

# The Effect of Project-Based Learning Approach on Lesson Outcomes, Attitudes and Retention of Learned in Secondary School Music

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## Abstract

*In this study, the effect of the project-based learning approach applied in the 6th grade music lessons of the secondary school on the students' learning outcomes and their attitudes towards the music lesson was examined. The study was carried out according to the pretest-posttest design with a control group, which is one of the semi-experimental models. The experimental and control groups of the study consisted of 44 (22+22) 6th grade students in secondary school. In the collection of study data, secondary school 6th grade music acquisition test and attitude scales towards music lesson were used. In the experimental group, the project-based learning approach was applied, and in the control group, experimental procedures were applied for 6 weeks in accordance with the instructions of the secondary school 6th grade music lesson curriculum of the Ministry of National Education. In the study, research measurement tools were applied to the experimental and control groups as pretest, posttest and retention test. According to the research findings, students in the experimental group to whom project-based learning approaches were applied achieved significantly higher music lesson achievements, attitudes and retention scores compared to their peers in the control groups.*

**Keywords:** Project-Based Learning, Music Lesson, Secondary School Students.

## Öz

*Bu çalışmada, ortaokul 6. Sınıf müzik derslerinde uygulanan proje tabanlı öğrenme yaklaşımının öğrencilerin ders kazanımlarına ve müzik dersine yönelik tutumlarına etkisi incelenmiştir. Çalışma yarı deneme modellerinden kontrol gruplu öntest-sontest desenine göre gerçekleştirilmiştir. Çalışmanın deney ve kontrol grupları Ortaokul 6. Sınıflarda öğrenim gören 44 (22+22) öğrenciden oluşmaktadır. Çalışma verilerinin toplanmasında ortaokul 6. Sınıf müzik kazanım testi ve müzik dersine yönelik tutum ölçekleri kullanılmıştır. Deney grubunda proje tabanlı öğrenme yaklaşımı kontrol grubunda ise MEB'in ortaokul 6. Sınıf müzik dersi öğretim programlarının yönergelerine uygun olarak 6 hafta deneysel işlemler uygulanmıştır. Çalışmada deney ve kontrol gruplarına araştırma ölçme araçları, öntest, sontest ve kalıcılık testi olarak uygulanmıştır. Araştırma bulgularına göre proje tabanlı öğrenme yaklaşımlarının uygulandığı deney grubu öğrencileri kontrol gruplarındaki akranlarına kıyasla anlamlı düzeyde yüksek müzik dersi kazanımları, tutumları ve kalıcılık puanları elde etmişlerdir.*

**Anahtar Kelimeler:** Proje Tabanlı Öğrenme, Müzik Dersi, Ortaokul Öğrencileri.

## Introduction

The practice dimension of arts-based research in education is claimed to be a form of research that provides important perspectives for pedagogical and theoretical decision making. For this reason, recently, art-based research has been adopted not only in educational research, but also in project-based approaches in interaction with different fields such as medicine, commerce, science and engineering. Efforts to define the methods, nature, and principles of creative science have attracted more attention to the theorizing and rigor of such research. These discussions among scientists continue the interest in project-based learning in the arts (Keser & Naim, 2017).

The link that the artistic method will establish between disciplines as a method of acquiring knowledge and learning will make significant contributions to the acquisition of certain abilities envisaged at the end of the education-teaching process. In this context, the project-based learning approach constitutes an important basis for the formation of these goals. From this point of view, enthusiastic, entertaining and educational activities that bring together art, science and technology with an interdisciplinary cooperation approach can strengthen the art and design aspect of students that are missing in schools and create a positive change in their perspectives on school education (Küçükosman et al., 2021).

