

Investigation of Attitudes of Turkish Geography Teacher Candidates towards the Constructivist Approachⁱ

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Abstract In Turkey, curricula based on the constructive approach have been implemented since 2005. The success of such curricula is primarily related to the positive attitude of the teachers and pre-service teachers in charge of implementing the curricula. In this study, the opinions of 246 pre-service geography teachers with regard to the constructivist approach in 3 Turkish state universities were analyzed in terms of various variables. An attitude scale was used for data collection. The pre-treatment reliability coefficient of the tool was found to be .92 (Cronbach's Alpha) for the overall scale. Study variables such as gender, teaching experience, grade level and the type of high school graduated from were analyzed using SPSS 16 software using t, Kruskal Wallis and ANOVA tests. The average attitude of the 246 pre-service geography teachers was calculated to be 3.51 points with regard to this approach. This average score can be said to suggest "high level" in terms of attitude. No significant differences were found between the grade levels of the participants and the type of high school from which they graduated. On the other hand, there was a significant difference between pre-service teachers' attitudes towards this approach in terms of gender and teaching experience.

Keywords Geography Teacher Candidates, Geography Education, Attitude, Constructivist Approach

1. Introduction

After 2005, the constructivist approach has replaced the teacher-centered approach in terms of learning environments in the Turkish education system [1]. This approach introduces the understanding of teacher guidance, attempts to involve students more in the teaching process through various activities, establishes a link between new information and prior knowledge on the part of the learner, and aiming to help students structuralize meaning in this way. In fact, this approach dates back to historical times and to a certain extent, has become popular again due to the requirements of the contemporary world.

In social and cultural environments surrounded by quite chaotic problems, individuals are required to act in an inquisitive, active and responsible way, even though this is only partly for a more comfortable life. In this context, it has become very importance that existing and rapidly-changing information be restructured, interpreted and transferred as necessary, rather than simply [2]. In such an approach, the learner harmonizes previous knowledge with newly learned information, so that the constructed information can be put into practice in terms of solving life problems [3]. While scientists such as Piaget and Vygotsky made great contributions to the development of constructivism, Socrates was accepted as the first major constructivist as he said "Teachers and learners should interpret and create the information contained hidden in their spirit by mutual talk and asking questions" [4]. On the other hand, some argue that Giambattista Vico, who lived in Italy in the 18th Century, was the first constructivist. However, Vico's constructivist views did not excite the attention of educators at that time (Duffy and Cunningham, 1996; [5]). However, it is a fact that this approach has some limitations as is the case with all other approaches. Educational success seems possible only by recognizing and taking into account these limitations. Outweighing with a philosophical aspect, this approach rejects objective information entirely or largely. Instead, it grounds itself on compromise, cooperation, culture, variability, transience and contingency of information, while seeing subjectivity and relativity as indispensable principles [6]. According to this approach, individuals' subsequent behaviors and thought are based on preliminary information and the ideas configured by them [7]. Also in constructivism, information is not independent of the learner. Instead, it is based on specific cases, context and individual meanings [8]. The geography curriculum introduced to the Turkish education system in 2005 was developed on the basis of the 'constructivist approach', with a student-centered and spiral structure [9].

Initially, there are certain characteristics required to have for teachers and teacher candidates in order to establish integration and adaptation of constructivist approach that would also further lead more likely to be successful

educational results in a particular society. According to Brook and Brooks [10], some of the critical characteristic features are as follows: willingness to accept students' autonomy and initiative; experiencing to reach the primary source; considering students' responses and visions; establishing interactive environments; forming guidance activities and questions; creating discussion forums; allowing students independency, and so forth.

In Turkey, there are many studies attempting to verify the views and attitudes towards the constructivist approach, especially after 2005. For instance, a study from Yapıcı and Demirdelen [11] shows that regarding to identify the views and attitudes of teachers, the most fundamental problem has occurred in the process of measurement and evaluation. In addition, it is also found that the issues of insufficient physical infrastructure and crowded classrooms are the obstacles to establish an effective approach. Besides this, Oguz and Gunay [12] found that in the teaching method conducted in accordance with the constructivist learning approach, there is a positive effect in the students' attitudes towards the course. Studies based on constructivist learning approach of computer assisted instruction also demonstrate that there are positive contributions upon on students' attitudes and success in the constructivist approach [13]. Nevertheless, Ocak [14] also argues that there are different variables, as such age and seniority, to have different influences upon the level of attitude in the accepting this approach.

