



## An Investigation into the Effects of the Quantum Learning Model on Middle School Students' Achievement and Attitudes Towards Music Lessons\*

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Article Information	ABSTRACT
Received: 22.09.2025	This study investigated the effect of the Quantum Learning Model (QLM) on the academic achievement levels and attitudes toward music lessons among middle school students. In the research, a quantitative method—specifically the <i>pretest-posttest control group design</i> —was employed. The implementation process was conducted with two sixth-grade classes in a public middle school located in the Altıeylül district of Balıkesir Province. The classes were randomly assigned to either the experimental or control groups. The quantitative data were coded and analyzed using SPSS 22.0 statistical software. The study's findings revealed that music instruction based on the Quantum Learning Model significantly enhanced students' academic achievement and their attitudes toward music lessons. In light of these results, it is recommended that future research adapt the QLM to other learning domains and outcomes included in the music curriculum. Furthermore, planning school music lessons in accordance with the fundamental implementation steps of the QLM is considered to have the potential to improve the quality and effectiveness of learning processes.
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### 1. INTRODUCTION

Music is not merely a form of art; it is also a universal educational tool that supports individuals' emotional, cognitive, and social development in a holistic manner. Music education is a structured and goal-oriented instructional discipline. The primary aim of this discipline is to enable individuals to acquire theoretical knowledge and practical skills related to music, enhance their aesthetic sensitivity, and support their emotional, cognitive, and social development in a multifaceted manner (Zhan, 2025, p. 2). Music is regarded as an art form that has a profound and lasting impact on human life, supporting comprehensive individual development. Particularly during childhood, music serves as an essential tool that strengthens various developmental domains (Yapalı et al., 2025, p. 22). Therefore, music education policies should be designed to ensure effective and lasting learning (Öztuğ, 2012, p. 119).

In music education, it is essential to design a learning environment that extends beyond traditional teaching methods by providing students with interactive and experiential learning opportunities. Considering the lasting and multidimensional effects of music on individuals' cognitive, affective, and social development, integrating the Quantum Learning Model (QLM) with its multidimensional, holistic, and student-centered approach into music education is expected to make learning processes not only academically effective but also more meaningful, motivating, creative, and emotionally engaging.

QLM is recognized as an instructional model that has been implemented in classroom environments and whose effectiveness has been demonstrated. Initially proposed in the 1980s by psychotherapy professor Dr. Georgi Lozanov, the model was later developed by Bobbi DePorter. QLM is a learning model that helps students comprehend instructional materials in the most

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effective way possible, significantly enhancing their academic achievement. It also provides a comfortable learning environment that can increase students' motivation (DePorter et al., 1999, p. 15).

Quantum learning is defined as the interactions that transform energy into brilliance. At the same time, life consists entirely of energy, and our physical body is composed of matter. The purpose here is to experience light as much as possible through inspiration, connection, and interaction. With this type of energy, a vivid and dynamic form of energy can be produced (DePorter & Hernacki, 1992, p. 18).

QLM incorporates numerous models whose effectiveness has been validated and provides examples of their classroom application. In this respect, it shares methodological similarities with many other instructional models. However, the fundamental distinction of QLM is its openness to all approaches, ensuring mastery learning (Altn, 2018, p. 12).

One of the most essential advantages of QLM in the learning process is that it facilitates instructional activities in a comfortable and enjoyable classroom environment. Such an environment allows students the freedom to gain new experiences and explore throughout the learning process. Meaningful learning experiences support students' academic achievement and the development of their creative potential (Lestari & Rhokhayati, 2024, p. 60).

Structurally, there are significant similarities between QLM and music education. Both adopt dynamic and creative approaches that contribute positively to learning processes. Each discipline fosters innovative thinking and, therefore, plays a crucial role in education. Particularly in music education, creativity is considered the fundamental aim and the desired outcome of all musical activities. Learning the language of music is essential to express our individual creative needs in the best possible way. Creativity is one of the core components of musical experience (Gray, 1960, p. 58).

In a study conducted by Karsono (2016), QLM was chosen as a learning model to create a more enjoyable learning environment in music education. The findings revealed that the application of QLM in music classes provided students with engaging and enjoyable learning experiences. A review of the literature shows that there are insufficient research studies directly examining the relationship between QLM and music education. This indicates that the existing body of knowledge is quite limited. Therefore, this study is considered significant in that it reveals the potential contributions of QLM to music education, examines innovative approaches it may introduce to learning processes, and offers a new perspective that addresses the existing gap in the field. Moreover, the findings are expected to guide both educators and researchers, serving as a foundation for future studies.