With project-centered studies, students use their creativity in art to reach new combinations, new thoughts from the known to the unknown, by revealing new results. In our study, questioning the model that expresses itself interdisciplinary, the importance of interdisciplinary art from the past to the present, examining the approaches to the effects of interdisciplinary art on art education, and seeking the opinions of art educators on the subject are stated as sub-objectives. In art education, an interdisciplinary approach is recommended as an integrative knowledge system and way of thinking (Aydoğmuş & Sünbül, 2015; Çalışkan et al., 2008; Öztütüncü, 2016); Reis, Barbalho, & Zanette, 2017). The main feature of this model is that it is built on a problem/scenario related to other disciplines and that students learn

together in small groups based on student-centered learning. The student mainly engages in activities such as thinking, problem solving, creativity, access to information, processing, re-blending, questioning, and reconciliation within the lesson scenarios aimed at solving real problems, and spares time for both individual and team work (Sünbül, 2010).

PBL shows a learning process in which students work on the development of original projects and products (Kokotsaki, Menzies & Wiggins, 2016). Project-based learning (PBL) refers to an inquiry-based teaching method that incorporates knowledge into structuring by enabling students to carry out meaningful projects and develop real-world products (Brundiers & Wiek, 2013; Krajcik & Shin, 2014). Krajcik and Shin (2014). Project-based learning (PBL) is an active student-centered form of teaching characterized by student autonomy, constructive research, goal setting, collaboration, communication and reflection within real-world practices (Kokotsaki, Menzies & Wiggins, 2016). In project work, students obtain detailed information about the subject they are working on and organize the information they have acquired. The role of the teacher in this learning process is to manage and facilitate the process like an orchestra conductor. Project-based learning reveals very advanced cognitive skills (Çiftçi & Sünbül, 2006; Çiftçi, 2006). In this model, the teacher is helpful and directing, the student is autonomous and constructive, and at the end of each scenario, a realistic and student-developed product emerges (Kurnaz et al., 2005).

Project-based learning consists of three key concepts that have been carefully chosen to illustrate the form that education systems should take today. One of these concepts is the concept of learning, which is extremely important in terms of drawing attention to the learner, not the teacher. Another is the concept of project and project means design or design development, imagination, planning. This concept points to the understanding of projecting, that is, directing learning, and emphasizes relational learning for a specific purpose rather than singular learning (Erdem & Akkoyunlu, 2001; Kaşarçacı & Sünbül, 2011).

Project-based learning is a comprehensive approach to classroom teaching and learning

designed to involve students in the investigation of authentic problems (Phyllis et al., 1991). It has been studied in various contexts and at different stages of education, from primary to tertiary education (Grant and Branch, 2015; Holubova, 2008). PBL is often based on cross-cutting "design principles" regarding what is taught, how it is taught, and how students should be assessed in a PBL classroom. PBL design principles emphasize the importance of students as active participants in the construction of the project and knowledge as the central tool of instruction. There is little consensus among the developers of PBL design principles on how PBL fits into other teaching methods, how long a PBL unit should last, the roles of student selection and collaborative learning, and how learning should be evaluated (Hmelo-Silver, Duncan and Chinn, 2007; Hung, 2011).

Project-Based Learning Model is the right computer model, which motivates the active participation of the student, includes high-level cognitive activities, supports the use of a wide variety of tools and resources, handles lessons, social skills and life skills together. This model does not take the computer itself as a target and generally emphasizes the use of technology as a tool. It is also the basic teaching model of supported education applications. At the same time, Project-Based Learning is a teaching and learning model that aims to eliminate the problems caused by teaching the curriculum as a small chunk of independent information. This model focuses on the basic concepts and principles of one or more fields and covers the learning objectives of more than one course, if possible, within a course scenario (Demirel, 2004).

In a study by Chen & Yang (2019), the effects of PBL and teachers' direct instruction on students' academic achievement in primary, secondary, and higher education were compared. The results showed that PBL has a more positive effect on students' academic achievement than direct instruction (Blumenfeld et al., 1991; Helle, Tynjälä, & Olkinuora, 2006). However, it turned out that only 20% (6 out of 30) of the studies reviewed were conducted in higher education. There are six distinctive features of PBL, including focus on learning objectives, participation in educational activities, collaboration between students, use of

scaffolding technologies, and creation of tangible works. Among all these features, the creation of authentic problem-solving works, which distinguishes PBL from other student-centered pedagogies, for example problem-based learning, is the most important (Blumenfeld et al., 1991; Helle, Tynjälä, & Olkinuora, 2006). This creation process requires learners to work together to find solutions to unique problems in the process of knowledge integration, application and construction.

