female, while 45.4% are between 33 and 40 years of age (30.6%: 26-32, 21.9%: 41+). More than half of the geography teachers (56.3%) are employed in public schools, almost 30% work in private schools, and the remaining 14.8% are employed for private courses (educational institutions preparing students for different exams, including university and high school entrance exams).

Slightly more than 35% of the respondents have more than 15 years of professional experience, followed by those with 10-14 years of experience (31.7%) those with 5-9 years of experience (27.3%), and those with 1-4 years of experience (5.5%). The majority of the teachers (67.8%) reported that they teach 21-30 hours of geography courses a week, and 76.7% stated that they taught classes of 16-30 students while 17.3% had class sizes exceeding 30 students. A large majority of the geography teachers (74%) have an undergraduate degree while the rest (26%) have graduate degrees (Figure 1).

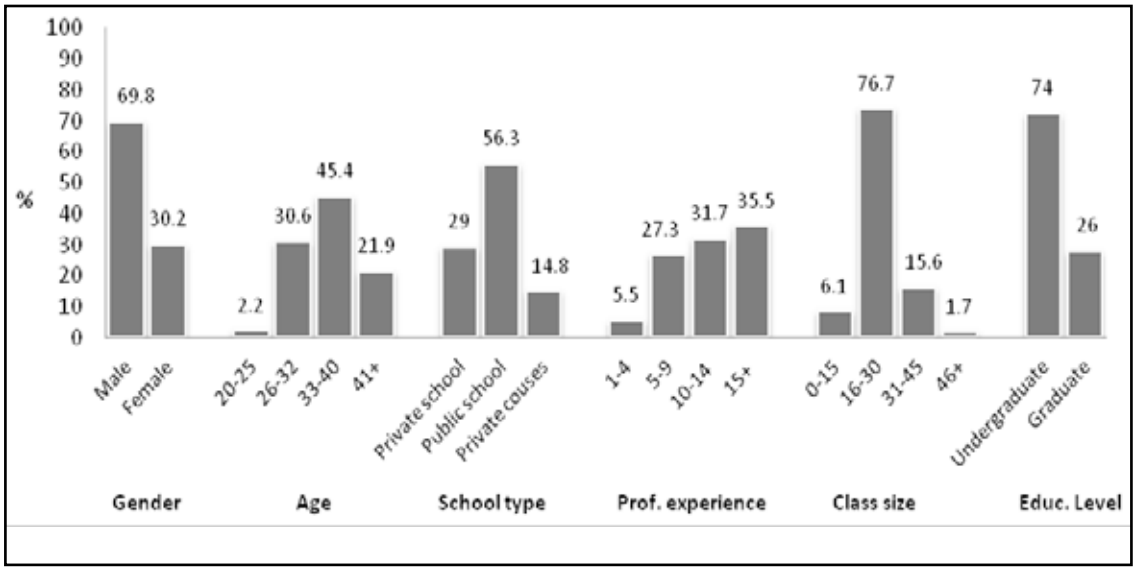

Figure 1. Distribution of Respondents by Gender, Age, School Type, Professional Experience, Class Size, and Educational Level.

Statements

In the first part of the statement section, respondents were given three yes-no questions concerning their attitudes to GER, whether they are subscribed to any academic GER journals, whether they follow GER (papers or books), whether they use GER in their courses, and the frequency of GER use in their courses (Table 1).

According to the descriptive analysis of yes-no questions, although the majority of the respondents (74%, n=134) stated that they do not subscribe to any academic journals on GER, 62.4% of the teachers indicated that they follow GER. However, it is highly disappointing that just 58.9% (n=106) of geography teachers stated that they use GER in their courses. It is even more disappointing that just 31.3% of the respondents stated that they always or often use GER in their courses, while 31.3% stated that they rarely use GER in their geography courses. The remaining 37.3% responded that they sometimes use GER in their courses.

Table 1.

The Responses of Geography Teachers to Yes-No Questions.

