

The Effects of Fieldwork Practices on Students' Self-Efficacy Perceptions in Geography Education

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Abstract

The purpose of this study is to reveal the impacts of field studies on university students' selfefficacy perceptions in geography education. For this purpose, the data were collected from geography and geography education students of two different universities located in Istanbul. The students have attended field trips (Western Anatolia and Central Anatolia) in their universities. The pretest-posttest experimental research model was used in the implementation. The impacts of field studies on students' self-efficacy perceptions were determined using assessment survey, which had been prepared by taking opinions of some experts. Some descriptive statistics, "Mann-Whitney U" tests and regression analysis were used in the analysis of the results with the help of SPSS[®]. The study revealed that the students' selfefficacy perceptions have increased in all areas determined in the study between the rates of 26% and 48% after attending field studies. The findings of the study were discussed and some suggestions were given in the study.

Key words: Constructivist learning, geography education, fieldwork, real life experience, self-efficacy.

1. Introduction

Fieldwork has great importance in geography teaching since it allows many geographical phenomena to be observed on its own environment and be better perceived (TMNE, 2012; Article 14), real life experiences to be gained by turning theory into practice (Fuller, et al., 2006; Scott, et al., 2006), and thus leads to a better understanding of the real world (Fuller, 2006). Field is the laboratory of geographical research (Garipağaoğlu, 2001), and the utilization of this lab is possible through geographical field trips (Doğanay, 1993, 2002; Alkış, 2008; Kent, 1999).



In field trips, theoretical knowledge is put into practice (Gök and Girgin, 2001; Girgin, et al., 2003; Akbulut, 2004; Açıkgöz, 2006; Balcı, 2010a). Field trips also facilitate the teaching of concepts (Rudmann, 1994), increase permanence in learning (Balcı, 2010b), facilitate the acquisition of cognitive skills (Rudmann, 1994), and improve transferable skills (Scott, et al., 2006). In addition, geographical fieldwork allows students to improve their skills to make syntheses and assessments about concepts (Kızılçaoğlu, 2003; Akbulut, 2004); it also produces positive effects on students' geographical expectations (Balcı, 2012), and ensures that students are in a permanent and enjoyable learning environment (Kent, et al., 1997).

The importance of fieldwork in geography teaching has necessitated investigations to determine the self-efficacy perceptions of geography teacher candidates. Self-efficacy, in its shortest definition, refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1986), or to one's judgments or beliefs as to his/her capacity or performance (Bandura, 1977, 1994, 1997; Lee, 2005). In addition to these definitions, self-efficacy can also be described as: an individual's response to questions such as "What can I do?" (Snyder and Lopez, 2002) or "Can I do this task?" (Donald, 2003); an individual's self-confidence; an individual's judgment about his/her confidence in his/her ability; or his/her belief formed through his/her experiences (Lee, 2005; Yılmaz and Köseoğlu, 2004).

In Turkey, various studies have been conducted on the self-efficacy perceptions of students (Akkoyunlu and Kurbanoğlu, 2003; Altunçekiç, et al., 2005; Arslan, 2008) and teachers (Akkoyunlu and Kurbanoğlu, 2004;. Çelik and Bindak, 2005; Kapıcı, 2003; Kaptan and Korkmaz, 2002; Kılıçoğlu, et al., 2011; Özkan, et al., 2002; Seferoğlu and Akbıyık, 2005; Usluel and Seferoğlu, 2003; Üstüner, et al., 2009; Yılmaz, et al., 2004), in connection with various courses in primary, secondary and higher education. However, there are a limited number of studies conducted on self-efficacy perceptions in geography education. In their study in 2011, Akengin et al. analyzed the relationship between the self-efficacy perceptions of students and their academic success. Geçit (2011) analyzed the occupational self-efficacy beliefs of geography teachers in terms of certain variables, while Sezer et al. (2010) studied the computer self-efficacy perceptions of geography education students. Karadeniz and Özdemir (2006) analyzed self-efficacy beliefs about geography-related topics, and Öztürk (2003) studied the educational qualification of geography teachers.