In another study, Ralph (2015) reviewed fourteen studies that adopted PBL in STEM education. It has been revealed that PBL not only increases the development of learners' knowledge and skills, but also improves their cooperation and negotiation skills within the group (Reis, Barbalho, & Zanette (2017). Reis, Barbalho, & Zanette (2017) reviewed PBL studies in engineering education by adopting bibliometrics such as keyword analysis and classifying research methods from the studies reviewed. The bibliometric results, for example, showed that the first three keywords used were related to project-based learning, engineering education, and problem-based learning (Reis, Barbalho, & Zanette, 2017).

Positive effects were found regarding the use of the PBL curriculum in science (Bağcı et al., 205a; Çınar et al., 2005; Holubova, 2008; Marx et al., 2004) and social studies courses (Summers and Dickinson, 2012) (Wirkala and Kuhn, 2011), mathematics (Holmes and Hwang, 2016) and language classes (Campbell, 2012; Shafaei and Rahim, 2015) evidence is more limited (Belland, Glazewski and Ertmer, 2009). It has been noted that mathematics teachers in particular find it difficult to integrate PBL into their teaching. Some studies conducted in schools following PBL approaches have indicated positive effects on students' participation, motivation, and belief in their own efficacy (Kaldi, Filippatou and Govaris, 2011; Creggan and Adair-Creggan, 2015). Although the specific PBL model and the intensity of its use differ between schools, there is a consensus on its positive effects, especially for improving research skills and knowledge (Bağcı, 2005b; Creggan and Adair-Creggan, 2015; Gözüm et al., 2005; Grant and Branch, 2005). The application and development of PBL as a

methodology not only increases motivation, attitudes and learning, but also supports the development of skills necessary for the 21st century (Bell, 2010; Petchamé, et al., 2020; Valls Pou, Canaleta & Fonseca, 2022).

The process steps in Project Based Learning can be summarized as follows:

1. Setting goals.
2. Identifying and defining the work to be done or the subject to be addressed.
3. Determination of necessary materials,
4. Formation of teams.
5. Determining the characteristics and presentation format of the final report.
6. Creation of the work schedule.
7. Determination of control points.
8. Determination of evaluation criteria and proficiency levels.
9. Collection of information.
10. Organizing and reporting information.
11. Presentation of the project (Demirel, 2004; Korkmaz, 2002; Helm, 2004; Preuss, 2002; Helm and Katz, 2000; Korkmaz and Kaptan, 2002; Moursund, 1999, Yılmaz and Sünbül, 2000).

To summarize, most of the studies reviewed in the literature are based on a quasi-experimental pretest-posttest design, in which some basic equivalences are established but the participants are not randomly assigned to the control and experimental groups, and as a result, a causal link cannot be established between PBL teaching and positive student outcomes (Petchamé et al., 2020; Valls Pou, Canaleta & Fonseca, 2022). In addition, it is thought that with the PBL approach, students' characteristics such as research, self-confidence, cooperation and responsibility, and socialization will be positively affected by the studies they have done both individually and in groups in music lessons. Again, it is thought that students will realize many learning products in cognitive, affective and psychomotor areas and gain gains with PBL supported music teaching. Experimental studies on project-based learning are reviewed with a focus on student outcomes. Affective outcomes (ie, perceptions of the benefits of PBL and perceptions of the PBL experience) were the most frequently performed studies and were