	Questions		Answers			
			Yes		No	
1	Are you subscribed to any academic journals about GER?		26% (n=47)		74% (n=134)	
2	Do you follow GER, including papers and books?		62.4% (n=113)		37.6% (n=68)	
3	Do you use GER in your courses?		58.9% (n=106)		41.1% (n=74)	
4	If yes, how often do you use GER in your courses?	Always	Often	Sometimes		Rarely
		6.7%	24.6%	37.3%		31.3%

In the second part of the questionnaire, respondents were given 10 statements regarding the benefits of GER and the factors affecting the use of GER in their courses (Table 2).

Table 2.

Opinions of Geography Teachers about the Use of GER in the Courses.

	Statements		Level of agreement			
			Strongly disagree/ Disagree 1/2*	Neutral 3*	Agree/ Strongly agree 4/5*	Total
1	Using GER in courses improves the quality of the courses and learning	*n*	11	9	162	182
		%	6	4.9	89.1	100
2	Using GER in courses improves student motivation	*n*	10	13	159	182
		%	5.5	7.1	87.4	100
3	Because GER is theoretical, it is not related to the classroom environment	*n*	62	46	74	182
		%	34.1	25.3	40.7	100
4	I do not have enough time to find and use GER in my courses	*n*	87	42	52	181
		%	48	23.2	28.7	100
5	Excessive class sizes do not allow me to use GER in my courses	*n*	89	34	55	178
		%	50	19.1	30.9	100
6	GER goes on elsewhere, outside and beyond school, and does not interest my class	*n*	81	44	55	180
		%	45	24.4	30.6	100
7	Because GER is intended to improve the CV of the researcher, it is useless	*n*	88	54	40	182
		%	48.3	29.7	22	100
8	GER does not meet the needs of classroom teaching	*n*	69	59	53	181
		%	38.1	32.6	29.3	100
9	Because GER is published in inaccessible journals and books, it is difficult to follow	*n*	76	47	57	180
		%	42.3	26.1	31.7	100
10	GER is not the everyday reading matter of teachers	*n*	77	50	52	179
		%	43.1	27.9	29	100

*1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly agree

According to the descriptive analysis of the statements, a large majority of the respondents agreed or strongly agreed that using GER in courses improves the quality of courses and learning (89.1%) and improves student motivation (87.4%), but 40.7% of geography teachers said that they agreed or strongly agreed that GER is theoretical and not related to the classroom environment. However, 34.1% of them strongly disagreed or disagreed with this statement, while 25.3% remained neutral.

In the next two statements, geography teachers were asked whether time and class sizes posed a problem for them in using GER. For both statements, almost half of the respondents strongly disagreed or disagreed that time and class sizes prevent them from using GER in their courses. For these statements, 28.7% of the respondents agreed or strongly agreed that time is a problem for them in using GER, while 23.2% of the respondents were neutral. 30.95% of the respondents also agreed or strongly agreed that large class-sizes prevent them from using GER in their courses, while 19.1% were neutral.

Forty-five percent of the respondents did not believe that because GER goes on elsewhere, outside and beyond school, it does not relate to classroom teaching, while another 30.6% agreed or strongly agreed with this statement and the remaining 24.4% remained neutral. Just 22% of the geography teachers agreed or strongly agreed that GER is useless because it is done primarily to improve the CVs of the researchers. However, almost half of the respondents (48.3%) disagreed or strongly disagreed that GER is done just to improve CV of researchers, while almost 30% of the geography teachers stayed neutral.

Almost 30% of the respondents agreed or strongly agreed that GER does not meet the needs of classroom teaching, but 38.1% strongly disagreed or disagreed with this statement, and another 32.6% remained neutral. Again, around 30% of the geography teachers polled did not feel that GER is published in inaccessible journals and books and that GER is not relevant for geography teachers who are already hard-pressed. However, 42-43% strongly disagreed or disagreed with these statements, while around 26-27% were neutral.