In particular, Demiralp [15] presents that there has been a significant shifting in the mindsets and curricula about production and development tools and materials, and their usage and direction in the geography courses. Other literatures which have studied new primary education programs, student-centered teaching approaches and teachers' perspectives, reveal that the level of teaching acceptance in the student-centered level is 'medium'. In these studies, while there is no a significant difference among teachers' perceptions in terms of class and gender, it was seen that there are significant differences among teachers' perceptions in terms of experience and class available size [16].

Another study about identifying the attitudes of social studies teacher candidates upon constructive approach towards attitudes, shows that female gender has more positive attitudes than male one and it is also determined that teachers who graduated from Anatolia high school have lower attitude scores compared to other types of high schools graduates [2]. In general, the studies mentioned above, highlight that there are positive attitudes upon constructive approach and positive perception of this approach while contributing to student achievement level. Besides, there are still some studies stresses that there are some crucial issues regarding to the necessity infrastructure (e.g. physical structure of schools and classrooms, crowded classrooms, and so on.) for the implementation of this approach [17].

2. Objectives of the Study

Constructivist approach applications have received various criticisms, although they are mainly aimed at educating individuals who are researching, questioning and constructing the information. It is remarkable that some of the criticisms come from teachers who are themselves practitioners and who deliver the curriculum [18; 19]. Due to the fact that educators have not been trained in this approach, they put up with student and activity-centered approaches. This can be an obstacle with regard to profound implementation and getting a foothold in terms of the constructivist approach [20]. Therefore, for successful implementation of the curriculum, it seems crucial to determine which variables, and to what extent, the views of teachers, pre-service teachers and even students regarding this approach might change. In particular, it is of great importance for the future of the education system to find out the observations, opinions and attitudes of pre-service teachers who have not yet taken their place as working teachers in the system, on various issues, and to make the necessary revisions [21].

3. Method

3.1. Research Design

This is a quantitative study based on a descriptive survey model. A survey is used to describe a past or current situation [22].

3.2. Study Population and Sample

The population is comprised of students studying at the Faculties of Education of the universities of Marmara, Karadeniz Technical and Atatürk. The study group was selected from these universities by using random sampling. A total of 239 pre-service teachers participated in the study, 160 male and 79 female.

3.3. Data Collection Tool

For data collection, the 19-item scale developed by [23] was adapted to the field of geography by making small expressive amendments to some of the items. The scale was then applied to 96 pre-service teachers. As a result, the overall reliability coefficient of the scale was found to be .92 (Cronbach's Alpha). The Kaiser-Meyer coefficient was significant at the .94 level, and Bartlett's sphericity test was significant at the .000 level. These results indicate that the scale had been piloted with a group which was large enough for preliminary sampling. When factor analysis was performed, it was seen that the factor load value with regard to all items varied between .44 and .72, which can be said to be acceptable for the selection of materials. A factor load value at and above .63 is a good indicator for the selection of

items. However, in practice, this limit value can be reduced down to .30 for a small number of items [24]. In this regard, it can be said that the factor load values of all items in the scale tool are valid for the application. The scale is 5-point Likert type with 1 (strongly disagree), 2 (disagree), 3 (undecided), 4 (agree), and 5 (strongly agree). The scale contains 11 positive and 9 negative statements. Negative statements had a reverse coding.