generally measured using questionnaires, interviews, observations, and self-report-based measurement tools. In research on PBL, cognitive learning products (i.e. knowledge and cognitive strategies) and behavioral outcomes (i.e. skills and participation) have mostly been measured by questionnaires, rubrics, tests, interviews, observation, self-reflection logs, projects, and diary data (Guo et al., 2020). However, it has been observed that a limited number of project-based learning is given in art education in general and in music education in particular. In fact, project-based learning is effective and necessary for music education, which is connected to the real world, requires the use of many resources, is equipped with knowledge and skills, requires a certain process, and results in a final product, and is necessary for the whole school in terms of eliminating the difficulties encountered in music education. It is a method that music teachers should apply frequently. In fact, in the attitude and achievement towards the music lesson; He states that many factors such as socioeconomic environment, musical environment at home, class level, self-perception, gender, curriculum, teaching approaches and methods used, past experiences with music lessons, teacher-student relationship, motivation, and interaction with other students play a role (Philips, 2003; Yagiz and Sünbül, 2009). For this purpose, the effect of project-based learning on cognitive and affective learning products in secondary school 6th grade music lessons were examined in this study. In relation to this purpose, answers were sought to the following questions:

- To what extent do project-based learning practices in secondary school 6th grades affect students' achievements in music lessons compared to the activities carried out according to the MEB program?
- To what extent do project-based learning practices in secondary school 6th grades affect students' attitudes towards music lessons compared to the activities carried out according to the MEB program?
- To what extent do project-based learning practices in secondary school 6th graders affect the retention of what is learned in the

music lesson compared to the activities carried out according to the MEB program?

## Method

In this study, the effect of the project-based learning approach applied in the 6th grade music lessons of the secondary school on the students' learning outcomes and their attitudes towards the music lesson was examined. Experimental design, one of the quantitative research methods, was used in order to generalize the results obtained in the study and to express them based on numerical data.

In this context, quasi-experimental design with pretest-posttest control group, which is one of the experimental design types, was used. As it is clear from the research problems, this project is an experimental study. However, the model of the study was determined as a quasi-experimental study, since it was not possible to randomly select the sample and assign to the groups. In cases where randomness cannot be achieved in experimental studies, semi-trial models can be used. The pattern used in this study is one of the semi-trial models. In this model, the experimental and control procedures of the study are applied to two groups selected as equal to each other. Within the framework of the design based on the hypothesis, 2 groups of students were studied as the experimental group (24 students) and the control group (24 students). In the study, the 6th grades in the secondary school, whose research permission was obtained in the 2021 fall semester, were screened when students were assigned to the experimental and control groups, and two equivalent classes were selected as the experimental and control groups. In the experimental group, music lessons were taught with project-based activities, while in the control group, activities were carried out on the basis of the teaching practice of the Ministry of National Education. Teaching activities were carried out by the same music teacher in both groups. The independent variable of the research is project-based teaching activities. The dependent variables of the research are the students' music lesson achievements and their attitudes towards the music lesson. In order to determine the

equivalence of the students and groups in the experimental group before the research in the experimental and control groups, the final grades of the previous semester were taken into account. Music lesson acquisition test and attitude scale towards music lesson were applied to the students in the experimental and control groups before (pre-test) and after (post-test) the research. The experimental design used in the research is presented in Table 1.

**Table 1.** Research method/design

Groups	Pre-test	Practice	Post-test	Permanence
Experimental Group	• Music Lesson Achievement Test • Music Attitude Test	Project Based Learning (6 Week)	• Music Lesson Achievement Test • Music Attitude Test	• Retention Test
Control Group	• Music Lesson Achievement Test • Music Attitude Test	Ministry of National Education Teaching Basis of Music Lesson Curriculum (6 Week)	• Music Lesson Achievement Test • Music Attitude Test	• Retention Test

## Experimental and Control Groups

The research was carried out in the 6th grades of a private secondary school in Mersin in the 2021-2022 academic year. Factors such as the school's administrators' permission to research, the school teachers' inclination to research processes, the suitability of the school environment for practice, the equal academic and socio-economic status of the students, and the willingness of the teachers and students to research were effective in the selection of the groups in the research process. In order to determine the experimental and control groups of the research, attention was paid to the general academic achievement of the students studying in all branches of secondary school in the previous academic year, their scores in music lessons, the observations of the instructors, the results of the music lesson practice exams and the distribution of the classes according to the gender variable. Two 6th grade groups, equivalent to each other in terms of all these variables, were determined for the applications in the experimental methods of the research. These two

branches were then randomly assigned as the experimental and control groups. The distribution of the experimental and control groups according to gender, achievement and pre-test scores is shown below.