In addition, some studies involved scale preparation and development efforts (Bozdoğan and Öztürk, 2008; Öztürk, 2008; Karadeniz, 2005; Karadeniz and Sarı, 2011). However, no comprehensive research has been conducted to determine the current self-efficacy perceptions of students about fieldwork, and the effect of fieldwork on the students' self-efficacy perceptions about the fieldworks. Therefore, it is essential issue in geography teaching to uncover the self-efficacy perceptions of students about fieldworks. The purpose of this study is to uncover the self-efficacy perceptions of students about various areas related to geographical fieldworks, and to determine the effect of fieldwork on such self-efficacy perceptions of students.



2. Methodology

The sample of the study consists of students from two departments - School of Arts and Sciences, Geography Department; and School of Education, Geography Education Department - each in different universities. 39% of the sample (25% male, 75% female) consisted of 4th-year students from Geography Department in School of Arts and Sciences, while 41% (35% male, 65% female) consisted of 4th-year (n=18) and 5th-year (n=23) students from Geography Education.

The study investigated students' self-efficacy perceptions about fieldwork. To this end, in the questionnaire, students were asked questions as to whether they can: carry geography teaching outside class or school; compare newly acquired information with the old information; build a link between fieldwork and real life; achieve attainment goals; take into account needs and expectations; have sufficient information about learning areas, skills, and values; select activities; engage in group work; use technology and teaching tools; control learning, teaching and assessment processes.

The study was conducted in three stages in the following order: preparation, fieldwork, and assessment. In the preparation stage, a questionnaire was prepared about the self-efficacy perceptions related to fieldwork. The questionnaire, which was prepared after consulting an expert, contained 33 opinions in five different areas (A-About the approach adopted by geography teaching program, B-About the aims of fieldwork, C-About learning areas, skills, and values, D-About the learning – teaching relationship, E-About the assessment process) based on the study of Öztürk, Deveci and Karaduman (2007) on students' self-efficacy perceptions. The questionnaire involved the use of Likert scale, and asked students to indicate the level of agreement with the given self-efficacy opinions on a scale of "1- strongly disagree" to "5- strongly agree". At this stage, a pilot scheme was also conducted to make the necessary corrections in the questionnaire.

In the fieldwork stage, fieldwork and questionnaires were undertaken. One of the fieldwork practices took 4 days, the other took 5 days. Within this framework, samples of geographical fieldwork were implemented in the Western and Central Anatolia regions of Turkey. The plan for these fieldwork practices has been prepared taking into account the views and suggestions of the participants. The fieldwork in the Western Anatolia was implemented on 7 - 11 May 2012, the one in the Central Anatolia on 30 April – 3 May 2012. The fieldwork for the Western Anatolia involved investigations in Çanakkale, İzmir, Aydın, Denizli, Isparta, Afyonkarahisar and Kütahya provinces; the one for Central Anatolia involved investigations in Bilecik, Eskişehir, Konya, Aksaray, Niğde, Nevşehir, Kırşehir provinces on their physical, human and economic geographical features. Two faculty members and a research assistant attended the fieldwork in Central Anatolia. Before and after the fieldwork was conducted, it was ensured that students responded the questionnaires according to the pretest – posttest experimental research method. The reason for the pretests was the assumption that the current self-efficacy level of



the students could affect the result of the research. Therefore, the current level was determined to reveal the difference between this level and the achieved one.

In the assessment stage, research data was analyzed using the SPSS[®] statistics program. Arithmetical average (a descriptive statistical method) was used as well as "Mann-Whitney U" test and regression analysis (two inferential statistical methods). "Mann-Whitney U" test was used because the data did not have a normal distribution. This research is limited to two geographical fieldwork practices implemented by researchers for data collection purposes, two questionnaire forms prepared to be conducted before and after the geographical fieldwork, and responses of students from two different universities in Istanbul during the 2011 - 2012 spring term (39 students enrolled in Geography Education undergraduate program in School of Arts and Sciences; 41 students enrolled in Geography Education undergraduate program in School of Education).