3.4. Data Analysis

The variables of gender, grade level, type of high school graduated from and teaching experience were analyzed using T, ANOVA and Kruskal Wallis tests with SPSS 16. As a nonparametric test, the Kruskal Wallis test was used due to inhomogeneous data regarding teaching experience. Independent sample t test is a technique used for testing if there is a significant difference between the mean scores of independent two groups or samples (e.g., gender and teaching experience in the current study) with regard to one dependent variable (e.g., mean scores of attitudes towards constructivism in the current study). One –Way ANOVA is another technique used for testing if there is a significant difference between the mean scores of three or more unrelated samples (e.g., high school types in the current study). Kruskal Wallis test is used in exchange for ANOVA to test if there is a significant difference between the mean scores of three or more samples under the circumstance that the data do not indicate a normal distribution; in other words, the data violates the conditions of a parametric test [24].

4. Findings

In this section, the attitudes of the participants towards the constructivist approach were statistically analyzed in relation to certain variables (gender, teaching experience, grade level and type of high school graduated from). As a result, a statistical difference was found between the variables of gender and teaching experience in terms of attitude towards the constructivist approach. However, the same could not be said for grade level and type of high school graduated from.

The statistical analyses of the pre-service teachers' attitudes towards the constructivist approach are shown against the gender variable in Table 1.

Table 1. T Test Results of Geography Teacher Candidates by Gender.

Gender	N	Mean	Standard Deviation	T	sd	P
Female	79	3.72	.636	2.54	237	.01*
Male	160	3.49	.770			

p<.05 significance level

As can be seen in Table 1, there is a significant difference between the gender of the participants and their attitude towards the constructive approach, $t(237) = 2.54; p<.05$. It can be seen that females have a more positive attitude than

males (Female =3.72, Male =3.49).

Table 2. T Test Results of Geography Teacher Candidates by Teaching Experience.

Teaching Experience	N	Mean	Standard Deviation	T	sd	P
Yes	118	3.67	.706	2.33	237	.02*
No	121	3.47	.612			

p<.05 significance level

As can be seen in Table 2, there is a significant difference between the teaching experience of the participants and their attitude towards the constructive approach. T test results yielded a statistical significance at p<.05 in favor of those with teaching experience.

The statistical analysis of attitudes of geography teacher candidates towards the constructivist approach in terms of class variable is shown in Table 3.

Table 3. Kruskal-Wallis Test Results By Class Variable of Geography Teachers' Status

Grade Level	N	Average Rank	Sd	X2	p
1	32	106,08	3	4,69	,19
3	79	119,44			
4	97	125,49			
5	38	141,53			
Total	246				

There is no significant difference among the mean of grade point average in terms of class class-level variable; $\chi^2 ((sd = 3, n = 246) = 4.69; p> .05)$. When the group of sequence points is considered, the group of 5th grade has the highest score, followed by 4, 3 and 1 class. These results show that while the grade level is increased, the attitude towards the constructive approach is also increasing. According to constructivism, knowledge is important to be associated with real life, so it is learned and becomes permanent. On the other hand, new knowledge that is acquired through interactions with the external world is built on old knowledge. The more new knowledge is assimilated with old knowledge, the more an individual acquire and accept new knowledge. In this context, the increase in positive perception towards constructivist approach in the upper levels points at adoptive policy making in these three universities about the process of constructive approach.

Table 4. The Average Point Values of Attitudes of Geography Teacher Candidates towards the Constructivist Approach In Terms Of the Type of High School They Graduated

Type of High School	N	Average	S
General	137	3,604	,717
Anatolia	84	3,419	,733
Vocational	12	3,552	,531
Others	13	3,117	1,006
Total	246	3,513	,739

The average point values of attitudes of teachers' candidate towards the constructivist approach in terms of the type of high school they graduated is shown in Table 4.

As the table 4 shows that the average point values of all high schools are above 3. While the highest average value belongs to the general high school graduates (3.604), the lowest value is owned by the group graduated from high school, social and health (3,117).

The statistical analysis of attitudes of geography teacher candidates towards the constructivist approach in terms of the type of high school they graduated is shown in Table 5.

Table 5. Anova Test Results of Geography Teacher Candidates by the Type of High School They Graduated.