For the analysis of whether the gender of the respondents significantly affects the geography teachers' responses to the yes-no questions and their agreement level with the statements, a Mann-Whitney U test was performed. P values indicated that there was a statistical difference in the mean ranks of males and females on both the seventh statement (GER is directed improving the CV of the researcher, so it is useless) and the eighth statement (GER does not meet the needs of classroom teaching) ($p<0.05$). The 55 female geography teachers had significantly higher mean ranks (102.14) than the 126 male geography teachers (86.14) did on the seventh statement (Table 3). The 55 female geography teachers also had significantly higher mean ranks (101.54) than the 125 male geography teachers did (85.64) on the eighth statement. Moreover, according to Cohen (1988), the r ($r=z/\sqrt{n}$) values indicated that the effect size was small.

Table 3.

Mann-Whitney U Test Results for Male and Female Geography Teachers' Views on Statement 7.

Statement*	Gender	N	Mean Rank	Sum of Ranks	U	z	p	r
7	Male	126	86.14	10853.50	2852.500	-1.973	.048	-.15
	Female	55	102.14	5617.50				
8	Male	125	85.64	10705.50	2830.500	-1.972	.049	-.15
	Female	55	101.54	5584.50				

*See Table 2 for statements 7 and 8

A Kruskal-Wallis analysis of variance indicated that there was a statistically significant difference among the three age groups of respondents on the ninth statement (because GER is

published in inaccessible journals and books, it is difficult to follow) and the tenth statement (these journals are not the everyday reading matter of hard-pressed teachers) (Table 4).

Table 4.

Kruskal-Wallis Test Results for Level of Agreement on Statements 9 and 10 Based on Age Groups.

	Age group	N	Mean ranks	df	X^2	p
Statement 9	20-25	4	60.38	3	9.781	0.021
	26-32	56	86.40			
	33-40	81	84.72			
	41+	39	114.49			
Statement 10	20-25	4	134.50	3	9.020	0.029
	26-32	55	80.36			
	33-40	81	87.17			
	41+	39	104.90			

To determine which of the age groups have different means for the ninth statement, six post hoc Mann-Whitney tests compared two pairs of age groups on Statement 9 to indicate statistical significance. There was a significant difference on Statement 9 between the 26-32 and 41+ age groups and between the 33-40 and 41+ age groups. According to the analyses, the mean rank of geography teachers who are 41 years of age and older (56.52, n=39) was significantly higher for Statement 9 than that of teachers who are between 26-32 years of age (42.13, n=56), z=-2.609, p=0.009, r=0.27, a small-to-medium effect, according to Cohen (1988). The mean rank of respondents who are 41+ years old (72.00, n=39) was also significantly higher in Statement 9 than that of teachers who are between 33-40 years of age (54.96, n=81), z= -2.628, p= 0.009, r= 0.24, a small-to-medium effect (Table 5).

Table 5.

Post Hoc Mann-Whitney U Test Comparing The Age Groups on Statements 9 and 10.

	Age groups	N	Mean ranks	Sum of ranks	U	z	p
Statement 9	26-32	56	42.13	2359.50	763.500	-2.609	0.009
	41+	39	56.52	2200.50			
	33-40	81	54.96	4452.00	1131.000	-2.628	0.009
	41+	39	72.00	2808.00			
Statement 10	20-25	4	47.00	188.00	42.000	-2.135	0.033
	26-32	55	28.76	1582.00			
	26-32	55	42.15	2318.50	778.500	-2.347	0.019
	41+	39	55.04	2146.00			

Another six post hoc Mann-Whitney tests were used to compare which of the paired age groups had different means on the tenth statement. Results suggested that the mean rank of the 20-25 age group of teachers (47.00, n=4) was significantly higher than that for teachers aged between 26 and 32 (28.76, n= 55) on the Statement 10, z= -2.135, p= 0.033, r= 0.28, a small-to-medium effect, according to Cohen (1988). Geography teachers who are 41+ years of age had also significantly higher mean rank (55.04, n=39) than those between 26-32 years of age (42.15, n=55) on the same statement, z=-2.347, p=0.019, z=0.24, a small-to-medium effect size (Table 5).

Other Kruskal-Wallis tests were performed to indicate whether there were differences in

teachers' responses to the yes-no questions and statements depending on the type of school in which the geography teachers are employed. The results suggest that there are significant differences among the three school types on the third, fourth, and fifth statements (Statement 3: because GER is theoretical, it is not related to the classroom environment; Statement 4: I do not have enough time to find and use GER in my courses; and Statement 5: excessive class sizes do not allow me to use GER in my courses) (Table 6).