3. Findings

The reliability analysis for the research results revealed that the reliability rate was 80% (Cronbach's Alpha = 0.800). In addition, Kolmogorov-Smirnov normality test, which was conducted to determine whether the data had a normal distribution, indicated that the data collected during the research did not have a normal distribution (p = 0.00 < 0.05). In other words, the research results do not display parametric features. Therefore, the Mann-Whitney U test (a non-parametric method in difference analyses, which are implemented to compare pretest and posttest results) was used.

3.1. Self-Efficacy Perceptions about the Approach Adopted by the Geography Teaching Program

The pretest average of twelve opinions in the questionnaire "about the approach adopted by the geography teaching program" was 3.56 (neither agree nor disagree), with the posttest average at 4.48 (agree). Accordingly, the self-efficacy perceptions of students increased by 26% on average, as a result of the fieldwork. The greatest increase occurred as 55% in the opinion "When I organize geographical fieldwork, I can create an environment that facilitates interaction among students." followed by a 41% increase in the opinion "I can carry geographical learning outside class and school through geographical fieldwork." A "Mann-Whitney U" test was conducted to determine whether the difference between pretest and posttest averages was significant. It was concluded after analyzing the test results that a significant difference in favor of the posttest, in students' self-efficacy perceptions about the approach adopted by the geography-teaching program (Table 1).



Table 1. Self-Efficacy Perceptions about the Approach Adopted by the Geography Teaching

Pr	ogram					
Statements	Pretest Mean	Posttest Mean	Difference btw. Pre and post tests (%)	U	z	Р
 I can carry geography learning outside class and school through geographical fieldwork. 	3.20	4.53	41.41	590.00	-9.383	0.00
2. By organizing geographical fieldwork, I can allow students to compare newly acquired information with the old information.	3.34	4.58	37.30	781.00	-8.629	0.00
3. By organizing geographical fieldwork, I can change students' perspective about a topic.	3.31	4.34	30.94	1140.50	-7.431	0.00
4. By organizing geographical fieldwork, I can allow students to look at phenomena from different perspectives.	3.70	4.36	17.91	1795.50	-5.190	0.00
5. By organizing geographical fieldwork, I can allow students to express their point of view.	3.39	4.38	29.15	1318.00	-6.759	0.00
6. By organizing geographical fieldwork, I can allow students to establish a link between course topics and real life.	3.95	4.55	15.19	1892.00	-4.897	0.00
7. When I organize geographical fieldwork, I can create an environment that facilitates interaction among students.	3.20	4.96	55.08	687.00	-9.028	0.00
8. When I organize geographical fieldwork, I can help students engage in intriguing and challenging questions.	3.31	4.49	35.47	828.50	-8.524	0.00
9. When I organize geographical fieldwork, I can teach students that they need to study and analyze nature, human structures and economic activities on site.	3.96	4.56	15.14	1863.50	-4.994	0.00
10. When I organize geographical fieldwork, I can use the teaching methods emphasized by constructivism in the learning process.	3.84	4.26	11.07	2384.50	-2.991	0.00
11. When I organize geographical fieldwork, I can help students gain a broader perspective by presenting them different points of view.	3.54	4.35	22.97	1361.50	-6.780	0.00
12. When I organize geographical fieldwork, I can tell students how they should use field data scientifically.	3.93	4.41	12.42	2216.00	-3.659	0.00
AVERAGE	3.56	4.48	26.04	469.00	-9.334	0.00

3.2. Self-Efficacy Perceptions about the Aims of Geographical Fieldwork

The pretest average of four opinions "about the aims of geographical fieldwork" was 3.04 (neither agree nor disagree), with the posttest average at 4.19 (agree). Accordingly, the self-efficacy perceptions of students increased by 38% on average as a result of the fieldwork. The greatest increase occurred in the opinion "I have sufficient knowledge about the attainment goals of geographical fieldwork" (94%). The results of the Mann-Whitney U test revealed that a significant difference of p < 0.05 significance level was present (p = 0.000 < 0.05) between the pretest and posttest scores. Accordingly, fieldwork created a significant difference in favor of the posttest, in students' self-efficacy perceptions about the aims of fieldwork (Table 2).



