

Examining High School Students' Attitudes towards Context Based Learning Approach With Respect to Some Variables

Medine Baran & A.Kadir Maskan Dicle University, Education Faculty , TURKEY Mukadder Baran University of Hakkari, Education Faculty; TURKEY Azmi Türkan Yıldız Technical University, Education Faculty; TURKEY M. İkbal Yetişir Ankara University, Education Faculty; TURKEY

•Received 20 January 2016 •Revised 21 March 2016 •Accepted 14 April 2016

The present study aimed at determining and examining high school first, second, third and fourth class grade students' attitudes towards context based learning approach with respect to the variables of gender, class grade and school. The study was carried out with a total of 5325 high school students in Turkey (n1(first class grade)=1509, n2(second class grade)1265, n3(third class grade)=1140, n4(fourth class grade)=544; none: 867 Female: 2450, Male: 2866; none:9). In the study, Student Context based Approach Attitude Scale made up of 18 items, whose reliability and validity were calculated, was used as data collection tool. The data collected were analyzed using descriptive analysis, independent samples t-test and ANOVA found in the package software of SPSS 16. The results revealed that the students' general attitude mean score was 3.01 out of 5. The results obtained in the study are thought to be important as they not only help determine high school students' attitudes towards context based learning approach and identify the influence of certain variables on their attitudes but also cover but also cover all the class grades of high school. Moreover, it should be determined to how context based learning approach is applied in educational institutions by the governments.

Keywords: context based learning, high school students, attitude, gender, grade, school type.

Correspondence: Medine Baran, Dicle University, Faculty of Education, Diyarbakir, 21070, TURKEY E-mail: medabaran@gmail.com doi: 10.12973/ijese.2016.501

INTRODUCTION

Parallel to the current developing technology, individuals' needs are changing as well. Among their needs, the most important ones are the applications appropriate to the developments and changes in the area of education. In developed countries, these needs in the area of education are met both by including the individual and the concept of education and by making use of technology as required by the current era. Also, new methods and approaches that involve individuals in the education process and make them active have been found and put into practice. Recently, one of these approaches has been context based learning approach applied in Turkey. This approach was named by Sözbilir and colleagues (2007) as context based learning approach. Context based learning approach involves the social and cultural environment which includes the student, the teacher and the school (Demircioğlu, 2008). The basic purpose of context based (context-based) learning approach is to present scientific concepts to students with events selected from daily life, to increase their motivation and willingness to learn science, to increase their interest in science, to raise their awareness of the relationship between real life subjects and science and to develop their scientific process skills (Sözbilir et.al., 2007). Contextbased learning approaches are used to enhance students' interest in, and knowledge about science (Broman and others, 2015). With using context based learning in science education the students can make connection between science taught at school and everyday life (Vos, 2014). Therefore, teachers should carry out instructional activities regarding daily life problems rather than theoretical problems because academic problems are regular, objective and boring, while daily life problems are important (Boujaoude, 2000 cited in Hırça, 2012). For this reason, daily life problems attract students' attention. In context based learning, sample subjects selected for lessons are selected among such subjects in students' daily life as news on television, newspaper reports, stories and drama on TV and in films. In this way, students' interest increases. In addition, context based learning contributes to the development of such affective, cognitive and psychomotor skills as developing a model, doing an experiment, conducting research, playing a role, establishing communication within the group and between groups, making a presentation, benefiting from technology and learning on one's own. In the process of context based learning, it could be stated that students develop their self-learning skills as they try to reach the information on their own. In other words, self-learning, one of positive outcomes of context based learning, is an important skill intended to be developed throughout activities. With context based learning, students establish connections between situations, structure the new information using the previous knowledge and use it for new situations. Thus, they take responsibility for their selflearning (SNAB cited in Cam and Köse, 2008). In this respect, for better applications of context based learning approach, students' feelings and thoughts, which constitute a basic component of instructional methods and techniques, should be taken into account. Students' positive, or negative, attitudes towards this approach are thought to have important influence on the productivity level of instructional applications. Therefore, studies to be conducted to determine students' attitudes towards this approach are important for dealing with the problems or with deficiencies in this field. First of all, this approach, which has application in the field of chemistry, has been intensively used in the fields of biology and physics for more than twenty years. Because of the purposes of the study, when physics education applications were considered it could be said that the content of the physics curriculum become unsupportive and ineffective to the interest of the students (Alan and Bahtaji, 2015). Bennet et al. (2007) in their study indicated that "the trend towards using of context based learning approachs is apparents across the whole leves from primary to university, but most noticeable in materials for use in secondary schools".

