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The Effect of Online Assessments on Students' Attitudes Towards Undergraduate-Level Geography Courses

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Abstract

The improvements in technology made technology tools invade almost every field, including education. Online assessment tools have various functions for students and teachers. Students are able to use their mobile devices in the classroom, while teachers are able to use the tools for formative and summative evaluation purposes and for getting to know their students. Teachers also get feedback on their instructional practices by analyzing student responses.

Previous studies found that undergraduate students in Faculty of Education in Turkey do not have a very positive attitude for geography courses, because most of the students take geography courses almost every year until they enter the university. The aim of this study is to determine the effect of in-class online assessment tools on the attitudes of students at undergraduate level towards geography courses. In addition, the changes in students' attitudes are examined for various variables. The study was designed in a quasi-experimental model with experiment and control groups. The study also implemented pre-tests and post-tests. Geography Attitude Scale developed by Sözen (2019) was used as data collection tool. The study's sample consists of 70 students whose majors are Primary School Teacher in Faculty of Education. An online assessment tool was implemented for seven weeks in experiment group, while the control group did not receive the said tool. The study found that using online assessment tools significantly improved students' attitude towards geography course.

Keywords: geography, instructional technology, online assessment, primary school teachers, student attitude

1. Introduction

Technology greatly improved through the decades. The improvements in technology made technology tools invade almost every field, including education. Policy makers, school districts, teachers, parents, and students constantly look for ICT tools to use in education. Online assessment tools are one of the ICT tools that are widely-used in teachers' class activities. Online assessment tools have various functions for students and teachers; students are able to use their mobile devices in the classroom, while teachers are able to use the tools for formative and summative evaluation purposes and for getting to know their students. Teachers also get feedback on their instructional practices by analyzing student responses. Another function of online assessment tools is giving all the students equal chance to participate in class activities (Collins, 1998; Muir-Herzig, 2004).

Online assessment tools require students to have more than just paper and pencil, which makes it harder for the tools to be implemented in early grades. However, smartphones, tablet computers, and laptops are quite common among undergraduate courses. Another aspect of online assessment tools is its capability to be utilized in almost every course rather than just a single topic. Teachers can use these tools in math, English, Turkish, history, and geography courses.

This research study was implemented in geography courses. Geography subject is seen as a valuable subject, aside from it being required in many countries. Geography-related standards begin with pre-school education in Turkey. These standards are taught under social studies subject in primary and middle schools, but it is a stand-alone subject field in high school. Moreover, geography is a teaching subject in some undergraduate- and graduate-level programs (Sözen, 2019). Geography-related standards are even included under science subject in primary and middle schools. As it seems, geographical subjects are taught at almost every level of informal education.

Even though geography subjects are comprehensive and valued, there are notable critics about geography instruction in Turkey (Şahin, 2001; Aydın & Güngördü, 2015). Unlike Turkey, some nations save geography to be

squeezed in its natural environment and integrate it into their daily lives by pointing out the strong relationship between human and environment. In nations that have high standards of living, 'geographical skills' are well understood, and geography is a subject field that offers current, valuable, and mandatory information (Kerski, 2001, p. 2). Therefore, geography teachers should explain the important knowledge geography provides.

1.1 The Problem

Geography instruction faces important challenges because of wrong exercises in Turkey. For example, many people perceive geography as statistical information and useless knowledge subject, which only offers information regarding the highest point in Turkey, the longest river, the biggest city, and the smallest region of a country (Sahin, 2001). Instead of this perception, geography should be seen as a subject that investigates all living and non-living objects, events, places, and their relationships with one another. In this approach, the main goals are providing solutions for potential problems of humanity and having the optimum benefits from the environment without harming it (Alam, 2016; Özçağlar, 2003).

There have been some interventions to the geography curricula in Turkey over the time, but these interventions were usually made by non-experts. These interventions negatively affected geography content and decreased the teaching hours. Some academicians claimed that while geography improved in Europe and America, geography's popularity lowered than it was during 1950s in Turkey due to interventions by non-qualified people (Alım, 2003). As a result of these practices, many studies found that students' attitudes toward geography were lower than expected (Alım, 2008; Özgen, 2009; Sevilmiş, 2006). It can be concluded that it is very important to increase student motivation and make students' attitudes highly positive towards geography.

