

INVESTIGATING THE EFFECTS OF PROJECT-BASED LEARNING ON STUDENTS' ACADEMIC ACHIEVEMENT AND ATTITUDES TOWARDS ENGLISH LESSON

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Abstract The purpose of the study was to investigate the effects of project-based learning on students' academic achievement and attitudes towards English lesson of 9th grade students. The research was carried out in 2010–2011 education-instruction year in a high school in Nigde, Turkey. Totally 60 students in two different classes in the 9th grade of this school participated in the study. The pre- and post-test control group research model was used in this study. The data obtained in the study were analysed by the computer programme SPSS 17.0. The arithmetic means and standard deviations were calculated for each group. In order to test the significance between the groups, the independent samples t-test was used. The significance level was taken as .05 in the research. The results of the research showed a significant difference between the attitude scores of the experiment group and the control group. On the other hand, it was also found out that project-based learning was more effective in the positive development of the students' academic achievement levels. At the end of the research, it was revealed that the students who were educated by project-based learning was more successful and had higher attitude levels towards the lesson than the students who were educated by the instruction based on student textbooks.

Keywords: project-based learning, academic achievement, attitudes towards lesson, English lesson

Introduction

Project work is a term done individually or cooperatively that combines the investigating the topic and presenting it in written form illustrated with photos, pictures, diagrams, etc. (Blumenfeld et al., 1991; Demirhan, 2002; Yurtluk, 2003; Gültekin, 2005). Project work is student-centred and driven by the need to create an end-product (Bell, 2010). However, it is the route to achieving this end product that makes project work so worthwhile. The route to the end-product brings opportunities for students to develop their confidence and independence and to work together in a real- world environment by collaborating on a task which have they defined for themselves and which has not been externally imposed (Blumenfeld et al., 1991).

The basis of project-based approaches is hardly new. Early in the 1920s, William Heard Kilpatrick advocated project-based instruction (Sünbül, 2010). His notion was that such instruction should include four components: purposing, planning, executing, and judging (Foshay, 1999). Thomas (2000) stated that the idea of assigning projects to students is not a new one and the benefits of learning by practice have long been touted; the roots of the idea go back to John Dewey (Blumenfeld et al., 1991; Krajcik et al., 1994; Foshay, 1999). For over 100 years, educators such as John Dewey have reported on the benefits of experiential, hands-on, student-directed learning. Most teachers, knowing the value of engaging, challenging projects for students, have planned

field trips, laboratory investigations, and interdisciplinary activities that enrich and extend the curriculum. Doing/creating projects is a long-standing tradition in education history (Merkham et al., 2003).

Project-based learning is an authentic learning model or strategy in which students plan, implement, and evaluate projects that have real-world applications beyond the classroom (Blank, 1997; Harwell, 1997; Dickinson et al., 1998; Westwood, 2008). Project-based learning has been defined in many ways. For this reason there exists no single definition. In the given definitions, project-based learning has been referred to as a “model”, “approach” or a “technique”, or as “learning” or “teaching”. It appears that no common agreement has been reached yet. In this study, project-based learning has been considered as an “approach” (Gültekin, 2007).

Project-based learning is an instructional method centred on the learner. Students develop a question and are guided through research under the teacher’s supervision (Bell, 2010). Instead of using a rigid lesson plan that directs a learner down a specific path of learning outcomes or objectives, project-based learning allows in-depth investigation of a topic worth learning more about (Korkmaz and Kaptan, 2000; Erdem, 2002; Harris and Katz, 2001). Thomas, Mergendoller and Michaelson (1999) described projects within project-based learning as based on challenging questions and making students having central role in design, problem-solving, decision making processes so giving students the opportunity to work relatively autonomously. In project-based learning, students plan, implement, and evaluate projects that have real-world applications beyond the classroom (Blank, 1997). Project-based learning is a comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of complex, authentic problems and carefully designed products and tasks (Blumenfeld et al., 1991). The use of project-based learning in class is possible after providing the information that is needed for the project. The classroom activities should be student-centred, cooperative, and interactive (Moursund, 1999).