Significance of the Study

In Turkey, context based learning approaches have been used in elementary and secondary school since 2005. Considering the applications of this approach in secondary schools in Turkey, it is seen that it was first used in a way to cover all the high school grades in the academic year of 2013-2014. When studies conducted in this field are examined, it is seen that the related applications did not thus cover all the high school grades. Review of the related literature demonstrated that there is no research conducted in Turkey in a way to involve all high school grades and to examine high school students' attitudes towards context based learning approach. The present study was carried out to determine the attitudes of students from all high school grades in Turkey towards context based learning approach and to investigate whether their attitude scores differed with respect to the variables of gender, class grade and school. Since it was a study covering all the high school grades throughout Turkey, the findings obtained are thought to contribute to the related literature.

METHOD

In this part of the study, the research design, the research sample, the data collection tool and the data analysis method applied to find answers to the research problem are presented.

Research Design

In this quantitative study, the survey method, one of descriptive research designs, was used to find answers to the research questions. Survey studies are conducted to determine individuals' attitudes, actions, opinions and beliefs (Christensen, Johnson and Turner, 2015, p. 371). In the present study, survey method was applied as the purpose was to determine the participating students' attitudes towards context based learning method.

Research Sample

The research sample involved in the study was made up of 5325 students (n1(first class)=1509, n2(second class)=1265, n3(third class)=1140, n(fourth class()=544; none: 867, Female:2450, Male:2866; none: 9) from all the class grades of 1st, 2nd, 3rd and 4th attending high schools in various cities in seven geographical regions in Turkey. All the high school students participating in the study took of the Physics courses. The cities and the schools of particitipants were determined on the basis of convenience sample one of nonprobability sample designs. Convenience sample is based on accessibility of the subjects and the convenience of accessing them (Cox, 2015).

Data Collection Tool

Taking the research questions into consideration, an attitude scale was developed to determine the attitudes of the high school students taking the course of physics towards context based learning approach. With the help of the Likert-type attitude scale developed for this purpose was applied to determine the participants' views.

Development and Application of the Data Collection Tool

As the data collection tool in the study, a 5-point Likert-type attitude scale including the choices of "I completely agree", "I agree", "I partly agree", "I disagree", "I completely disagree" was developed to determine the students' attitudes towards context based learning approach. While transferring the data into the computer environment, the positive items were assigned the scores of 5 for 'I completely agree', 4 for 'I agree', 3 for 'I partly agree', 2 for 'I disagree' and 1 for 'I completely disagree'; and the negative items were assigned the scores of 1 for 'I completely agree', 2 for 'I agree', 3 for 'I partly agree', 4 for 'I disagree' and 5 for 'I completely agree'.

Before using the scale developed in the study, it was piloted to test its reliability and validity. First of all, the preliminary form of the 32-item context based learning approach attitude scale developed by the researchers was applied to a total of 261(n1(first class)=66, n2(second class)=62, n3(third class)=72, n(fourth class()=61) students from different high schools. The data collected was analyzed with factor analysis, the results of exploratory factor analysis revealed that the data were gathered under two dimensions. Also, it was found that the positive statements belonged to one group and that the negative ones belonged to another. After the researchers reached an agreement, one of the groups was referred to as positive feeling sub-dimension and the other negative feeling sub-dimension. Detailed data regarding the factor analysis are presented in the section of 'findings'.

The scale obtained as a result of the analyses was re-evaluated by the researchers, and experts from field education, measurement and Turkish Language Grammar were asked for their views. Following all the phases, the final form of the attitude scale was made up of 18 items. The reliability coefficient of this 18-item 5-point Likert-type scale was calculated as 0.91. When the reliability coefficients were calculated for each sub-dimension, it was found that the reliability coefficient was .092 for the sub-dimension of positive feeling and .091 for that of negative feeling. As the Cronbach Alpha value was 0.70 and higher, the attitude scale could be said to be reliable.

For the applications of the scale to the participants of the study necessary permits were obtained from the Ministry of Education.

Data Analysis

Because the study had a quantitative research design, the data collected were analyzed with descriptive analysis, independent samples t-test and ANOVA using SPSS 16 package software.

RESULTS

This part of the study presents the results of the attitude scale factor analysis regarding the high school students' attitudes towards context based learning approach, their mean scores regarding the context based learning approach and the results of the t-test and ANOVA in relation to the differences between the students' mean scores with respect to the variables of gender, class grade and school.

KMO and Barlett Test Results are presented in Table-1.

When Tablo-1 is examined, it is seen that the values of KMO and Bartlett test x2 were found significant, the former being .943 and the latter being 59727,265 (p<.05). The results of KMO and Bartlett test demonstrated that the data collected were appropriate to factor analysis.