**Table 2. Distribution of Students in Experimental and Control Groups**

Groups	Female	Male	Total
(Experimental Group)	12	10	22
(Control Group)	11	11	22
Total	23	21	44

As seen in Table 2, there are 12 girls and 10 boys in the experimental group of the study, and a total of 22 students, 11 girls and 11 boys, in the control group. 4 students in the experimental group and 5 students in the control group take special musical instruments courses.

Considering the professional background of the instructor who carried out the activities in the experimental and control groups in the research, he has 13 years of educational experience in primary, secondary and high school classes. During the implementation of the research, permissions were obtained from the teacher, the parents of the students, and the authors who developed the attitude scale towards the music lesson via e-mail.

### **Experimental Procedure and Program Implementation**

The experimental process for the experimental and control groups lasted for six weeks. Lessons continued in 90-minute segments. In total, a 12-hour training program was applied to the experimental and control groups. In the first week, all necessary explanations about the project were made to the experimental group, and all students were informed about how long it would take and how it would be evaluated. It was also stated to the participants that the results would be used for research purposes only.

At the beginning of the experimental process of the research, the 6th grade music acquisition test and the attitude scale towards music were applied simultaneously to the experimental and control groups as a pre-test. The distribution of the relevant training program applied in the

experimental and control groups after the pretests by weeks is as follows: The activity of recognizing the instruments used in the environment. In this context, students are surrounded by stringed (saz/bağlama, lute, law, tanbur, cümbüş, violin, etc.), wind (pump, flute, ney, tulum, etc.), percussive melody (santur, xylophone, metallophone, etc.), percussion and non-percussive. They scanned and introduced instruments (kudum, def, drum, spoon, cymbal, darbuka, castanyet, bendir, maracas, arbena, etc.) from internet sources. Students did practical activities about how these instruments are used. These two events lasted 3 weeks. Within the scope of the experimental procedures, in the 3rd and 4th weeks, the students performed the activity "Animating the events in the story they listened to using different materials, listening to music appropriate to the environment and exhibiting behaviors". In the 5th and 6th weeks in the groups, an activity was carried out to develop music taste and culture by listening to different types of music.

In summary, the experimental group performed the following steps of the project-based learning approach:

- Determining the objectives, determining and defining the work to be done or the subject to be discussed.
- Determining the necessary materials,
- Creation of teams and creation of work schedule.
- Determination of control points.
- Determination of evaluation criteria and proficiency levels. Collection of information.
- Determining the features and presentation format of the final report. Organizing and reporting information.
- Presentation of the project

The students in the control group, on the other hand, studied the same subjects in line with the achievements and instructions of the 5th grade music curriculum of the Ministry of National Education. At the end of the experimental procedures of the research, the 6th grade music lesson achievement test and the attitude scale towards the music lesson were applied to the experimental and control groups as a post-test on the same day. 15 days after the application of the

posttest, the music lesson achievement test was applied to both groups to obtain retention measurements.

### Survey Tools Used in the Research

In this study, 6th grade music lesson achievement test and attitude scale towards music lesson were used to collect data. Detailed information about these tests and scales is given below.