Project-based learning engages students in gaining knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks (Moursund, 1999; Thomas, Michealson and Mergendoller, 2002). Project-based learning enhances the quality of learning and leads to higher-level cognitive development through the students’ engagement with complex and novel problems (Blank, 1997; Bottoms and Webb, 1998). Students are exposed to a wide range of skills and competencies such as collaboration, project planning, decision making, and time management through project-based learning (Blank, 1997; Dickinson et al., 1998). Project-based learning increases the motivation of students. Teachers often note improvement in attendance, higher class participation, and greater willingness to do homework (Bottoms and Webb, 1998). When teachers successfully implement project-based learning, students can be highly motivated, feel actively involved in their own learning, and produce complex, high-quality work (Blumenfeld et al., 1991).

Project-based learning is still in the developmental stage. There is not sufficient research or empirical data to be able to state with certainty that project-based learning is a proven alternative to other forms of learning. Based on evidence gathered over the past years, project-based learning appears to be effective model for producing gains in academic achievement (Meyer, 1997; Bağcı et al., 2005; Aladağ, 2005; Gültekin, 2005; Chen, 2006; Çırak, 2006; Çiftçi, 2006; Özdemir, 2006; Sylvester, 2007; Kemaloğlu, 2006; Yalçın, Turgut and Büyükkasap, 2009; Baş and Beyhan, 2010) and attitudes (Meyer, 1997; Erdem and Akkoyunlu, 2002; Korkmaz,

2002; Aladağ, 2005; Gültekin, 2005; Çiftçi, 2006; Özdemir, 2006; Yalçın, Turgut and Büyükkasap, 2009; Baş and Beyhan, 2010). There are research studies that explain the advantages of using project-based learning in educational settings (Meyer, 1997; Demirel et al., 2000; Korkmaz, 2002; Balkı-Girgin, 2003; Yurtluk, 2003; Gültekin, 2005). However, only a few of them have focused on project-based learning in English language teaching (Çırak, 2006; Baş and Beyhan, 2010). These studies which were on the investigation of project-based learning were carried out in elementary level by comparing project-based learning with traditional methods. However, this study focuses on the effects of project-based learning with comparison to the student textbooks based-instruction, which were created on the basis of the new Secondary School 9th Grade English Curriculum (MEB, 2007). From this perspective, this research can be stated to have a significant value. In this sense, previous literature does not reveal and study which focus on the comparison of the effects of project-based learning and instruction based on student textbooks (Bayral et al., 2010) approved by the Ministry of National Education, known as MEB. It is hoped that this empirical study can provide a close link between project-based learning and language learning and, at the same time, propose guidelines for English language teachers who wish to implement project-based learning to enhance their students' language learning as well as development of attitude towards learning English as a foreign language. On the other hand, by carrying out this study, the researcher hopes that project-based learning can receive more attention and enjoy more popularity amongst English language teachers at all grade levels.

This study was designed to assess the effects of project-based learning on ninth grade students' academic achievement and attitudes towards English lesson. The questions addressed in this study were as follows:

1. Is there a significant difference between the achievement levels of the students in the experimental group and the students in the control group in terms of the usage of project-based learning?
2. Is there a significant difference between the attitude levels of the students in the experimental group and the students in the control group towards the lesson in terms of the usage of project-based learning?

Method

A pre- and post-test experiment with random assignment of classes to experimental and control groups was employed (Dugard and Toldman, 1995) to examine the effects of the treatment process in the study. In this design, which uses two groups, one group is given the treatment and the results are gathered at the end. The control group receives no treatment, over the same period of time, but undergoes exactly the same tests (Karasar, 2005). Both groups were employed a pre-test and pre-attitude test prior to the experimental process. The subjects were given an academic achievement test and an attitude scale towards English lesson as a pre-test. Meanwhile, both the academic achievement test and attitude scale were employed to both groups after the experimental process as a post-test. A small number of homogenous subjects provided us with information over a period of four weeks.

Sample

The subjects of the study consisted of 60 ninth grade high school students [33 boys (55%) and 27 girls (45%)] with a mean age of 14.5 years in two classes selected from a high school in an urban area in Nigde, Turkey. The classes were selected randomly (Fraenkel and Wallen, 1996) from the school. One group (9-B class) was randomly assigned to the experimental group ($n=30$), while the other (9-C class) formed the control group ($n=30$) of the study. All the students in the groups took the Level Defining Examination, known as SBS (Seviye Belirleme Sınavı) in the previous year in order to enter in this high school. The academic achievement levels of these students were understood to be similar in relation with their SBS scores in the previous year. Meanwhile, the SBS scores of the students were taken from the school administration.