In factor analysis conducted for the context based learning approach attitude scale, two components with an eigenvalue of 1 and higher were determined. These

Fable1. KMO and Barlett Test Results regarding the context based learning approach attitude scale								
Kaiser-Meyer-Olkin Measure of Sampling Adequacy. ,943								
	Approx. Chi-Square	59727,265						
Bartlett's Test of Sphericity	Df	153						



Figure 1: Scree Plot graph for the context based learning approach attitude scale

two factors represented 62.20% of the total variance. In order to determine the number of factors, Scree plot was examined (Figure-1).

In the scree plot graph, the curve was found to make a plato after two points (Figure 1). For the number of factors for the plato point, the cutting point was determined to be two. Depending on this result, the context based learning approach attitude scale was determined to have two dimensions.

In the study, factors with an eigenvalue of 1 or higher for the context based learning approach attitude scale is presented in Table-2.

In Table 2, the total variance explained for two dimensions whose eigenvalue was higher than 1 were examined for the context based learning approach attitude scale. According to Table-2, two factors determined via the factor analysis conducted for the context based learning approach attitude scale represented 62.20% of the total variance.

In the study, the factor load values obtained as a result of vertical rotation are presented in Table-3.

When Table-3 is examined, it is seen that among the 10 items gathered under the first factor was Item-13, "I like context based approach", which had the highest factor load value (.81), while the one with the lowest factor load value was Item-9,"I think context based approach may contribute much to me" (.69). When the item load values for the second factor were examined, it was found that the item with the highest item load value was Item-2, "I don't think I can learn something in physics

course via context based approaches", (.81), while the one with the lowest factor load was Item-1, "To me, it is not necessary to reorganize physics course in line with context based approaches" (.76).

In the study, the students' mean scores regarding their attitudes towards context based learning approach were examined, and the results of the related analysis can be seen in Table-4.

When Table 4 is examined, it is seen that the students' mean score regarding context based learning approach was 3.01.

Table 2.	Factors	with an	eigenvalue	of 1	or	higher	for t	he co	ontext	based	learning	approach
attitude s	cale											

Component	Initial I	Eigenvalues		Rotation Sums of Squared Loadings					
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %			
1	7,55	41,93	41,93	6,04	33,54	33,54			
2	3,65	20,27	62,20	5,16	28,66	62,20			

Table 3. Factor load values for the items in the context based learning approach attitude scal
--

Items	Factor-1	Factor-2
I13	,81	
I14	,80	
116	,80	
I15	,78	
I17	,78	
I10	,77	
I12	,77	
I18	,73	
I11	,71	
19	,69	
12		,81
16		,80
I4		,80
17		,79
15		,78
13		,78
18		,77
I1		,76
Table 4. Students' attitudes mean scores		

	N	Minimum	Maximum	Mean	Std. Deviation
Attitude score	5325	,00	5,00	3,0196	,90487

Table 5 presents the independent samples t-test results regarding the high school students' attitude scores for the context based learning approach in relation to the positive and negative feeling sub-dimensions as well as their total scores with respect to the variable of gender.

	Gender	N	Mean	S.S	Т	р
Total	Male	2450	54,90	,86	256	,01
Attitude	Female	2866	53,82	,94	2,50	
Negative	Male	2450	24,43	9,04	1.06	,06
Feeling	Female	2866	23,96	9,32	1,00	
Positive	Male	2450	30,52	10,63		,02
Feeling	Female	2866	29,85	10,75	2,27	

Table 5. Independent Samples t-test results with respect to gender

When Table-5 is examined, it is seen that the male participants' attitude mean score was 54,90 (n=2450), while it was 53,82 for the female participants (n=2866). When their total attitude scores were examined, it was revealed that the male participants had higher total attitude scores. This difference was found statistically (p=0.01) significant (p<0.05). In other words, the male participants had more positive attitudes towards context based learning approach than their female peers. When the dimension of negative feelings was examined, it was seen that the male participants' mean score was 24,43, while it was 23,96 for the female participants. Depending on this finding, it could be stated that there was no difference between the participants with respect to the variable of gender for the sub-dimension of negative feeling attitude. In terms of the positive feeling sub-dimension, the male students' mean score was 30,52, while it was 29,85 for the female participants. This result was found statistically (p=0.02) significant (p<0.05). In another saying, the male students had higher positive feeling attitudes when compared to the female