While there are different definitions for attitude, it can be described as a result of the person's growing-up style or life-long experiences. It is a matter that occurs over time against any subject (concrete or abstract, alive or inanimate) and that can change, strengthen or disappear, cannot be directly observed, but its existence can be understood through verbal expressions or behaviors, a positive or negative pre-disposition that directs and differentiates the individual from other people (L. Atkinson, R. C. Atkinson, & Smith, 1999; Baysal, 1980; Baysal & Tekarslan, 1998; Eren, 2001; Miner, 1992; Moorhead & Griffin, 1992; Şimşek et al., 2001; Tekarslan et al., 2000).

1.2 Literature Review

The literature review showed that there are important studies on the attitude towards geography course. Artvinli et al. (2010), Şeyhoğlu and Geçit (2011), Sevilmiş (2006), Alım (2008), Sözen (2019), Aydın et al. (2010), Demir and Koç (2013), Güven and Uzman (2006), Özgen (2009), and Özgen et al. (2009) evaluated student attitudes towards geography courses in their studies.

In order to carry out the performance and potential of the students further, there is a need for a suitable learning environment, the appropriateness of the curriculum and the high level of teacher equipment, as well as adequate physical facilities and technological equipment in the educational environment (Renzulli, 1977; Abram, 1982). The physical, mental, social, and psychological characteristics of the students are different from one another. For these reasons, students have different concentration and focusing strengths (Neumeister, 2009, p. 495). Thus, these situations should always be taken into consideration in order for the students to have positive attitudes towards geography education and to ensure an effective and permanent learning. Students' attitudes towards a subject matter or general tendencies are as important as the learning environment and the quality of the program. The attitude, which expresses the pre-disposition of the individual towards any subject in his/her environment, is generally defined by concepts such as emotional content, belief, prejudice, disposition, and readiness (Artvinli et al., 2010).

Experiences, observations, and experiences gained through knowledge are effective in positive or negative attitudes towards the course. Many studies have demonstrated the effects of attitudes on learning (Tavşancıl, 2002; Ülgen, 1995). For all these reasons, it is important to determine attitudes of students in the educational settings, to predict students' future behaviors, to change their negative attitudes, or to create positive new attitudes (Baysal & Tekarslan, 1998; Öner, 1997).

Teachers and academicians have a great responsibility to make students take a more positive approach towards geography courses. It is very important to be able to create close relationship between geography and daily life and to explain the necessity of this field in planning and development of a society. Moreover, in-class and extracurricular activities are another important areas that can change the attitude towards geography courses.

As mentioned above, geography is a very important teaching area. For this reason, it is very crucial for students to approach these courses positively and become more interested in order to understand the subject matter and

increase the attitude towards the subject (Carnevale, 2000). Unfortunately, undergraduate students in Faculty of Education in Turkey do not have a very positive attitude for geography courses, because students take geography courses almost every year until they enter the university. Students also study subjects of geography for national entrance exams which creates tiredness for students. Therefore, instructors should implement different strategies to increase students' motivation towards geography subjects. Online assessment tools might help instructors to change students' attitude (Alomyan, 2004; Daniels et al., 2000; Mohamed & Waheed, 2011).

1.3 The Goal of the Study

The aim of this study is to determine and measure the effect of in-class online assessment tools on the attitudes of students at undergraduate level towards geography courses. In other words, the study was conducted to see if integrating online assessment tools into geography courses will increase student motivation. In addition, the changes in students' attitudes are examined in terms of various variables (gender, type of secondary school, and field of secondary education).

2. Methodology

In this section, the experimental design of the research, study sample, data collection tools, data collection procedures, and data analysis are discussed.

2.1 The Study Design

The research was designed in a quasi-experimental model with pretest-posttest design in experiment and control groups. This model is a commonly-used model in social sciences (Büyüköztürk, 2018; Robson 1993). While the experimental and control groups are not randomly formed in the quasi-experimental research model, the experimental and control groups are randomly selected in experimental research methods (Cohen, Manion ve Morisson 2000; Ekiz 2015). In the current study, the groups were not randomly formed; on the contrary, two separate classes were selected for the study without any intervention. It can be concluded that the study was designed in a quasi-experimental design with pretest-posttest control groups (Büyüköztürk et al., 2018).

2.2 Data Collection Tools

In the study, the attitude scale developed by Sözen (2019) was used to determine the attitudes and opinions of the students towards the geography course and to examine the attitudes in terms of various variables. The researcher developed the scale by examining several geography attitude scales (Özgen et al., 2009; Güven & Uzman 2006; Uzunöz, 2011; Gümüş & Özüpekçe, 2013) and by referring to the comments of two experts at Gazi University and Duzce University. The scale was prepared as a 5-point Likert type. Likert scales are shown in Table 1 below. Initially, the 37-item scale was applied to 110 students and reduced to 30 items as a result of reliability analysis. As a result of the validity and reliability analysis, it was determined that the scale consisted of one factor and the Cronbach Alpha coefficient was calculated as 94. KMO value of the scale is .882, which is suitable for factor analysis in cases where KMO value is above .70 in such scales (Arseven, 2001; Büyüköztürk, 2018; Karasar, 2016; Schermelleh et al., 2004).