Table 6.

Kruskal-Wallis Test Results for Level of Agreement on Statements 3, 4, and 5 Based on School Type.

	School type	N	Mean ranks	df	X^2	p
Statement 3	Private schools	53	97.29	2	9.336	0.009
	Public schools	103	95.66			
	Private courses	26	63.23			
Statement 4	Private schools	53	91.76	2	15.52	0.001
	Public schools	102	99.35			
	Private courses	26	56.69			
Statement 5	Private schools	52	99.58	2	7.792	0.020
	Public schools	100	90.20			
	Private courses	26	66.67			

To determine which of the school type means are different for the third, fourth, and fifth statements, three post hoc Mann-Whitney tests for each statement compared the school types on Statement 3, 4, and 5 to find the statistical significance (Table 7). The results indicated a significant difference between the mean rank of geography teachers working in private schools (44.83, n=53) and the mean rank of those employed in private courses (30.15, n=26) on the third statement, in favor of the former group, z=-2.749, p=0.006, r=0.31, a small-to-medium effect. In addition, the mean rank of respondents employed in public schools (69.65, n=103) was significantly higher than the mean rank of those working in private courses (46.58, n=26) for the same statement, z=-2.902, p=0.004, r=0.25, a small-to-medium effect size, according to Cohen (1988) (Table 7).

Table 7.

Post Hoc Mann-Whitney U Test Comparing Groups Organized by School Type for Statements 3, 4, and 5.

Statements	School type	N	Mean ranks	Sum of ranks	U	z	p
Statement 3	Private schools	53	44.83	2376.00	433.000	-2.749	0.006
	Private courses	26	30.15	784.00			
	Public schools	103	69.65	7174.00	860.000	-2.902	0.004
	Private courses	26	46.58	1211.00			
Statement 4	Private schools	53	45.29	2400.50	408.500	-3.010	0.003
	Private courses	26	29.21	759.50			
	Public schools	102	70.50	7190.50	714.500	-3.802	0.000
	Private courses	26	40.98	1065.50			

Statement 5	Private schools	52	44.46	2312.00	418.000	-2.872	0.004
	Private courses	26	29.58	769.00			
	Public schools	100	66.86	6685.50	964.500	-2.101	0.036
	Private courses	26	50.60	1315.50			

Regarding Statement 4, the results showed that the mean rank of public school teachers (45.29, n=53) was statistically higher than that of private course teachers (29.21, n=26), z=-3.010, p=0.003, r=032, a small-to-medium effect size, while public school teachers had a significantly higher mean rank (70.50, n=102) than that of private course teachers (40.98, n=26) on the same statement, z= -3.802, p= 0.000, r= 0.34, a small-to-medium effect size, according to Cohen (1988). As for Statement 5, private school teachers also had a significantly higher mean rank (44.46, n=52) than private course teachers had (29.58, n=26), z=-2.872, p=0.004, r=0.32, a small-to-medium effect. The mean rank of public school teachers (66.86, n= 100) was significantly higher than for public course teachers (50.60, n=26) on the same statements, z=-2.101, p=0.036, r=0.019, indicating a small-to-medium effect (Table 7).

To analyze whether the professional experience of respondents has a significant effect on geography teachers' agreement with the statements, a Kruskal-Wallis analysis test was performed. P values indicated statistical differences in the mean ranks of four professional experience groups for Statements 3, 4, 9, and 10 (Table 8).

Table 8.

Kruskal-Wallis Test Results for Statements 3, 4, 9, and 10 for Professional Experience of Teachers.