According to Table-6, when the participants' total attitude scores were examined, it was found that the highest attitude mean score was 59,94 belonging to the students attending Anatolian Teacher Training High School and that the lowest attitude mean score was 52,56 for the Vocational High School students. When the total attitude differences between the school types were examined, a statistically (F=90,99) significant (p<0,05) difference (p=0,00) was found. In order to determine which groups caused this significant difference obtained via one-way ANOVA, Scheffe test was applied. The results of Scheffe test demonstrated that there was a significant difference between all school types except for Anatolian High School and Science High School and between Anatolian Teacher Training High School and all other school types. In addition, when the participants' scores for the negative feeling attitude sub-dimension in Table-6 were examined, it was found that the highest attitude mean score was 27,30 belonging to the students from Anatolian Teacher Training High Schools and that the lowest attitude mean score was 23,84 for the Islamic Divinity High School students. When the total attitude differences between the school types were examined, a statistically (F=90,99) significant (p<0,05)difference (p=0,00) was found. For the purpose of determining which groups caused this significant difference obtained via one-way analysis of variance, Scheffe test was conducted. The results of Scheffe test demonstrated that the significant difference was between Anatolian High School students and Anatolian Teacher Training High School students and between Anatolian Teacher Training High School students and the students from other school types.

	ay 1110 VII V	N	Mean	<u>srejpe</u>	F	D	Difforence
		IN	Mean	5.0	Г	P	Difference
	Anatolian						
	High School (1)	2540	57,24	0,91			
	Anatolian Teacher Training High School (2)	470	59,94	0,90			
Total Attitude	Science High School(3)	270	55,26	0,93	90,99	,00	1 and (2, 4, 5) 2 and (3, 4
	Vocational High School.(4)	541	52,56	0,80			5)
	Islamic Divinity High School (5)	338	54	0,89			
	None	1166	-	-			
	Total	5325	54,36	0,90			
	Anatolian H.S.	2540	25,24	9,17			
	Anatolian Teacher Training H.S.	470	27,30	9,25			
Negative Feeling	Science H.S.	270	24,18	9,94	40.72	0.0	1 and 2;
dimension	Vocational H.S.	541	23,87	8,70	49,73	,00	2 and (3, 4,5)
	Islamic Divinity H.S.	338	23,84	8,54			
	None	1166	-	-			
	Total	5325	24,19	9,20			
	Anatolian H.S.	2540	32,03	10,59			
	Anatolian Teacher Training H S	470	32,63	10,40			
Positive Feeling	Science H S	270	31.10	11.28			1 and $4 \cdot$
Attitude Sub- Dimension	Vocational H.S.	541	28,78	10,40	70,72	,00,	2 and 4
	Islamic Divinity H.S.	338	30,17	10,35			
	None	1166	-	-			
	Total	5325	30,17	10,69			

		Ν	Mean	S.D	F	Р	Difference
	first grade (1)	1509	51,66	0,86			
	second grade (2)	1265	53,64	0,90			
Total Attitude	third grade (3)	1140	52,92	0,91	58,60	,00	9 and 10 and 12
	fourth grade (4)	544	54,54	1,01			
	None	867	-	-			
	Total	5325	54,36	0,90			
	first grade (1)	1509	23,52	8,87		,06	None
	second grade (2)	1265	23,99	9,07			
Negative Feeling	third grade (3)	1140	23,89	9,57	10,88		
Dimension	fourth grade (4)	544	24,22	10,02			
	None	867	-	-			
	Total	5325	24,19	9,20			
	first grade (1)	1509	28,17	10,25			
5.11	second grade (2)	1265	29,65	10,65			
Positive Feeling Dimension	third grade (3)	1140	29,10	11,06	78,02	,00	9 and 10 and 12
	fourth grade (4)	544	30,39	11,07			
	None	867	-	-			
	Total	5325	30,17	10,69			

Table 7. One-way analysis of variance with respect to the students' class grades

When the students' scores regarding the positive feeling attitude sub-dimension in Table-6 were examined, it was found that the highest attitude mean score was 32,63 belonging to Anatolian Teacher Training High School students and that the lowest attitude mean score was 28,78 belonging to the students attending vocational high schools. When the total attitude differences between the school types were examined, a statistically (F=90,99) significant (p<0,05) difference (p=0,00) was found. In order to determine which groups caused this significant difference obtained via one-way analysis of variance, Scheffe test was run. The results of Scheffe test revealed that the significant difference was between Islamic Divinity High School students and Anatolian High School and Anatolian Teacher Training High School students.

Table-7 presents the results of one-way analysis of variance and Scheffe Test conducted in relation to the difference regarding the participants' total attitude

scores and their positive and negative feeling attitude sub-dimension scores with respect to the variable of their class grades.