Table 1. Scoring range of likert scale of the survey

	Value	Range
Strongly Disagree	1	1.00-1.80
Disagree	2	1.81-2.60
Neither/Nor Agree	3	2.61-3.40
Agree	4	3.41-4.20
Strongly Agree	5	4.21-5.00

2.3 Sample

The study was carried out in a state university in northwest of Turkey. The study's sample consisted of 70 students, whose majors are Primary School Teacher in Faculty of Education. Students were in their first year of undergraduate school year, and their ages were between 19 and 22. The most of the research participants, 49, were female and only 21 of the students were male. Two students were removed from study; one from the control group and the other from the experimental group, due to their absence in pre-test and post-test.

Table 2. Description of participants

	Control Group	Experimental Group
Male	12	9
Female	25	24
Total	37	33

2.4 The Experiment

The effect of online assessment tools for increasing student motivation was investigated in an undergraduate level geography course in the academic year 2018-2019. The course is offered in the first semester (14 weeks) of first year, and it is a mandatory course for students whose major is Primary School Teacher. Students take 8 courses in their first semester that make 30 hours a week. Geography course is offered two hours per week. Primary School Teacher major students are divided into two branches based on their last two digits of identification numbers. The researchers randomly selected one branch as control group and the other as experimental group. The instructor used his classic teaching method in the control group; on the other hand, the instructor used online assessment tests for the last 15 minutes of the course in the experimental group. The researchers reflected test questions through projectors and students responded questions through their smart phones. This experiment was implemented for 7 weeks. At the end of the implementation, students took the post-test.

2.5 Data Analysis

Data collection was made by Sözen's (2019) Attitude Towards Geography questionnaire that consists of 30 items. Students filled out the printed copy of the survey before and after the experiment. Students' responses were then transferred into Excel sheets. Some items in the survey were expressed in negative format. Those items were reverse coded in Excel before they were transferred into SPSS for data analyzing procedures. Independent samples t-test was performed to see the differences between pre-tests and post-tests scores for both control and experimental groups. One-way ANOVA test was also performed to see the differences between the groups.

3. Results

The study investigated the effect of online assessment tools on students' attitudes towards undergraduate level geography courses. Pretest-posttest design was used with control and experimental groups to identify the effect of online assessments. First of all, an independent sample t-test was computed to ensure the equivalence of control and experimental groups. Results indicated that the two groups were similar ($F= .051$, $p= .821$) in terms of attitudes towards geography courses.

Secondly, two independent sample t-tests were conducted to compare students' attitudes in online assessment and no online assessment conditions. There was a significant difference between pre-test ($M = 81.75$, $SD = 11.66$) and post-test ($M = 91.40$, $SD = 13.82$) in students' scores of attitudes ($t(64) = 2.71$, $p= .009$) in experimental group. However, there was no significant difference between pre-test ($M = 80.10$, $SD = 15.05$) and post-test ($M = 84.68$, $SD = 17.44$) in students' scores of attitudes ($t(72) = 1.22$, $p = .225$) in the control group. Moreover, the homogeneity of variances assumption was conducted and satisfied through Levene's F test ($F = .077$, $p = .783$ for experimental group and $F = .221$, $p = .640$). These results suggest that the use of online assessment tools in undergraduate level geography courses improved students' attitudes towards geography courses. Even though control groups' post-test means scores improved too, the improvement was not statistically significant.

Table 3. Independent samples t-test

	Pre-test		**Post-test**		
	M	SD	M	SD	t test
Control Group	80.10	15.05	84.68	17.44	.225
Experimental Group	81.75	11.66	91.40	13.82	.009*

*$p < .05$.

The results of independent sample t-tests are presented in Table 3. These results suggest that using online assessment tools in classroom activities has a positive effect on students' motivation in geography courses.

Several independent sample t-tests were performed to compare genders' change in attitudes.

Table 4. Gender differences in experimental group

	Pre-test		Post-test		
	M	SD	M	SD	t test
Male	78.60	19.57	88.14	12.95	.12
Female	81.76	12.51	87.60	17.44	.26

While study found no significant differences between male and female students' attitudes scores, male students' post-test mean scores (Pre-test mean = 78.60, Post-test mean = 88.14) increased more than female students' mean scores (Pre-test mean= 81.76, Post-test mean= 87.59) in the experimental group.