**Secondary School 6th Grade Music Lesson Achievement Test:** This is a multiple choice test (with 5 options) developed by the researcher to determine the achievements of 6th grade music lessons. In order to develop the test, the opinions of three experts, 2 academicians from the Music Teaching Department and 1 music teacher working in secondary schools, were consulted. Questions related to the achievements of the Secondary School Music Lesson Curriculum were prepared and presented to the opinions of the expert participants. In this context, 30 questions were included in the test with the approval of the experts. On the application results of the test, correct answers were scored as 1, whereas wrong answers were scored as 0. KR-20 reliability, item difficulty ( $p_j$ ), item standard deviation and item discrimination analyzes were performed on the pilot application data carried out before the research. As a result of the item analysis of the instrument recognition test, it was observed that the difficulty level ranged between 0.63 and 0.87. According to this finding, it was seen that the items in the instrument recognition test were perceived relatively easily by the students. In addition, the discrimination indices of the items in the acquisition test were calculated. This coefficient is important for the validity and distinctiveness of the items in the test. On the other hand, according to Yurt and Sünbül (2012), item discrimination coefficients should be 0.30 and above in an ideal test. According to the analyzes, the discrimination coefficients of the items in the music recognition test were found to be between 0.36 and 0.57. It can be said that this 5th grade acquisition test and its items have high discrimination. The KR-20 reliability of the music acquisition test was calculated as .89. This finding shows that the 6th

grade music acquisition test has high internal consistency and reliability.

**Attitude Scale Towards Music Lesson:** In the study, the attitude scale developed by Öztürk and Kalyoncu (2014) was used to determine the feelings, thoughts and tendencies of the 5th grade students about the music lesson. In the factor analysis of the scale, it was seen that the scale was unidimensional and explained 46% of the total variance. The developed scale consists of a 47-item 5-point Likert-type attitude question. The answers given to the questions range from positive to negative according to the options "strongly agree (5)", "strongly agree (4)", "partially agree (3)", "little agree (2)", "strongly disagree (1)" rated. For negative question roots, scoring was done in reverse. In order to determine the reliability of the scale, the Cronbach Alpha reliability coefficient was calculated and found to be .86. Analyzes on the scale show that the scale is valid and reliable. The lowest score that can be obtained from the scale is 25, and the highest score is 125. The closeness of the total score obtained from the scale to the highest-end score indicates the high level of positive attitude, and the closeness to the lowest-endpoint-point indicates the highness of the negative attitude. In addition, the scores obtained from the scale can be divided by the number of questions and statistical operations can be performed with the attitude score average.

**Application and Evaluation of Tests:** In the study, the secondary school 6th grade music lesson achievement test and the attitude scale towards the music lesson were applied to the experimental and control groups three times to take pretest, posttest and retention measures. In addition to the course teacher, the researcher took part in the test applications as a supervisor. A time of 2 lesson hours was given for the application of the test. In practice, it was observed that the time was sufficient. It was ensured that the students came to the lessons regularly on the practice days, and the test-taking was completed during the lesson hours following the end of the experimental applications.

## Quantitative Data Analysis Techniques

The data obtained from the research were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows 25.0 program. Before analyzing the research data, it was tested whether it met the assumptions of normal distribution. The conformity of the data from the music lesson attainment test and the attitude scale towards the music lesson to the normal distribution was evaluated with the Shapiro Wilk test. According to Shapiro Wilk analysis, it was seen that the pretest-posttest data of the music lesson achievement test and the attitude scale towards the music lesson did not meet the assumptions of normal distribution. For this reason, Non-Parametric statistical techniques were used in the analysis of the research data. In this context, Mann Whitney U and Wilcoxon test techniques were used.

## Findings

**Table 3. Comparison of Music Lesson Achievement Test Pretest Scores of 5th Class Students**

Group	N	Mean Rank	Sum of Ranks		
Pretest Achievement	Experimental Group	20	20,20	404,00	-0,659 0,510
	Control Group	22	22,68	499,00	
	Total	42			

Table 3 shows the results of the comparison of the music lesson achievement pretest scores of the 5th grade secondary school students according to the experimental control groups. According to the Mann Whitney U test analysis, a Z value of 0.569 was calculated between the music lesson achievement pretest scores of the two groups. According to these findings, no significant difference was found between the pretest scores of the experimental control groups. At the beginning of the experimental process of the research, it was observed that the participants in the experimental and control groups had an equivalent level of musical attainment.