When the participants' total attitude scores in Table-7 were examined, it was found that the highest attitude score was 54,54 belonging to the fourth grade students and that the lowest attitude mean score was 51,66 belonging to the first grade students. When the total attitude differences between the participants' scores were examined with respect to their class grades, a statistically (F=58,60) significant (p<0.05) difference (p=0.00) was found. In order to determine which groups caused this significant difference obtained via one-way analysis of variance, Scheffe test was applied. The results of Scheffe test demonstrated that the significant difference was between first grade students and second and fourth grade students. In other words, the students who had just started their high school education had lower levels of attitudes towards context based learning approach, yet their attitudes towards the course turned out to become more positive in the following years. In addition, when the participants' scores regarding the negative feeling attitude sub-dimension in Table-7 were examined, it was seen that the highest attitude mean score was 24,22 belonging to the fourth grade students and that the lowest attitude mean score was 23,52 belonging to the first grade students. When the total attitude differences between the participants' class grades were examined, no statistically (F=10,88) significant (p<0,05) difference (p=0,06) was found.

When the participants' scores regarding the positive feeling attitude subdimension in Table-7 were examined, it was found that the highest attitude mean score was 30,39 belonging to the fourth grade students and that the lowest attitude mean score was 28,17 belonging to the first grade students. When the total attitude differences between the class grades were examined, it was seen that there was a statistically (F=78,02) significant (p<0,05) difference (p=0,00). For the purpose of determining which groups caused this significant difference obtained via one-way analysis of variance, Scheffe test was conducted. The results of Scheffe test revealed that the significant difference was between the first grade students and second and fourth grade students. This finding demonstrates that students who had just started their high school education had lower levels of attitudes towards context based learning approach and that their attitudes turned out to become more positive in the following years.

DISCUSSION AND CONCLUSION

The present study aimed at determining high school students' levels of attitudes towards context based learning approach. In addition, the study also revealed whether their levels of attitudes differed depending on the variables of gender, class grade and school type. The results revealed that the high school students participating in the study had a moderate level of total attitude scores regarding context based learning approach. Based on this finding, it could be stated that high school students did not have a desired level of attitudes towards context based learning approach officially applied in education system. In this respect, it is thought that it is necessary to examine to what extent and how context based learning approach is applied in secondary schools. It could be stated that the way context based learning approach is applied is important since it was influential on the students' attitudes towards this approach. For instance, in their study, Authors (2011) reported that context based learning approach was not applied in secondary schools as desired and that the current education system, especially the university placement exams, had negative effects on health application of this approach both for teachers and students in Turkey. In other studies carried out with teachers from the field of science and other departments, it was found that such factors as university placement exams, learning environments, the intensive curriculum for

science, teachers' anxiety for failing to teach the curriculum fully in the allocated time, less affiliations and interpersonal control of the students, inability to avoid the understanding of traditional teaching method and failing to use educational technologies are likely to cause problems and difficulties in relation to the application of student-centered activities (Authors, 2015; Overman et al., 2014; Bulut, 2008; Karacaoğlu & Acar, 2010). Also, the related finding obtained in the present study is thought to be related to achievement in general physics. In general, it could be stated that the average achievement in physics was low and that his low level of achievement had negative influence on context based physics course applications. National and international studies revealed that achievement is low in physics education and the students from high school to university perceived physics as a difficult course though we do meet physics in all stages of our lives (Gök & Silay, 2008; Mattern & schau, 2002; Rivard & Straw, 2000, cited in Kaya & Böyük, 2011; Erdemir, 2009). In addition, Checkly (2010) reported in his study the students had a fear of physics that related to the difficulty levels the students associated with physics.

In the present study, the high school students' attitudes towards context based learning approach were examined with respect to their gender, and it was found that the male students had higher scores in terms of both total scores and positive feeling attitude dimension when compared to their female peers. Acikgöz (1992) states that attitude is influenced by a person' experiences. Considering the active role of male individuals in the sociocultural structure of our society, a similar situation is likely to occur in learning environments. In context based learning approach, which depends on instructional methods and techniques involving intensive use of technology and activities, it is thought that male students are more likely to be active than female students. As a support to this comment Otter (2011) in his study indicated that technology and learning practical skills more popular for boys. Moreover, Kola (2013) stated that male students had a better performance than female students in practical physics. Similarly, Haerty and Bell (1984), Kim and Chea (1997) and Yoon (2002), in their studies, reported that male students are more active than female students and spend more time on scientific experiments (cited in Bang & Baker, 2013). Also, in another study carried out by Jones, Howe and Rua (1999), the researchers revealed that female students find fields of science more difficult and that male students think fields of science are more appealing for men. All these findings in related literature could explain the fact that male students' attitude scores are higher than those of female students. In addition, achievement, an important product of experience in learning environments could be said to influence students' attitudes in related fields. Several studies examined the relationship between attitude and achievement and found a positive relationship between these two concepts (Hançer et.al., 2007; Akgün et.al., 2007). Papanastasiou and Zembylas (2002) reported that countries differ in their education systems and that attitude and achievement scores are likely to influence one another. In this respect, a significant relationship could be said to exist between the fact that male students are more successful in scientific fields than female students and the fact that male students have more positive feeling attitudes than female students towards context based learning approach in scientific fields. Related studies revealed that male students are more successful than female students in scientific fields, especially in physics (Hazari et. Al, 2007; Becker, 1989; Amelink, 2009; Young & Fraser, 1994; Levin et.al., 1994 cited in Abu-Hola, 2005).