Instruments

Academic Achievement Test

In order to collect data related to academic achievement of the students an academic achievement test was developed in relation with the Secondary School 9th Grade English Curriculum (MEB, 2007) by the researcher. This test was used to measure the students' academic achievement in the "past activities" unit. There were 45 questions (each item scored 2 points; total score was 90 points) in the test. The item and test statistics of the achievement test were computed for reliability and validity. The reliability of the academic achievement test was done by the KR₂₀ reliability analysis method (Cohen, Manion and Morrison, 2000; Kubiszyn and Borich, 2003). The reliability value of the test was found as .83, the test difficulty value (P_j) was found to be .59 and the test discrimination value (r_{jx}) was found to be .47. Also, the Spearman-Brown result of the test was found as .88 and the split-half result of the test was found as .78. Hence, it was revealed that the test was reliable (Tan, 2008). It was used with students in both the experiment and the control groups. The academic achievement test had a reliability of .83, an average level of test discrimination (.47) and an average level of test difficulty (.59). In the light of the data gathered for the academic achievement test, it can possibly be said that the test had a high level of reliability, a medium level of difficulty and a high level of test discrimination.

English Lesson Attitude Scale

In this research, the "English lesson attitude scale" was used in order to measure students' attitudes towards English lesson. The scale was arranged by having done the reliability and validity studies and used to evaluate the attitudes of students towards English lesson by the researcher. The attitude scale test is a three-point Likert type scale (which was used to differentiate orientations from 1 as low and 3 as high) reliability and validity of which have been made by Cronbach's Alpha analysis, including 27 items that measure students' attitudes towards English lesson. The Cronbach's Alpha value of the attitude scale was found as .92. The Kaiser-Meyer-Olkin (KMO) sampling adequacy result was found as .884 and the Bartlett test result was found as 10134,161 ($p= .000$). These results show that there is a strong correlation amongst the items. In light of the data, it can be said that the attitude scale test is both reliable and valid to be used in the current research.

Procedures

In the experimental group, cooperative learning method was applied. Whereas, in the control group instruction based student textbooks was used in the process of the study. The design of the study can be described as in the Table 1 given below:

Table 1. Experimental design used in the study

Groups	Pre-test	Experimental Design	Post-test
Experimental	T1 ₁₂	Project-based learning	T2 ₁₂
Control	T1 ₁₂	Instruction based on student textbooks	T2 ₁₂

T1₁ → Academic achievement test
 T1₂ → English attitude scale

As can be seen in Table 1, one can see the scales applied on the subjects of the study. The academic achievement test and English attitude scale were applied on the subjects of the study for two times before and after the experimental process.

This instructional treatment was conducted over five weeks in the first term of 2010-2011 academic year at a high school in Nigde, Turkey. 9th grade students of two classes of this school were enrolled in the study. The classes were selected randomly from the other ninth classes of this high school. Firstly, the academic achievement test and English attitude scale were performed as a pre-test. In the next step, the “past activities” unit of the Secondary School 9th Grade English Curriculum (MEB, 2007) was taught to the control group by using the instruction based on the activities in student textbooks (Bayral et al., 2010) and to the experiment group by using project-based learning.

After the topics to be studied were selected, the researcher developed an instruction programme. It was crucial to develop appropriate techniques and provide necessary materials that reflect the principles of project-based learning (Blumenfeld et al., 1991; Demirel et al., 2000; Demirhan, 2002; Erdem, 2002; Yurtluk, 2003; Demirel, 2005; Çırak, 2006; Özdemir, 2006; Baş and Beyhan, 2010; Sünbül, 2010). Drawing on relevant research, all the procedures were developed and prepared by the researcher himself. The instruction programme for the procedure was based on project-based learning on teaching for a deep learning. In this study, the experimental group studied “past activities” unit through project-based learning while the control group studied the same unit through activities given in student textbooks (Bayral et al., 2010).

In the control group, instruction based on student textbooks was used. The instruction in the control group was based on the activities in student textbook (Bayral et al., 2010) prepared in connection with the Secondary School 9th Grade English Curriculum (MEB, 2007). During the lesson, though occasionally, the teacher asked questions to the students based on activities (vocabulary, grammar and speaking) in order to encourage participation of the students in the learning process. The teacher also made presentations based on the reading, listening and grammar passages in the textbooks. At the end of the instruction, the teacher asked some questions about the related passages and let the students do the activities given in the textbooks. The teacher made the students do the activities in the student textbooks while standing at front of the class and received the answers and gave them feedback, recorded subject notes on the board, and gave daily homework to the students.