**Table 4. Comparison of Music Lesson Achievement Test Posttest Scores of 5th Grade Students**

Group	N	Mean Rank	Sum of Ranks		
Posttest Achievement	Experimental Group	20	26,53	530,50	-2,541 0,011
	Control Group	22	16,93	372,50	
	Total	42			

Table 4 shows the results of the comparison of the music lesson achievements posttest scores of the 5th grade secondary school students compared to the experimental control groups. According to Mann Whitney U test analysis, 2,541 Z value was calculated between the music lesson achievement posttest scores of the two groups. According to this finding, a significant difference was found between the posttest scores of the experimental control groups. In the study, it was observed that the students in the experimental group achieved significantly higher music lesson achievement score rankings.

**Table 5. Comparison of 5th Grade Students' Attitude Scale Pretest Scores Towards Music Lesson**

Group	N	Mean Rank	Sum of Ranks		
Pretest Achievement	Experimental Group	20	18,60	372,00	-1,647 0,099
	Control Group	22	24,14	531,00	
	Total	42			

Table 5 shows the results of the comparison of the pretest scores of the 5th grade secondary school students for the music lesson compared to the experimental control groups. According to the Mann Whitney U test analysis, a Z value of 1.64 was calculated between the two groups' attitude scores towards the pretest music lesson. According to these findings, no significant difference was found between the pretest attitude scores of the experimental control groups. At the beginning of the experimental process of the research, it was seen that the attitudes of the participants in the experimental and control groups towards the lesson were equal and moderate.

**Table 6. Comparison of 5th Grade Students' Attitude Scale Posttest Scores Towards Music Lesson**

Group	N	Mean Rank	Sum of Ranks		
Posttest Achievement	Experimental Group	20	28,03	560,50	-3,363 0,001
	Control Group	22	15,57	342,50	
	Total	42			

Table 6 shows the results of the comparison of the posttest scores of the 5th grade secondary school students' attitudes towards the music lesson compared to the experimental control groups. According to Mann Whitney U test analysis, a Z value of 3.363 was calculated between the posttest

attitude scores of the two groups. According to this finding, a significant difference was found between the posttest attitude scores of the experimental control groups. In the study, it was seen that the students in the experimental group achieved a significantly higher level of attitude score rankings towards the music lesson.

**Table 7. Comparison of 5th Grade Students' Music Lesson Outcomes Retention Test Scores**

	Group	N	Mean	Sum of		
			Rank	Ranks		
Retention	Experimental Group	20	25,63	512,50	-2,082	0,037
	Control Group	22	17,75	390,50		
	Total	42				

Table 7 shows the results of the analysis performed on the retention test scores of the participants in the experimental and control groups, administered 15 days after the posttest. According to the Mann Whitney U test analysis, a Z value of 2,082 was calculated between the retention test scores of the two groups. According to this finding, a significant difference was found between the retention test scores of the experimental control groups. In the study, it was seen that the students in the experimental group achieved a significantly higher level of music lesson retention score rankings.

### Discussion, Conclusion and Suggestions

When the post-test music achievements between the groups in which the project-based learning method was applied and the groups in which the current curriculum of the Ministry of National Education was applied were examined, significant differences were found in favor of the experimental group in which the project-based learning method was applied. The students in the experimental group got higher scores than their peers in the experimental group in terms of knowledge, comprehension, application, and analysis-synthesis level gains. These findings include Bağcı (2005), Campbell (2012), Holubova (2008), Holmes and Hwang (2016), Marx et al. (2004), Shafaei and Rahim (2015), Summers and Dickinson (2012), and Wirkala and Kuhn (2011) are similar to the findings of their research. According to Paul, Binker, Martin, and Adamson (1995), the project-based learning approach provides children

with the opportunity to question and recognize the world with their own potentials and abilities, so that children with different talents (such as mathematical, verbal, musical) can reach the highest level in accordance with their individual characteristics. level of inclusion in education. This situation also contributes to the realization of multi-faceted gains in art classes. In the project approach, it is aimed to increase the knowledge and experience of children on a selected subject in depth through active participation methods. Students develop their skills on an interdisciplinary learning basis by participating in and implementing projects.