The present study examined whether high school students' attitude scores regarding context based learning approach differed with respect to the variable of class grade, and it was found that first grade students had more negative attitudes when compared to second and fourth grade students. As known, first grade is the period when students start their secondary school education. Therefore, it is

thought that instructional methods and techniques organized in line with context based learning approach applied in secondary schools have not been fully internalized, yet. It could be stated this situation could have caused students in lower class grades to develop a more negative attitude when compared to those in higher class grades. Considering the variable of class grade, Capulcuoğlu and Gündüz (2013) found that first grade students are less sensitive than higher-grade students. Also, in another study, Doğan (2012) found that high school students in highergrades have more positive perceptions regarding all the sub-dimensions of school climate. Depending on these findings reported in related literature, it could be stated that first grade students are likely to develop negative attitudes towards activities in learning environments (context based learning approach methods and techniques). In addition, the scale applied in the study was developed considering the physics course curriculum, and the participants took the physics course. Considering the participants whom the context based learning approach attitude scale was applied to, it is known that the first grade students were in the same class as they had not determined their field of education, yet (mathematical fields or non-mathematical fields). For this reason, in future high school years, first grade students are likely to prefer a non-mathematical field. Thus, it is thought that this situation might have influenced the context based learning approach attitude scores of the first grade students who would not prefer the mathematical field in their future high school years.

In the study, when the high school students' attitude scores regarding context based learning approach were examined with respect to the variable of school type, it was found that Anatolian Teacher Training High School students had the highest positive feeling attitude mean score, while vocational high school students had the lowest. In addition, it was revealed that the Anatolian Teacher Training High School students' attitude mean scores significantly differed than those from other school types included in the scope of the present study. As is known, students from Anatolian Teacher Training High Schools have a higher tendency to become a teacher in their future professional lives than students attending other types of schools. Therefore, it is thought that Anatolian Teacher Training High School students are likely to have more positive attitudes towards context based learning approach applied in learning environments. Also, it is known that vocational high school students have lower levels of academic achievement both in mathematical and non-mathematical fields than their peers attending other types of schools (Berberoğlu & Kalender, 2005). As mentioned before, taking the positive correlation between achievement and attitude into account, it is not surprising that vocational high school students are likely to have a negative attitude towards methods and techniques in learning environments.

When other studies in related literature with similar results are examined, it is seen that there is not much research conducted in the field. In this respect, the findings obtained in the present study are thought to contribute to the related literature and to bring about a renovation.

SUGGESTIONS

In the light of the findings obtained in the study, the following suggestions could be put forward:

1-First of all, related departments of Ministry of National Education should determine to what extent and how context based learning approach is applied in educational institutions, and doing regular inspections will be more beneficial than learning environments of a higher quality.

2- It is thought that the participants' context based learning approach attitude mean scores, which were lower than expected, should be evaluated by the related

departments of Ministry of National Education. In this way, with the precautions to be taken, students are expected to have more positive attitudes towards context based learning approach and to be more successful in their education life.

3- It is thought that female students will develop more positive attitudes towards context based learning approach when they are encouraged to become more active in learning environments. In relation to this, all the components in school environment, parents and Ministry of National Education have important responsibilities.

4- School administrators and teachers have important duties in helping first grade students get integrated into school environment more easily, who have just started their secondary school education. With related precautions to be taken, first grade students will develop more positive attitude towards context based learning approach and become more active in learning environments.

5- Further research to be conducted in future to investigate the findings obtained in the present study is thought to contribute to the related literature

ACKNOWLEDGEMENTS

This research has been supported by Dicle University Scientific Research Projects Department (project number: 12-ZEF67).