Statements*	Professional experience (years)	N	Mean ranks	df	X^2	p
Statement 3	1-4	10	113.60	3	9.194	0.027
	5-9	50	82.86			
	10-14	57	81.39			
	15+	65	103.61			
Statement 4	1-4	10	91.95	3	12.448	0.006
	5-9	50	81.38			
	10-14	57	79.75			
	15+	64	108.39			
Statement 9	1-4	10	72.90	3	12.014	0.007
	5-9	50	86.07			
	10-14	57	78.75			
	15+	63	107.44			
Statement 10	1-4	10	92.75	3	8.133	0.043
	5-9	50	78.22			
	10-14	56	84.77			
	15+	63	103.56			

*See Table 2 for statements

To determine which professional experience group differed for Statements 3, 4, 9, and 10, six post hoc Mann-Whitney tests for each statement compared these dependent variables to indicate significant variables (Table 9).

The results suggest that the mean rank of respondents with 1-4 years of professional experience was significantly higher (45.20, n=10) than the mean rank of respondents with 10-14 years of professional experience (32.04, n=17) on Statement 3, z=-2048, p=0.041, r=0.39, a medium-to-large effect, while there was a statistically significant difference between the mean ranks of geography teachers with 15+ years of professional experience (63.58, n=65) and those with 5-9

years of professional experience (50.74, n=50) on Statement 3 in favor of the former group, z=-2.110, p=0.035, r=0.20, a small-to-medium effect. However, another statistical difference was investigated between the mean ranks of respondents with 15+ years of professional experience (68.42, n=65) and the mean ranks of those with 10-14 years of professional experience (53.61, n=57) on the same statement, in favor of the former group, z=-2.382, p=0.017, r=0.24, a small-to-medium effect (Table 9).

According to the analyses comparing the four professional experience groups on the fourth statement, there was a significant difference between the teachers with professional experience of 15+ years (64-82, n=64) and those with 5-9 years of professional experience (48.13, n=50), in favor of the former group, z=-2.812, p=0.005, r=0.26, indicating a small-to-medium effect size. The mean rank of the respondents with 15+ years of experience (70.09, n= 64) was significantly higher for Statement 4 for those with 10-14 years of experience (50.79, n= 57), z= -3.157, p= 0.002, r= 0.29, showing a small-to-medium effect (Table 9).

Table 9.

Post Hoc Mann-Whitney U Test Comparing Groups Organized by Duration of Professional Experience on Statements 3, 4, 9, and 10.

Statements	Professional experience (year)	N	Mean ranks	Sum of ranks	U	z	p
Statement 3	1-4	10	45.20	452.00	173.000	-2.048	0.041
	10-14	57	32.04	1826.00			
	5-9	50	50.74	2537.00	1262.000	-2.110	0.035
	15+	65	63.58	4133.00			
	10-14	57	53.61	3055.50	1402.500	-2.382	0.017
	15+	65	68.42	4447.50			
Statement 4	5-9	50	48.13	2406.50	1131.500	-2.812	0.005
	15+	64	64.82	4148.50			
	10-14	57	50.79	2895.00	1242.000	-3.157	0.002
	15+	64	70.09	4486.00			
Statement 9	5-9	50	49.33	2466.50	1191.500	-2.327	0.020
	15+	63	63.09	3974.50			
	10-14	57	50.49	2878.00	1225.000	-3.134	0.002
	15+	63	69.56	4382.00			
Statement 10	5-9	50	48.19	2409.50	1134.500	-2.643	0.008
	15+	63	63.99	4031.50			
	10-14	56	53.21	2979.50	1383.500	-2.122	0.034
	15+	63	66.04	4160.50			

The results also suggest that the respondents with 15+ years of professional experience had a statistically higher mean (63.09, n= 63) than those with 5-9 years of experience (49.33, n=50) on Statement 9, z= -2.327, p= 0.020, r= 0.22, a small-to-medium effect size. Moreover, there was a significant difference between the mean rank of geography teachers with 15+ years of professional experience (69.56, n=63) and the mean rank of those with 10-14 years of experience (50.49, n=57) on the same statement, z= -3.134, p= 0.002, r= 0.29, a small-to-medium effect size (Table 9).