Accordingly, this research examines the effects of music lessons taught through QLM on students' academic achievement and attitudes.

From this perspective, the research problem can be expressed as follows:

Does the Quantum Learning Model affect middle school students' music education achievement and their attitudes toward music lessons?

Based on this central research question, the following sub-problems have been formulated:

1. Is there a significant difference between the pre-test achievement score means of the experimental and control groups?
2. Is there a significant difference between the post-test achievement score means of the experimental and control groups?
3. Is there a significant difference between the pre-test and post-test achievement score means of the experimental group?
4. Is there a significant difference between the pre-test and post-test achievement score means of the control group?
5. Is there a significant difference between the pre-test attitude score means of the experimental and control groups?
6. Is there a significant difference between the post-test attitude score means of the experimental and control groups?
7. Is there a significant difference between the pre-test and post-test attitude score means of the experimental group?
8. Is there a significant difference between the pre-test and post-test attitude score means of the control group?

The hypothesis formulated for this study is that when QLM is applied to the experimental group, students' achievement in music lessons will increase, and their attitudes toward music education will improve positively.

## 2. METHODOLOGY

In this study, an experimental design, a quantitative research method, was employed. In an experimental study, researchers define a sample. They may generalize the results to a population, thereby testing the effect of an experimental intervention by controlling all external factors that may influence the outcome (Creswell, 2017, p. 156). This research was designed using a true-experimental design within the framework of experimental research. Specifically, the pretest-posttest control group randomized design, one of the experimental design types, was utilized.

According to Kerlinger (1973), this design is defined as a structure in which participants are randomly assigned to experimental and control groups, and measurements are taken both before and after the experimental manipulation (X) (Büyüköztürk, 2016, p. 20).

In a pretest-posttest control group randomized design, the inclusion of a control group allows for the prevention of threats to internal validity. Since errors originating from other sources, such as history, maturation, regression to the mean, testing, and

instrumentation, affect the control group to the same extent as the experimental group, their impact on the results obtained from both groups is assumed to be equivalent. Therefore, it becomes possible to attribute the differences between the results of the experimental and control groups to the experimental variable or treatment itself (Kaptan, 1998, p. 83).

The Ethics Committee of Gazi University reviewed and unanimously approved this study during its meeting on June 20, 2023, held under number 12.

## 2.1. Population and Sample

The population refers to the groups the researcher believes best represent the phenomenon or situation under investigation. It consists of large clusters that contain various elements and a broad data scope (Miles & Huberman, 1994). There are two types of populations: the target population and the accessible population. The target population is the abstract group the researcher aims to reach, though it is often difficult to access. In contrast, the accessible population refers to the realistic and concrete group that the researcher can achieve.

In this study, the accessible population was selected, and schools in the Altıeylül district of Balıkesir Province were determined as the population. The sampling method employed was simple random sampling, a type of probability sampling technique. Simple random sampling involves selecting the required individuals from the population list (Robson, 2015, p. 335).

The sample of the study consists of 46 students from two 6th-grade classes, each with 23 students, at Zağnospaşa Secondary School in the Altıeylül district of Balıkesir Province during the 2023–2024 academic year. Among the classes that returned the parental consent forms, simple random assignment was used to determine the groups: Class 6-G was assigned as the experimental group, and Class 6-D was assigned as the control group.

## 2.2. Implementation

The experimental phase of the research began on September 27, 2023, and concluded on November 1, 2023. The intervention lasted for 7 weeks, encompassing a total of 14 lesson hours. Each week included one 80-minute session (comprising two 40-minute class periods) for both the experimental and control groups. The researcher personally conducted the music classes. Since classroom teachers typically deliver music lessons at the primary school level, conducting the study at the secondary school level was deemed more appropriate, where music specialists lead lessons. Therefore, 6th-grade students were selected for the implementation process.