Most lessons passed as the students doing the activities in student textbooks, taking short notes and answering teacher questions. The teacher gave the students necessary time to do the activities in the textbooks. The teacher played the role of facilitator during the learning process in the classroom.

In the experimental group, the students were taught with project-based learning developed for “past activities” unit. So, the instruction programme for the experimental group was prepared according to the principles of project-based learning. Project-based learning is based on the idea that students study a specific subject in a deeper context (Demirhan, 2002). In this regard, the researcher explained the key concepts in the unit to the students. The researcher also presented the necessary principles, steps and procedures about project-based learning to the students in the experimental group. After the key concepts, steps and procedures about project-based learning were presented and explained to the students, the researcher and the students created certain objectives for each group mutually and then they defined the work and the subjects in the learning process. In order to form the project groups, the students were made to count from one to seven, the eighth student stated to count from one and the others went on counting again. By grouping those with the same number, it was ascertained that each group became heterogeneous in nature. After the groups of six were formed, desks were relocated so that the classroom organisation became convenient for project-based learning. After sharing the tasks, the researcher clarified what was expected from the students. During the project study, the students’ task was to study the presented materials, obtain relevant information, create the project and then present it in front of their friends in the classroom. Before starting to create the project, the students were assigned to project groups and they were given the tasks. The students were made to create study calendars and determine control points in the study calendars. Each project group was given the necessary materials presenting the target tasks and information, then they were let create their projects in the groups. At the end of a four-week study in project groups, the students presented their projects in front of the classroom and received feedback both from the researcher himself and their peers in the classroom. In relation with the evaluation, the projects were evaluated by the researcher and the students in other groups with (1) researcher evaluation and (2) peer evaluation forms. After scoring the projects of the groups, the students of the best three projects earned some certificates and awards. Thus, the students in the groups competed with the other groups instead of their team and/or class mates. At the end of the project-based learning process, all the projects created by the groups were presented to the other students and teachers in some certain parts of the school. Meanwhile, the researcher served both as a designer and a facilitator in the learning process. The researcher formed the groups, prepared the materials and presented the principles and procedures of project-based learning as a designer and he walked around the classroom and helped the students who needed help as a facilitator during the learning process.

All the students in the groups (experimental and control groups) were exposed to the same content for the same duration in the study. Duration of the lessons was for 45-minute periods. Each group received an equal amount of instruction for four weeks period. According to Manson and Bramble (1997), the longer the time spent the greater the probability that something could influence the subjects’ environment that in turn would affect the results. Because of this, the duration of four weeks was deemed appropriate to see the effects of the experimental treatment without incurring the difficulties described by Manson and Bramble (1997). Both the experimental and the control groups were taught by the researcher himself.

Data Analysis

In order to analyse the data obtained from the study, “academic achievement test” and “English course attitude scale” were used. The statistical analyses were made via SPSS 17.0. In this study, statistical techniques such as mean (\bar{X}), standard deviation (Std. Dev.) and the independent samples t-test were used in the analysis of the data. The *p* value was held as .05.

Findings

Analysis of the First Research Question

The first research question of the study was “Is there a significant difference between the achievement levels of the students in the experimental group and the students in the control group in terms of the usage of project-based learning?” So, before the treatment an independent samples t-test was employed in order to determine whether a statistically significant mean difference existed between the experimental and the control groups with respect to their pre-knowledge and understanding of concepts in “past activities” unit. The comparison of pre-test results of the students in the experimental and the control groups are presented in Table 2.

Table 2. Comparison of Pre-Test Achievement Scores of the Students in the Experiment and the Control Groups

Groups	η	\bar{X}	Std. Dev.	df	t	p
Experimental	30	48.5	17.5	64	0.695	0.94*
Control	30	48.2	17.9			

**p*>.05

In Table 2, the pre-test achievement scores of the students in the experimental group and the control group have been compared. The average score of the students in the experimental group has been found as $\bar{X}_{experimental} = 48.5 \pm 17.5$; and the average pre-test score of the students in the control group has been found as $\bar{X}_{control} = 48.2 \pm 17.9$. The difference between the students of these two groups has been analysed through independent samples t-test. The t-value has been found as [$t_{(64)} = 0.695$]. According to these results, there is no statistically significant difference between the pre-test scores of the students of these two groups in .05 level [*p* = .94, *p* > .05]. Prior to study’s experimental process, it can be said that both groups’ pre-learning levels in “past activities” unit in English lesson are equal to one another.