Finally, there was a statistically significant difference between the mean ranks of geography teachers with 15+ years of professional experience (63.99, n=63) and those with 5-9 years of professional experience (48.19, n=50) on Statement 10, in favor of the former group, z= -2.643,

p= 0.008, r= 0.25, a small-to-medium effect size. However, another statistical difference was investigated between the mean ranks of respondents with 15+ years of professional experience (66.04, n=63) and the mean ranks of those with 10-14 years professional experience (53.21, n=56) on the same statement, in favor of former group, z= -2.122, p= 0.034, r= 0.19, a small-to-medium effect (Table 9).

To analyze whether the education level of respondents (undergraduate or graduate) differs significantly on the teachers' responses, a Mann-Whitney U test was performed. P values indicated that there was a statistical difference in the mean ranks of respondents' education level for both the frequency question ("How often do you use GER in your courses?") and Statement 10 ("GER is not the everyday reading matter of hard-pressed teachers") ($p<0.05$). The results suggest that the 42 geography teachers who have graduate degrees had significantly higher mean ranks (97.24) than the 126 geography teachers who have undergraduate degrees (80.25) on the fourth yes-no question. The 43 respondents with graduate degrees had also significantly higher mean ranks (99.64) than the 130 respondents with undergraduate degrees (82.82) on the tenth statement. According to Cohen (1988), the r-values indicated that the effects were small (Table 10).

Table 10.

Mann-Whitney U Test Results for Education Level of Geography Teachers on Responses to Yes-No Question 4 and Statement 10.

Question/ Statement*	Education level	N	Mean Rank	Sum of Ranks	U	z	p	r
Frequency question	Undergraduate	126	80.25	10112.00	2111.000	-2.018	0.044	-.15
	Graduate	42	97.24	4048.00				
Statement 10	Undergraduate	130	82.82	10766.50	2251.500	-1.988	0.047	-.15
	Graduate	43	99.64	4284.50				

*See Table 1 and 2 for the yes-no questions and statements

Discussion and Conclusion

This study revealed that a connection should be established between GER and geography teaching and that GER has an effect on geographic education. However, many studies revealed some obstacles in constructing this link between GER and the classroom environment and in the healthy incorporation of GER into geography courses (Lidstone & Williams, 2006; Williams, 2003; Naish, 2002; Slater, 2003; Roberts, 2000; Hannon, 1998). This study attempted to determine to what extent geography teachers use GER in their courses and the possible barriers preventing them from using the results of GER in the Turkish classroom environment.

The first four questions were designed to understand the attitudes of Turkish geography teachers towards GER. The results indicated that 26% of the teachers stated that they subscribe to academic journals about GER and 62.4% of them said that they follow GER publications. The responses of the geography teachers to the ninth statement also support this idea: 31.7% of them believed that "GER is published in inaccessible journals and books, so it is difficult to follow." The answers to the central question in the survey, "Do you use GER in your courses?" suggested that almost 59% of the respondents use GER in their courses. One may think that 59% is an encouraging number of geography teachers, but the responses to the following question, which investigated the frequency of GER usage, is highly disappointing: only 31.3% of teachers responded that they efficiently (always or often) use GER in their courses (Table 1).

The following statements were given to teachers to investigate their opinions regarding the benefits of using GER and the obstacles preventing them from using GER in their classes. It is quite encouraging that more than 87% of the respondents think that using GER improves learning, student motivation, and the quality of the courses. This suggests that if the obstacles were removed, the frequency of teachers' usage of GER would increase. However, 40.7% of the respondents think that GER is theoretical and not related to the classroom environment, 34.1% of them do not agree with this idea and 25.3% are neutral. The results also suggest that almost half of the respondents do not think that time and excessive class sizes are a reason not to use GER in their courses; however, almost one-third of them think so. More than 45% of the geography teachers polled do not consider it a problem that GER goes on elsewhere, outside and beyond the school, and more than 48% of them do not believe that GER is useless because it is designed to improve the CV of the researcher. The agreement level of the teachers to the eighth statement shows that the percentage of teachers who did not believe that GER does not meet the needs of classroom teaching (38.1%) is higher than the percentage of those who believe the opposite (29.3%), while 32.6% stayed neutral. Finally, just 29% of the respondents think that GER is not the everyday reading matter of hard-pressed teachers; however, 43.1% do not think so, while 27.9% were neutral.