Source of variance	Sum of Squares	SD	Squares Mean	F	P
Between Group	3,944	3	1,315	2,450	,06
Within Group	129,879	242	,537		
Total	133,824	245			

As the table 5 shows that there is no significant difference between the attitudes of graduation candidates towards the constructivist approach and the types of high schools they graduated ($F(3,242) = 2.450, p > 05$). Constructive approach that adopts individuals' in the learning process, encourages individuals to think and do research and gives importance in activity-based applications, at times, results in problems for those who have a high test and academic success anxiety. When the ANOVA results are examined (Tables 4-5) although there is no statistical significance on the type of high schools, Anatolian and social science high school graduates had more negative tendencies towards this approach. Other high schools that consist of graduates from Anatolian and most social sciences high schools are where students with high academic success and want to study in better universities and departments. These groups of students may be thinking of student-centered approaches cause waste of time in the process of university test preparation. This situation points at questioning our country's national test system for entering universities because in primary and secondary education constructivist approaches are utilized whereas in the national test for entering universities are still result-oriented in the light of behavioral approach.

5. Conclusion, Discussion and Recommendations

In this study, the average score of the 246 teachers with regard to the constructivist approach was found to be 3.513. This value indicates that pre-service teachers generally have a positive attitude regarding the constructivist approach, because the arithmetic mean of the findings was interpreted on the basis of the following ranges: very low: 1-1.79, low: 1.80-2.59, medium: 2.60-3.39, high: 3.40-4.19, very high: 4.20-5.00 [25]. In our study, statistical analysis was also

performed on the relationship between attitude towards the constructivist approach and the variables of gender, teaching experience, grade level and type of high school graduated from. As a result, significant differences were found between attitudes towards the constructivist approach and gender and teaching experience. This difference was found to be particularly high in the case of females and those with teaching experience. On the other hand, no significant difference was found in relation to grade level or type of high school graduated from. The more positive attitude of female participants can be associated with their higher tendency to activity and games-centered approaches. A similar finding was obtained in a study carried out with regard to pre-service social studies teachers [2]. Moreover, in the study by Evrekli et al. [23], more positive attitudes were reported, albeit not at a statistically significant level. However, it was noted that higher attitude scores on the part of females were affected from their more positive attitude towards the teaching profession compared with males. In addition, a gender difference was noted especially regarding attitudes towards the profession of teaching in a study by Tanrıögen [27] and Çapri and Çelikkaleli [28]. It was noted that such a difference could be due to the social perspective regarding the teaching profession. In relation to teaching experience, the participants with experience in internship and teaching were seen to have a more positive attitude towards the constructivist approach. This can be an indication of the practices in favor of this approach within schools. In a study carried out by Köse et al. [29], it was found that pre-service teachers having positive views about the constructivist approach still have lower cognitive levels. Thus, it was underlined that more emphasis needs to be placed on this approach during classes dealing with such aspects as special instruction methods, teaching practice and internship. There is no a statistically significant difference towards this approach in terms of class level, nevertheless it is relieved that there is an upper attitudes when it is a higher class. In this sense, this data indicates that the sampling universities have in general adopted the constructivist approach. On the other hand, although there is no a statistically significant difference, it is seen that Anatolian high schools in which general focus is on academic education, have lower attitude scores. This situation would suggest that Anatolia high school graduates, whose primary concern is to enroll a better university and a better subject, have an edge from game-based approaches and activities. The following suggestions may be drawn from the study findings:

The success of an education curriculum is primarily dependent on a positive attitude on the part of those implementing the curriculum (teachers and pre-service teachers) towards the curriculum. Therefore, male pre-service teachers should be involved in activity-centered practices to encourage them to adopt this approach to a greater extent. In particular, it seems essential to consider these results and help males take a more active part in the context of drama, special instruction methods and school practice courses. In addition, a greater contribution might be

made by increasing the weekly hours of such courses. Also, students with relatively have higher academic success and who are graduates of Anatolian and social sciences high schools had negative attitudes towards constructivist approaches. This situation can be associated with our national test system's behaviorist and traditional approaches. For this reason, primarily the national test for entering colleges, all entrance tests should be re-structured with the basics of the constructivist approach.

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