Table 3. Comparison of Post-Test Achievement Scores of the Students in the Experiment and the Control Groups

Groups	η	\bar{X}	Std. Dev.	df	t	p
Experimental	30	73.3	12.4	64	3.26	0.0018*
Control	30	62.3	15.1			

**p*<.05

The post-test achievement scores of the students in the experimental and the control groups have been compared in Table 3. The average post-test score of the students in the experimental group was found to be $\bar{X}_{experimental} = 73.3 \pm 12.4$, and the average post-test score of the students in the control group has been found as $\bar{X}_{control} = 62.3 \pm 15.1$. The difference between the two groups has been analysed through independent samples t-test.

The accounted t-value has been found as $[t_{(64)} = 3.26]$. The students in the experiment group $[\bar{X}_{experimental} = 73.3]$ showed significantly better achievement compared to the students in the control group $[\bar{X}_{control} = 62.3]$. So according to these results, it can be said that there is statistically significant difference between the post-test scores of the two groups in .05 level $[p = .0018, p < .05]$. When one looks at the average scores of the groups, it can be seen that the students in the experiment group have reached a higher achievement level compared to those in the control group. The experimental method, which is project-based learning, applied has been more effective than the instruction based on student textbooks in the control group.

Analysis of the Second Research Question

The second research question of the study was “Is there a significant difference between the attitude levels of the students in the experiment group and the students in the control group towards the lesson in terms of the usage of project-based learning?” So, before the treatment an independent samples t-test was employed in order to determine whether a statistically significant mean difference existed between the experimental and the control groups with respect to their pre-attitude towards English lesson. The comparison of pre-test results of the students in the experimental and the control groups are presented in Table 4.

Table 4. Comparison of Pre-Test Attitude Scores of the Students in the Experiment and the Control Groups

Groups	η	\bar{X}	Std. Dev.	df	t	p
Experimental	30	1.58	0.502	64	-0.247	0.81*
Control	30	1.61	0.496			

* $p > .05$

In Table 4 given, the pre-test attitude scores of the students in the experiment and the control groups can be seen. The average pre-test attitude score of the students in the experiment group has been found as $\bar{X}_{experimental} = 1.58 \pm 0.502$; and the average pre-test attitude score of the students in the control group has been found as $\bar{X}_{control} = 1.61 \pm 0.496$. The accounted t-value between the average scores of the two groups is $[t_{(64)} = -0.247]$. The data obtained are not statistically significant in .05 level since the pre-test attitude scores of the students of these two groups are similar.

Table 5. Comparison of Post-Test Attitude Scores of the Students in the Experiment and the Control Groups

Groups	η	\bar{X}	Std. Dev.	df	t	p
Experimental	30	2.73	0.452	64	6.16	0.0001*
Control	30	2.03	0.467			

* $p < .05$

The post-test attitude scores of the students in the experiment group and the control group can be seen in Table 5. The average post-test attitude score of the students in the experiment group has been found as $\bar{X}_{experimental} = 2.73 \pm 0.452$; and the average attitude post-test score of the students in the control group has been found as $\bar{X}_{control} = 2.03 \pm 0.467$. The t-value obtained from the average scores of the two groups has been found as $[t_{(64)} = 6.16]$, which shows the statistically significant difference $[p = .0001, p < .05]$ between the groups. In light

of the data acquired in the research, it can be said that the students in the experiment group have reached higher attitude scores compared to those in the control group. The experimental method applied has enabled the students to develop positive attitudes towards English lesson.