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Statements	Pretest Mean	Posttest Mean	Difference btw. Pre and post tests (%)	U	z	Р
1. I have sufficient knowledge about the general goals of geographical fieldwork	3.30	4.28	29.55	1376.50	-6.555	0.00
2. I have sufficient knowledge about the attainment goals of geographical fieldwork	1.95	3.79	94.36	661.50	-8.885	0.00
3. When I organize geographical fieldwork, I can take into account the environmental conditions, and students' interests, needs, expectations and prior knowledge in order to achieve the attainment goals in connection with the given fieldwork.	3.34	4.45	33.33	1144.00	-7.395	0.00
4. When I organize geographical fieldwork, I can address geographical teaching methods from multiple angles and link them to other disciplines as I cover a certain topic.	3.56	4.25	19.30	1588.50	-6.095	0.00
AVERAGE	3.04	4.19	37.98	2298.00	-3.136	0.00

3.3. Self-Efficacy Perceptions about Learning Areas, Skills, and Values

The pretest average of three opinions that students presented as a response to opinions "about learning areas, skills, and values" was 3.37, with the posttest average at 4.62 (agree). Accordingly, students' self-efficacy perceptions increased by approximately 37% and reached a level close to "strongly agree". The greatest increase occurred in the opinion "I have the necessary knowledge about learning areas (individual, society, culture etc.) to organize geographical fieldwork." Furthermore, the results of the Mann-Whitney U test revealed that a significant difference of p < 0.05 significance level was present (p = 0.000 < 0.05) between the pretest and posttest scores. Accordingly, fieldwork created a significant difference in favor of the posttest, in students' self-efficacy perceptions about learning areas, skills, and values (Table 3).

Statements	Pretes t Mean	Posttest Mean	Difference btw. Pre and post tests (%)	U	Z	Р
 I have the necessary knowledge about learning areas (individual, society, culture etc.) to organize geographical fieldwork. 	3.01	5.18	71.78	1052.00	-7.684	0.00
2. I have the necessary knowledge about skills (critical thinking, creative thinking, communication etc.) to organize geographical fieldwork.	3.10	4.19	35.08	1179.00	-7.317	0.00
3. When I organize geographical fieldwork, I can teach values (fairness, independence) to students.	4.00	4.49	12.19	1930.50	-4.874	0.00
AVERAGE	3.37	4.62	36.96	770.50	-8.387	0.00

Table 3. Self-Efficacy Perceptions about Learning Areas, Skills, and Values

3.4. Self-Efficacy Perceptions about the Learning – Teaching Process

The pretest average of eight opinions that students presented as a response to opinions "about learning – teaching process" was 3.00 (neither agree nor disagree), with the posttest average at 4.16 (agree). As a result of the fieldwork, students' self-efficacy perceptions increased by approximately 39%. The greatest increase occurred in the opinion "I know how to use



technology when I organize geographical fieldwork" (89%), followed by a 64% increase in the opinion "When I organize geographical fieldwork, I do not encounter any problem in assigning group work." Furthermore, the results of the Mann-Whitney U test revealed that a significant difference of p < 0.05 significance level was present (p = 0.000 < 0.05) between the pretest and posttest scores. Accordingly, fieldwork created a significant difference in favor of the posttest, in students' self-efficacy perceptions about the learning – teaching process (Table 4).

Statements	Pretest Mean	Posttest Mean	Difference btw. Pre and post tests (%)	U	Z	Ρ
 When I organize geographical fieldwork, I can implement the prepared activities. 	3.98	4.40	10.69	2142.00	-4.036	0.00
2. When I organize geographical fieldwork, I do not encounter any problem in assigning group work.	2.25	3.70	64.44	1096.00	-7.381	0.00
3. When I organize geographical fieldwork, I can expose students to real life problems and contradictory situations to engage them in reflective thinking about these problems.	3.10	4.08	31.45	1412.50	-6.410	0.00
4. When I organize geographical fieldwork, I can select activities suitable for the environment I am positioned in.	3.46	4.43	27.80	1319.50	-6.777	0.00
5. When I organize geographical fieldwork, I can adopt a student-centric approach during the teaching – learning process.	3.89	4.43	13.83	2053.00	-4.269	0.00
6. I know how to use technology when I organize geographical fieldwork.	2.05	3.88	89.27	872.00	-8.149	0.00
7. When I organize geographical fieldwork, I can use teaching equipment (map, compass, computer etc.) effectively.	2.35	4.19	78.19	6500.50	-9.000	0.00
8. When I organize geographical fieldwork., I possess self-efficacy perception about various methods and techniques available.	2.90	4.20	44.83	950.50	-8.057	0.00
AVERAGE	3.00	4.16	38.86	1454.50	-5.989	0.00