REFERENCES

- Abu Hola, I. (2005). Uncovering gender differences in science achievement and attitudes towards science for jordanian primary pupils. *Damascus University Journal*, 21(1), 19-53.
- Açıkgöz, K. Ü. (1992). İşbirlikli Öğrenme Kuram-Araştırma-Uygulama. Malatya: Uğurel Matbaası.
- Akgün, A., Aydın, A., & Öner Sünkür, M. (2007). İlköğretim bölümü öğrencilerinin fen derslerine yönelik tutumlarının çeşitli değişkenler açıcından incelenmesi. *A.Ü. Bayburt Eğitim Fakültesi Dergisi, 2*(2), 1-14.
- Allan, M., & Bahtaji, A. (2015). Improving transfer of learning through designed contextbased instructional materials. *European Journal of Science and Mathematics Education*, 3(3), 265-274.
- Amelink, C. (2009). Literature overview: Gender differences in science achievement. <u>https://www.engr.psu.edu/AWE/misc/ARPs/ARP_GenderDifferencesScience_Overview.pdf</u> 11.07.2015
- Bang, E.,& Baker,D.B. (2013). Gender differences in Korean high school students' science achievements and attitudes towards science in three different school settings. *Mevlana International Journal of Education (MIJE)*, 3(2), 27-42.
- Baran, M. (2011). Teknoloji ve Proje Tabanlı Öğrenme Yaklaşımı Destekli Düşünme Yolculuğu Tekniğinin Lise 11. Sınıf Öğrencilerinin Fizik Başarısı ve Akademik Benlik Tasarımına Etkisi. Doctoral Dissertation, Dicle University, Diyarbakır, Turkey.
- Baran, M., Baran, M. & Bozkurt A. (2015). Fen öğretmen adaylarının proje tabanlı öğrenme yaklaşımına yönelik görüşlerinin değerlendirilmesi. Retrieved July 7, 2015, from <u>http://ejercongress.org/pdf/BildiriKitab%C4%B12015.pdf</u>.
- Becker, B. J. (1989). Gender and science achievement: A reanalysis of studies from two metaanalyses. *Journal of Research in Science Teaching*, 26(2),141-169. DOI: 10.1002/tea.3660260206
- Berberoğlu, G., & Kalender, İ. (2005). Öğrenci başarısının yıllara, okul türlerine, bölgelere göre incelenmesi: Öss ve pisa analizi. *Eğitim Bilimleri ve Uygulama*, *4*(7), 21-35.
- Bennett, J., Lubben, F., Hogarth, S. (2007) Bringing science to life: a synthesis of the research evidence on the effects of context-based and STS approaches to science teaching. *Sci Edu*, 91, 347-370.
- Boujaoude, S. (2000). What might happen if " what might happen if...? students use the future wheel to analyze science-related social issues. *The Science Teacher*, 67(4), 45-47.
- Broman, K., Bernholt, S., & Parchmann, I. (2015). Analysing task design and students' responses to context-based problems through different analytical frameworks.

Research in Science & Technological Education, 33(2),143-161.__**DOI:** 10.1080/02635143.2014.989495