The study also performed two one-way ANOVA analyses to see if students' attitudes differ based on their high school type and subject studied. The results indicated that students' attitudes did not significantly change based on their subject studied in high school, but it changed based on their high school type.

Table 5. Descriptive statistics for high school types in experimental group

High School Types	Number of Students
General High School	16
Teacher Training High School	2
Religious Vocational High School	8
Vocational High School	7

As seen in Table 5, almost half of the students came from general high schools, and only two students came from teacher training high schools.

Table 6. One-way ANOVA results for students' high school types

Source	df	*SS*	*MS*	*F*	*p*
Between Groups	3	1853.72	617.90	4.25	.01*
Within Groups	28	4070.00	145.36		
Total	31	5923.72			

*p < .05.

A one-way between subjects' ANOVA results indicated that students' attitudes significantly differ based on students' high school types [F(3.28) = 4.25, p = .01]. A post-hoc test was conducted to see which high school type differs from the other types. Results indicated that students who came from religious vocational high school types have the highest attitude towards geography and they have significantly higher attitude in comparison to students who came from general high schools.

4. Discussion and Conclusion

A quasi-experimental study was conducted analyze the effect of online assessment tools for increasing students' attitudes towards geography courses in a state university in Turkey. The study was conducted with first year undergraduate students whose major is Primary School Teacher at Faculty of Education. The study found that utilizing online assessment tools in class increased students' attitude. While the current study only examined online assessment tool in geography courses, it will probably have similar effects on the other courses because these tools can be used in any course with same functions and methods. However, new studies can be conducted with different subjects to make sure same effect is valid in different courses. Future studies may also consider using different online assessment tools to see whether or not different tools have similar effects on students' attitudes. Overall, the results of this study suggest that teachers and instructors should implement online assessment tools to increase students' motivation. While it is not clear which functions of online assessment tool increased student motivation the most, it can be claimed that online assessment tools give equal chance for every students to participate in classroom activities and express their opinions. The other aspect of online assessment tools is they require students to use their own device, which students are already motivated to use all the time. This may also result to a positive attitude towards the subject and the instructor. Another benefit of online assessment tools and allowing students to use their devices is avoiding a monotonous instruction.

The study also found that before the experiment, girls' attitudes were higher than boys' for geography. It is an interesting finding because previous studies usually found that boys tend to have higher attitude than girls towards geography courses (Aydın et al., 2010; Tosun & Genç, 2015; Özkal & Çetingöz, 2006; Acar, 2003; Sevilmiş, 2006; Alım, 2008). Corbin (1994) also found that girls' attitude was higher than boys' towards geography. After implementing online assessment tools experiment, boys' attitude increased more than girls' attitude scores, and the boys' final average attitude scores were higher than girls. However, the increase in the boys' scores was not statistically significant. It can be concluded that using technology in classroom benefitted boys and girls, but boys' benefit rate was higher than girls'.

The current study also investigated students' attitudes level based on their high school types. The study found that there are significant differences between students' attitudes scores based on their high school background. While in previous studies, Alım (2008), Sevilmiş (2006), and Sevimli (2003) found no significant differences based on high school types, this study found that religious vocational high school graduates have higher attitudes than general high school graduates towards geography. It is possible that since geography is commonly offered in general high schools but rarely in religious vocational high schools. General high school graduates experience boredom with the said subject matter, while religious vocational high school graduates may be curious with the subject matter because they take too much religious vocational courses.

The high school also differs based on study fields in Turkey. After first year of high school, students select a subject field and take courses based on their field. These fields can be grouped as quantitative, qualitative, and mixed subjects. In quantitive fields, students heavily take math, physics, chemistry, biology, and similar courses. On the other hand, students that select qualitative field heavily take literature, history, geography, and similar courses. The current study also investigated students' attitude levels towards geography based on their subject field in high school. The study found that students' motivation does not change based on their high school subject field for geography. While there are limited number of studies that examined undergraduate students' attitude for geography based on their high school subject field, Özgen and Bindak (2009) found that students that have qualitative background have higher attitude for geography. However, the current study found no difference.

To conclude, students studying for their undergraduate degrees have a various background and they might have low motivation for some courses. Instructors can do a lot to increase the students' motivation, especially in the era of technology. Online assessment tools are just one product of technology era, and instructors can use them in the class activities to increase student motivation for their subjects. These tools are also great as formative assessment tools since they provide immediate feedback for teachers and students regarding which areas to change. These tools also do automatic grading which saves time for instructors.

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