Conclusions and Discussion

The purpose of this study was to investigate the effects of project-based learning on academic achievement and attitudes of ninth grade students towards English lesson and to compare it to that of instruction based on student textbooks. For this reason, experimental and control groups were formed for the study. Whereas project-based learning was applied to the experimental group, instruction based on student textbooks was applied to the control group in the study. As presented in the pre-test findings of English academic achievement test of “past activities” unit, there was no significant difference between the experimental and control groups in terms of their academic achievement scores in English lesson. The findings of post-test at the end of the four-week implementation, however, indicate that the experimental group performed better than the control group. The difference acquired between these two groups can be attributed to the responsibilities that the students took in project-based learning, the active role of the students in the learning process. Working in the groups, which project-based learning was employed made the students learn the responsibility, provided them with motivation to learn, and enabled them to acquire knowledge by receiving different ideas and understanding the others point of view in the lesson. The positive contribution of project-based learning on students’ academic achievement in this research supported the findings reported in the related literature both from different countries and Turkey in every level and field of education (Meyer, 1997; Bağcı et al., 2005; Aladağ, 2005; Gültekin, 2005; Chen, 2006; Çırak, 2006; Çiftçi, 2006; Özdemir, 2006; Sylvester, 2007; Kemaloğlu, 2006; Yalçın, Turgut and Büyükkasap, 2009; Baş and Beyhan, 2010). For example, Çırak (2006) investigated the effects of project-based learning in an elementary English lesson. She organised her second grade classroom in an elementary school and the teaching materials with the principles of project-based learning. The data revealed that, at the end of treatment of the study carried out by Çırak (2006), the students in the experimental group outperformed than the students in the control group where traditional instruction methods were used. Furthermore, Meyer (1997) studied fourteen fifth and sixth grade students’ challenge seeking during project-based mathematics instruction in a classroom. He drew on five areas of research: academic risk taking, achievement goals, self-efficacy, volition, and effect. He reported on the effects of fifth and sixth grade students’ motivation and that although the surveys were useful in characterizing general patterns of challenge seeking, more individual and contextualized information was necessary for understanding how to support students engaged in challenging academic work, such as project-based learning. According to the results obtained both from the related literature and this study, it can be possibly said that project-based learning increased the students’ academic achievement levels positively. However, in the studies carried out by Demirel et al. (2000) and Yurtluk (2003), no change was observed in the academic achievement levels of students both in the experimental and the control groups in relation with the use of project-based learning in the experimental group.

In terms of the attitude towards English course, there was a significant difference between the experimental and the control groups. As presented in the pre-test findings of English lesson attitude of students,

there was no significant difference between the experimental and control groups in terms of their attitudes towards English lesson. The findings of post-test at the end of the four-week implementation, however, indicate that the experimental group performed better than the control group. In other words, the students who were educated by project-based learning had more positive attitudes towards English lesson than those who were educated by the instruction based on student textbooks. Erdem and Akkoyunlu (2002), Aladağ (2005), Gültekin (2005), Çiftçi (2006), Özdemir (2006), Yalçın, Turgut and Büyükkasap (2009) and Baş and Beyhan (2010) carried out studies by project-based learning in different learning atmospheres. They explored students' attitudes towards courses by project-based learning. In their studies, they found that there was a significant difference in the attitude levels towards the lesson between the groups, which project-based learning (experimental group) and the other group for which the instruction based on student textbooks (control group) were used. The students who were educated by project-based learning had developed more positive attitudes towards the lesson than the students who were educated by the instruction based on student textbooks. These results resemble to the result of this study. It can be said based on the findings; project-based learning was more effective on the development of students' attitudes towards lesson than the instruction based on student textbooks. However, Demirel et al. (2000) and Yurtluk (2003) investigated the effects of project-based learning approach on learning process and learners' attitudes. In their researches, it was found that there was no significant difference between pre- and post-test results of attitude scale in control and experimental groups.

On the other hand, Tretten and Zachariou (1995), Korkmaz (2002), Çiftçi (2006) and Özdemir (2006) found out in their studies that students who were educated by project-based learning method were more successful in problem solving skills, self-esteem, interest in topics, work habits, communication, motivation, academic risk taking and creative thinking skills. On the results of these studies, it can be said that project-based learning method not only has more positive effects on students' academic achievement levels and attitudes towards the lesson, it has also more positive effects on students' academic risk taking, problem solving and creative thinking skills. According to Blank (1997), Çınar et al. (2005) and Çiftçi and Sünbül (2006), students in the project-based learning atmosphere are exposed to a wide range of skills and competencies such as collaboration, project planning, decision making, critical thinking and time management. Collaborative learning allows students to bounce ideas off each other, voice their own opinions, and negotiate solutions - all skills that will be necessary in the workplace. As Özdemir (2006) states, a project-based learning lesson provides students with the opportunity to learn in an authentic, challenging, multidisciplinary environment, to learn how to design, carry out, and evaluate a project that requires sustained effort over a significant period of time, to learn to work with minimal external guidance, both individually and in groups, to gain in self-reliance and personal accountability. As Eryılmaz (2004) stated, via peer instruction, such as in project-based learning, students can develop their academic achievements and attitudes since interaction between group members in a social context is essential for learning as proposed in social constructive theory and context are important to understand what occurs in society and to construct knowledge (Derry, 1999). Meanwhile, it is suggested that teachers should group the students together whenever and wherever possible (Scott and Ytreberg, 1990). Students enter into a friendly competition with other groups during project works and pay effort in order to be successful. As a result of their achievements, they feel the happiness and excitement of achieving something. At the same time,