- Bulut, İ. (2008). Yeni ilköğretim programlarında öngörülen öğrenci merkezli uygulamalara ilişkin öğretmen görüşleri (Diyarbakır ili örneği). *Kuram ve Uygulamada Eğitim Yönetimi*, 56, 521-546.
- Checkley, D. (2010). High school students' perceptions of physics. a thesis submitted to the school of graduate studies of the university of lethbridge in partial fulfillment of the requirements for the degree. Retrieved from https://www.uleth.ca/dspace/handle/10133/2584 Date: 05.02.2016
- Cox, M. 2015. A basic guide for empirical environmental social science. *Ecology and Society* 20(1), 63. <u>http://dx.doi.org/10.5751/ES-07400-200163</u>.
- Çam, F., & Köse Özay, E. (2008). Yaşam temelli öğrenme. Retrieved April 4, 2015, from <u>http://www.egitisim.gen.tr/site/arsiv/54-20/343-yasam-temelli-ogrenme.pdf</u> SNAB, <u>http://www.advancedbiology.org/</u>
- Çapulcuoğlu, U., & Gündüz, B. (2013). Öğrenci tükenmişliğini yordamada stresle başa çıkma, sınav kaygısı, akademik yetkinlik ve anne-baba tutumları. *Eğitim Bilimleri Araştırmaları Dergisi, 3*(1), 201-218.
- Demircioğlu, H. (2008). Sınıf öğretmeni adaylarına yönelik maddenin halleri konusuyla ilgili bağlam temelli materyal geliştirilmesi ve etkililiğinin araştırılması, Doktora Tezi, KTÜ, Fen Bilimleri Enstitüsü.
- Doğan, S. (2012). Lise öğrencilerinin okul iklimi algıları. Adiyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 5(10).
- Erdemir, N. (2010). Determining students' attitude towards physics through problem-solving strategy. *Asia-Pacific Forum on Science Learning and Teaching*, 10 (2),19.
- Jones, M.G., Howe, A., & Rua, J.M., (2000). Gender differences in students' experiences, interests, and attitudes toward science and scientists. *Science Education*, 84(2), 180-192.
- Gök, T., & Sılay, İ. (2008). Fizik eğitiminde işbirlikli öğrenme gruplarında problem çözme stratejilerinin öğrenci başarıları üzerindeki etkileri. *HÜ Eğitim Fakültesi Dergisi*, 34, 116-126.
- Hançer, H. A., Uludağ, N., & Yılmaz, A. (2007). Fen bilgisi öğretmen adaylarının kimya dersine yönelik tutumlarının çeşitli değişkenlere göre değerlendirilmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 32, 100-109.
- Harty, H., & Beall, D. (1994). Attitudes towards science of gifted and nongifted fifth graders. *Journal of Research in Science Teaching*, *21*, 483-488.
- Hazari, A., Tai, R.H., & Sadler, P.M. (2007). Gender differences in introductory university physics performance: The influence of high school physics preparation and affective factors. *Science Education*, 91(6), 847–877.
- Hırça, N. (2012). Bağlam temelli öğrenme yaklaşımına uygun etkinliklerin öğrencilerin fizik konularını anlamasına ve fizik dersine karşı tutumuna etkisi. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. 9(17), 313-325.
- Karacaoğlu, Ö. C.,& Acar, E. (2010). Yenilenen programların uygulanmasında öğretmenlerin karşılaştığı sorunlar. *Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi Dergis*i. 7(1), 45-58.
- Kaya H., & Böyük U.(2011). Attitude towards physics lessons and physical experiments of the high school students. *European Journal of Physics Education*, 2(1),38-48.
- Kim, S.W., & Chea, S.H. (1997). The present Operational Status of Science Clup Activities in Secondary School and Improvement Schemes (in Korean). *Journal of Korean Association For Research in Science Education*, 17, 511-524.
- Kola, A. (2013). Gender analysis of students' academic performance in physics practical in colleges of education, Nigeria. *Advances in Arts, Social Sciences and Education Research*, 3(5), 447-452.
- Levin, T., Sabar, N. & Libman, Z. (1991). Achievements and attitudinal patterns of boys and girls in science. *Journal of Research in Science Teaching*, 28(4), 315-328.
- Mattern, N. & Schau, C. (2002). Gender difference in attitude-achievement relationships over time mong white middle-school students. *Journal of Research in Science Teaching*, 39(4), 324-340.
- Otter, C. (2011). Context based learning in post compulsory education: Salters advanced chemistry project. *Educació Química EduQ*, 10, 11-17. DOI: 10.2436/20.2003.02.71

- Overman, M., Vermunt, J.D., Meijer, P.C., Bulte, A.M.W., & Brekelmans, M. (2014). Students' perceptions of teaching in context-based and traditional chemistry classrooms: comparing content, learning activities, and interpersonal perspectives. *Int J Sci Edu*, 36, 1871-1901.
- Sözbilir, M., Sadi, S., Kutu, H., & Yıldırım, A. (2007, June). Kimya eğitiminde içeriğe/bağlama dayalı (context-based) Öğretim Yaklaşımı ve dünyadaki uygulamaları. Paper presented at the meeting I. Ulusal Kimya Eğitimi Kongresi, Istanbul, Turkey.
- Papanastasiou, E. C., & Zembylas, M. (2002). The effect of attitudes on science achievement: a study conducted among high school students in cyprus. *International Review Of Education, 48*(6), 469–484.
- Rivard L. P. & Straw, S. P. (2000). The effect of talk and writing on learning science: An exploratory study. *Science Education*, 84, 566-593.
- Vos, V. (2014). The Use of Context in Science Education. Retrieved from: http://dspace.library.uu.nl/bitstream/handle/1874/297294/The%20Use%20of%20C ontext%20in%20Science%20Education.pdf?sequence=2 Date: 14.10.2015
- Yoon, J. (2002). Factors of the Students' Career Choice Realated to Science (in Korean). *Journal of Korean Association for Research in Science Education, 22*, 906-921.
- Young, D.J., & Fraser, B.J. (1994). Gender differences in caribbean students' performance on a test of errors in biological labeling. *Journal of Research in Science Teaching*, *31*(8), 857-871.

 $\otimes \otimes \otimes$