According to another finding of the research, it was observed that students' attitudes towards music lessons improved as a result of the project work. Participating students got significantly higher posttest attitude scores than their friends in the control group. These findings are similar to the research findings of Akın (2016), Çiftçi (2006), Kaşarcı (2013), Korkmaz and Kaptan (2002), Kucharski et al. (2005), Toci (2000) and Valls Pou, Canaleta and Fonseca (2022). A good learning-teaching environment shows students how to learn, how to use and integrate knowledge into life, how to think, how to develop interests and skills. In this context, the approaches to be used in the learning-teaching environment should aim to develop the student as a whole. Students will be successful in the lessons they are happy, actively participating in the learning-teaching process, and adopting (Korkmaz & Kaptan, 2002). In this context, the project-based learning approach, which includes very rich activities, contributed to the students' development of positive attitudes towards music.

The last finding of the research is about the music learning permanence of the 5th grade students at the end of the project-based learning application. According to the research findings, students in the experimental group achieved significantly higher music learning permanence compared to their peers in the control group. These findings are similar to the research findings of Alioğlu (2014), Çınar et al. (2005), Çiftçi (2006), Çiftçi and Sünbül (2006), Kaşarcı and Sünbül (2011) and Uzun (2007). According to Diffily and Sassman (2002), students experience a learning

experience where every knowledge and experience they gain with motivation and enthusiasm can equip them with permanent learning and life skills. It is known that project-based group work also positively supports social communication, empathy and many affective learning products. In addition, it is the basic teaching model of direct "computer-assisted education" applications, emphasizing the use of technology as a tool in education. From the perspective of the students' roles in the project work, during the project work, the students use all the knowledge they have gained so far, they come up with some ideas individually and as a group, they decide which topic, which method they can work on, which member in the group can do what, and how they will share what they have learned with others. All these activities increase their learning permanence. Similarly, Sezgin (2008) stated in his research that "Students' knowledge increases, their ideas about the project-based learning approach change, they work harder when compared to other courses, they are active, they acquire more information, and they think that the information learned in this way is more permanent, learning by rote rather than rote learning. It has been concluded that they have the opportunity to research the subjects that fall within their fields of interest.

As a result, it has been observed that project-based teaching practices in secondary school music lessons have significant and positive effects on students' course achievements, attitudes and learning persistence. In addition, according to the observations of the researcher, the activities on the basis of project-based learning saved the students from the understanding of education that tried to fill too much information in the minds of the students, provided the students with the research processes, the multi-faceted perspective on music, the life models of musicians, sharing and solidarity with peers, and the satisfaction of creating products for students. In this context, based on the results of the study;

- The presence of project corners in music classes and the provision of necessary equipment in the project workshops will

contribute to the effective implementation of this approach.

- While the project activities are being implemented, the music course curriculum and the course hours to be allocated to the projects should be prepared by considering the duration of the process steps of the projects. A suitable environment should be prepared in the project workshops for students who cannot complete their project within the prescribed time intervals and students should be directed to these workshops.
- Adequate infrastructure regarding the approach should be provided for students and teachers in music lesson practices to be carried out according to the project-based learning method.
- It is recommended that music lesson teachers make their studies an interdisciplinary structure by getting help from other teachers in the studies they carry out according to the project-based learning method.
- Since the project-based learning method applications require a long time, the weekly lesson hours of the music lesson are insufficient in terms of realizing the gains of the lesson. In this context, the course hours can be increased during the implementation of this approach.
- Finally, this study was carried out with an experimental model, students' perceptions and expectations about project-based applications; It is recommended to conduct qualitative and mixed-model studies using observation and product evaluation techniques to test the quality of learning products.

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