Table 4. Self-Efficacy Perceptions about the Learning – Teaching Process	Table 4. Self-Effica	v Perceptions about the Learning – Teaching	Process
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3.5. Self-Efficacy Perceptions about the Assessment Process

The last six questions of the questionnaire were "about the assessment process". The pretest average of six opinions presented by students was 2.76, with the posttest average at 4.08 (agree). Accordingly, students' self-efficacy perceptions, which were at a level close to "neither agree nor disagree", increased by approximately 48% and reached the level "strongly agree". In this section, the greatest increase occurred in the opinion "I can perform geographical fieldwork with my students" (85%). The results of the Mann-Whitney U test, which was conducted to determine the presence of a significant statistical difference between the pretest and posttest, revealed that there was a significant difference of p < 0.05 significance level (p = 0.000 < 0.05) between the pretest and posttest, in students' self-efficacy perceptions about the assessment process (Table 5).



Table 5. Self-Efficacy receptions about the Assessment rocess						
Statements	Pretest Mean	Posttest Mean	Difference btw. Pre and post tests (%)	U	Z	Ρ
 When I organize geographical fieldwork, I possess self-efficacy perceptions about the assessment process. 	3.63	4.30	18.62	1755.00	-5.458	0.00
2. When I organize geographical fieldwork, I can perform the assessment throughout the whole learning process.	2.89	4.24	46.75	930.50	-8.035	0.00
3. When I organize geographical fieldwork, I can ensure students' participation in the assessment process.	2.60	4.26	63.94	850.50	-8.256	0.00
4. When I organize geographical fieldwork, I have no difficulty in identifying the suitable assessment tools according to the given topic.	2.31	2.65	14.59	2801.50	-3.226	0.00
5. When I organize geographical fieldwork, I possess self-efficacy perceptions about assessment approaches (self-assessment, holistic assessment etc.)	2.60	4.31	65.87	653.50	-9.000	0.00
6. I can perform fieldwork with my students.	2.54	4.71	85.71	258.50	-10.44	0.00
AVERAGE	2.76	4.08	47.77	196.50	-10.27	0.00

3.6. Overall Self-Efficacy Perceptions about Fieldwork

As a result of the assessment of self-efficacy perceptions in five different areas, the average of pretest scores was 3.15, with the posttest average at 4.31. Students' self-efficacy perceptions prior to fieldwork were at the level "neither agree nor disagree", but by the end of the fieldwork they increased by 36.87% on average, reaching the level "strongly agree". In addition, the results of the Mann-Whitney U test, which was conducted to determine the presence of a significant statistical difference between the pretest and posttest, revealed that there was a significant difference of p < 0.05 significance level (p = 0.000 < 0.05) between the pretest and posttest scores (U=218.000; Z=-10.177; p=0.00).

It was found that students' self-efficacy perceptions in four areas (except the area titled "about the assessment process") before the fieldwork were at the level "neither agree nor disagree". However, in the area titled "about the assessment process", students' self-efficacy perceptions before the fieldwork were at the level "disagree". After the fieldwork, students' self-efficacy perceptions increased to "agree" in all five areas. Self-efficacy perceptions reached the highest level in the area titled "about learning areas, skills, and values" (4.62), followed in a descending order by "about the approach adopted by the geography teaching program" (4.48), "about the aims of fieldwork" (4.19), "about the learning – teaching process" (4.16) and "about the assessment process" (Figure 1).