students feel the pleasure of producing something and displaying something different, which in turn makes them feel valuable, skilful and knowledgeable. In that way, it can be said that their self-confidence and feeling of competence for next project tasks is improved. It can be a contribution to turn to positive academic achievements and attitudes of students towards lesson (Yalçın, Turgut and Büyükkasap, 2009).

Creating products with the work put into the study increased the students' academic achievement levels and improved their attitudes towards English lesson. In addition to the academic achievements in the experimental group expressed positive attitudes towards learning English, the students seemed rather happy to learn English through project-based learning because they were able to progress at their own pace and, at the same time, contribute to others' learning in such a supportive and encouraging learning context. In this sense, the most important thing in research was the experimental group students had more fun when they were learning and they also had the chance of socialisation and cooperation which are more important for them in these ages. As the related literature suggests, the development of positive attitude is linked to the direct involvement of students (Bergeson, Fitton and Bylsma, 2000). The researcher also saw that project-based learning helped the learners develop many skills like intellectual, social, emotional and moral skills which are the skills the learners have to develop at school learning as well as the students had no anxiety while learning. Also, Çırak (2006) and Özdemir (2006) saw in their studies that the project works helped the young learners to develop many skills in English lesson like, physical, intellectual, social, emotional and moral skills which young learners have to develop. According to Duxbury and Tsai (2010), foreign language anxiety is a universal phenomenon that inhibits students' achievement in ESL and EFL classrooms and it can be reduced through social interaction such as project-based learning. The results of the study also indicate that the activities used in the treatment provided more opportunities to the students to get involved in the activities than the participants in the classroom conducted by following the requirements of the course book. By this way, students not only had high achievement levels in English lesson, but also they had a chance to practise their different skills such as drawing, writing, thinking, researching, discussing, creating, etc. which are seen as crucial factors in learning a foreign language (Harmer, 2001; Hill and Flynn, 2006).

As there are only few studies on the application of project-based learning in English lessons especially in Turkey, there is a need to conduct more studies on this issue. This current study may give insights to teachers about integrating project-based learning into high school English lessons. It is suggested that researchers should study the effects of project-based learning on students' academic risk taking, metacognitive skills and motivational levels, problem solving and communication skills, creativity levels, vs. with their academic achievement levels and attitudes towards English lesson and/or other lessons.

As a result of this study, in which the effects of project-based learning on academic achievement and attitudes of students towards English lesson were examined, the following suggestions can be suggested depending on the findings obtained in the study:

1. In light of the gathered data in the study, project-based learning was found to be more effective on students' academic achievement levels and attitudes towards the course than the activities instruction based on student textbooks. So, it is suggested teachers should use this approach in their lessons. Because, after the

experimental process of this strategy, students rose their academic achievement and attitudes towards the lesson in a greater extent.

2. Teachers should direct the process of the approach effectively so that if they cannot direct the strategy effectively, students can be frustrated and demoralised, they can be bored with the lesson and the strategy can be unsuccessful from the beginning of the process. Because of this situation, seminars and courses should be organised as to train teachers to use this approach effectively in their classrooms so that they can create a more positive classroom atmosphere. Also, teacher education programmes should be reorganised to contain both the practice and the theoretical knowledge/framework of project-based learning.
3. By project-based learning, students have a chance to practise their understanding on the learning material by interacting and communicating with their peers in the groups. Students do not memorise the concepts and other things, they do study the learning materials and learn deeply. In other words, they have a chance to practise their understanding on the learning material with project-based learning. So the learning environment should be organised so that students interact face to face with each other and share the responsibility of the learning process.
4. Teachers should give projects to students so that students have a chance to select from a number of subjects. In addition, teachers should pay attention to the students so that the students organise their work with the principles of project-based learning.
5. High School English Curriculum in Turkey should be integrated with the techniques and principles of project-based learning in order to develop students' academic, communicative and creative competences as well as other social and emotional skills.
6. Similar researches can be carried out in other lessons and institutions such as elementary school or university level.

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