If we look at the big picture regarding the agreement level of the teachers with the statements, it can be concluded that a large majority of the teachers consider the use of GER to be quite beneficial, and most believe that the eight barriers listed do not prevent them from using GER in their courses. At most, 31.7% of the geography teachers for each statement believed that these barriers prevent them from using GER in their courses, except for those who feel it is too "theoretical" (Statement 3).

If we look at the significant differences between the independent variables (gender, age, school type, professional experience, and education level) and the dependent variables (responses to yes-no questions and agreement levels for statements) we can draw the following conclusions.

Gender

- Female teachers are more likely than male teachers' in disagreeing with the statements "GER is done to improve researchers' CV, so it is useless" and "GER does not meet the needs of classroom teaching" (Table 3).

Age groups

- More geography teachers who were 41 years of age or above disagreed with the statement, "GER is published in inaccessible journals and books, so it is difficult to follow" than those between 22-36 and 33-40 years of age.
- The 20-25 and 41+ age groups of teachers disagree more than the 26-32 age group with the statement, "GER is not the everyday reading matter of hard-pressed teachers" (Table 5).

School types

- Private course teachers regard GER as theoretical and not related to the classroom environment more than private and public school teachers (Table 7). We suggest that because private courses apply multiple-choice exam-based education, they have to be much more practical than public and private schools, and thus they tend to find the GER more theoretical and irrelevant to their education system.
- Again, more private course teachers consider insufficient time to be an important factor preventing them from using GER than public and private school teachers because the private courses must fit the entire high school or primary school course content into a year (the duration of private courses cover two terms or one educational year). Thus, it is challenging for them to finish even their established course content in the time given. The cross tabulation applied for the weekly course hours by school type shows that 88.8% of the

private course teachers, 80% of the public school teachers, and 77.3% of the private school teachers stated that they teach more than 20 hours of geography courses each week.

- Private course teachers complain about excessive class size in terms of using GER in their courses more than private and public school teachers (Table 7). There is a discrepancy, however, between the average class size in each school type and the complaint levels of teachers employed in these school types. Based on cross tabulation between school types and the average class sizes, 100% of the private course teachers stated that they thought classes should contain less than 30 students, while 73% of the public school teachers and 92.5% of the private school teachers thought classes should contain less than 30 students. These findings indicate that private courses have the smallest class size. This inconsistency may be explained by the time problem. Because teachers have to perform four years of teaching in a single year, this means that they have to allocate much more time for each student. Consequently, these teachers may believe that a certain number of students may be reasonable for a private school class or a public school class when it is excessive for private school courses.

Professional experience

- The teachers with 1-4 years of professional experience find GER less theoretical and more relevant to the classroom environment than those who have 10-14 years of professional experience, while the teachers with 15+ years of professional experience think that GER is more theoretical and less relevant to classroom practices than the teachers who have 5-9 and 10-14 years of professional experience, respectively (Table 9).
- Additional analysis indicated that the geography teachers who have 15+ years of professional experience tend to disagree or strongly disagree with the following statements more often than those who have 5-9 and 10-14 years of professional experience: "I do not have enough time to find and use GER in my courses", "Since GER is published in inaccessible journals and books, it is difficult to follow", and "GER is not the everyday reading matter of overworked teachers" (Table 9).

Educational level

- Analysis regarding the educational level of the respondents indicated that those who have a graduate diploma tend to use GER more often than those who hold an undergraduate diploma.
- The geography teachers holding a graduate diploma tend to disagree or strongly disagree with the notion that GER is not the everyday reading matter of hard-pressed teachers more than those who have an undergraduate diploma (Table 10).

Results indicate that although geography teachers believe that GER is quite beneficial in terms of enhancing course quality and student motivation, a lot needs to be done to make GER a common teaching method in geography courses. Some future steps towards this goal include devoting more time in teacher education to the incorporation of GER into geography courses, organizing in-service training for geography teachers on the use and benefits of GER in their courses, improving the working conditions of geography teachers, and informing geography teachers of the existing GER bibliography. These are among the most viable ways to make GER a common tool and method in geography education.

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