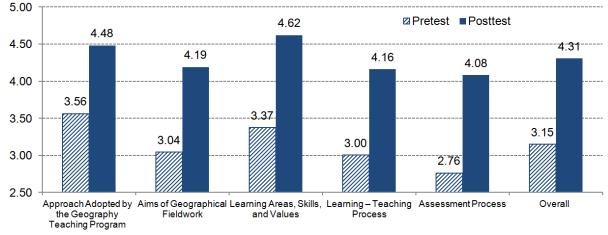


Figure 1. Overall Self-Efficacy Perceptions about Fieldwork

4. Conclusion

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This study, which was conducted to determine students' self-efficacy perceptions about fieldwork and to investigate the effects of fieldwork on changing students' level of self-efficacy perceptions in various areas, provided highly important results. The findings indicate that the average self-efficacy perceptions of students about fieldwork were at the level "neither agree nor disagree", i.e. significantly low, before the fieldwork. As a result of the fieldwork, students' self-efficacy perceptions increased by 37% from the level "neither agree nor disagree" to the level "agree", and a statistically significant difference occurred in students' self-efficacy perceptions.

After the results were assessed according to self-efficacy areas, an increase of 26% to 48% was observed in students' self-efficacy perceptions. The highest increase occurred in the area titled "about the assessment process", where the students' self-efficacy perceptions before the fieldwork was at the level "neither agree nor disagree", which rose to "agree" after the fieldwork, with a 48% increase. As a result of the fieldwork, students' self-efficacy perceptions "about the aims of fieldwork", "about the learning – teaching process" and "about the assessment process" reached the level "agree". Furthermore, students' self-efficacy perceptions "strongly agree", whereas their self-efficacy perceptions "about the approach adopted by the geography teaching program" remained below the "agree" level.

As a result of the fieldwork practice, it was found that the greatest contribution of the fieldwork practice on students' self-efficacy perceptions was in the opinion "I have sufficient knowledge about the attainment goals of geographical fieldwork". Accordingly, students enhanced their self-efficacy for the information about the attainment goals of fieldwork by 94%. This high rate was followed by the opinion "I know how to use technology when I organize geographical fieldwork." with an increase rate of 89%, where the use of GPS as well as of various technological equipment for measuring temperature, humidity, salinity etc. was influential. A 78% increase in the response given to the opinion "When I organize geographical fieldwork, I



can use teaching equipment (map, compass, computer etc.) effectively." is an indicator of this influence.

Furthermore, it was observed that students' self-efficacy perceptions about the opinion "I have the necessary knowledge about learning areas (individual, society, culture etc.) to organize geographical fieldwork." increased by 72%, followed by a 66% increase in "When I organize geographical fieldwork, I possess self-efficacy perceptions about assessment approaches (selfassessment, holistic assessment etc.)", a 65% increase in "When I organize geographical fieldwork, I do not encounter any problem in assigning group work." and a 64% increase in "When I organize geographical fieldwork, I can ensure students' participation in the assessment process."

In addition, one of the most important results of the study was the change in students' response to the opinion "I can perform geographical fieldwork with my students". The average self-efficacy perception, which was at the level "disagree" before the fieldwork reached a level very close to "strongly agree". Accordingly, students' self-efficacy perceptions about being able to organize fieldwork increased by 86%. This positive result can be attributed to an overall increase in students' self-efficacy perceptions about various areas. A significant increase occurred in students' self-efficacy perceptions about being able to organize fieldwork, which is in line with the overall increase. Hence, supporting geography teaching with fieldwork studies that are deemed to be the laboratory of geography as a science (Garipağaoğlu, 2001; Doğanay, 1993; 2002; Alkış, 2008; Kent, 1999) makes a great contribution to increasing students' selfefficacy perceptions about fieldwork. Therefore, great importance should be placed upon the implementation of fieldwork in geography courses, and enhancing students' self-efficacy perceptions about this area through fieldwork should be promoted. This way, fieldwork can be utilized in terms of its effect on improving students' self-efficacy perceptions as well as in terms of its benefits in allowing many geographical phenomena to be observed on site and better perceived, theories to be put into practice, many skills to be acquired, and learning to be rendered more permanent.

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