The instructor arrived 20 minutes before each lesson in the experimental group to prepare the classroom environment. Fresh flowers were placed in the classroom in advance. The desks were arranged in a U-shape, and relevant materials, including Orff instruments and educational posters, were positioned according to the subject to be taught. The classroom was ventilated before students arrived, and background music was played. Since Zağnospaşa Secondary School did not have a dedicated music room, the instructor brought their electronic keyboard (organ) to each class to establish a productive music-learning environment. The implementation in the experimental group was scheduled during the first two lesson hours of the school day. Due to time constraints, specific activities were completed in the subsequent lesson in some weeks.

The lesson plans were designed based on the “Musical Perception and Cognition” learning domain of the 6th-grade music curriculum. The targeted learning outcomes included: using basic elements of musical notation, recognizing vocal changes during adolescence, and understanding how the human voice is produced. The course content was planned according to the Quantum Learning Cycle, which consists of the following stages: "Enroll, Experience, Label, Demonstrate, Review, and Celebrate." A table was developed to align the Quantum Learning Model (QLM) skills and techniques with the relevant learning outcomes at each stage of the cycle. Based on this alignment, a sample lesson implementation table was created to guide the instruction.

A sample implementation table is presented below.

### Music Lesson Plan Aligned with the Quantum Learning Model

#### Primary Education – 6th Grade

**Learning Domain:** Musical Perception and Knowledge

**Learning Outcome:** Uses basic musical notation and elements

**Topic:** Notes within the low C–high C range

**Methods and Techniques:** Mirroring, rhythmization, listening, singing, creating

**Duration:** 40+40 minutes

Table 1.  
Sample Application Table of the Quantum Learning Framework

Skills Organization	Enroll	Experience	Label	Demonstrate	Review	Celebrate
Quantum Reading						
Quantum Writing						
Speed Writing Technique						
Clustering Technique						
Quantum Memory						
Effective Note-Taking						
8 Keys of Excellence						
Communication Skills				X		
Problem Solving			X	X	X	X
Leadership						
Responsibility				X	X	X
Motivation	X	X				X
Self-Confidence	X	X		X	X	X
Outdoor Lesson						

**Lesson Preparation:** The classroom is well-ventilated, and the desks are arranged in a “U” shape, allowing each student to see the teacher easily. Flowers and colorful cushions are placed in the classroom to ensure that students feel safe, comfortable, and at home. Large, colorful cards illustrating the notes within the low C–high C range, which will be taught during the lesson, are prepared in advance and placed on the board.

**Enroll:** The teacher vocalizes the notes, which are paired with body movements, according to their pitch. Then, the notes associated with the body movements are demonstrated to the class using the mirroring technique, creating an interactive lesson environment.

**Low C:** stomp the foot/ **D:** tap the knees / **E:** clap at stomach level/ **F:** tap the belly/ **G:** snap fingers /

**A:** clap at chest level/ **B:** cross arms/ **High C:** raise and lower arms from above

**Experience:** The teacher draws students’ attention to the notes displayed on the board and asks them which notes they already know. Students are then asked to identify and point out the notes they recognize on the prepared cards.

**Label:** After explaining the functions of the staff, notes, and treble clef displayed on the board, students are asked what they think these elements resemble in real life (e.g., staff as the sea, treble clef as a ship, or other associations such as road, car, cloud, rain, etc.).

**Demonstrate:** The teacher explains the pitches of the notes in detail, along with their relationships to one another. Then, using the cards displayed on the board as examples, students are invited to come to the board one by one and write the notes requested by the teacher.

Next, the teacher divides the class into groups and gives each group a sheet of paper with a blank staff. The groups are asked to write the notes of their choice on the distributed sheets. At this stage, only quarter notes (1-beat notes) are used for examples, and students are asked to write only eight notes. Afterwards, the notes written by each group are performed together with a school instrument, accompanied by the teacher.

**Review:** Using the aural/oral teaching method, the “Dumlupınar March,” written in the key of C major, is taught to the class. After the entire class has learned the song, the notes are written on the board. Discussions and a question-and-answer session are conducted about the notes, and then the music is performed again, incorporating the notes as discussed.

**Celebrate:** The teacher divides the class into four groups and asks each group to create different body movements to accompany the song they have learned. Groups take turns coming to the board to perform the song with their assigned movements. Afterwards, the entire class applauds each group, celebrating their performances and learning achievements.

## 2.3. Data Collection Tools

### 2.3.1. Music Knowledge Achievement Test for 6th Grade Music Course

As one of the data collection tools in the study, the "6th Grade Music Knowledge Achievement Test" developed by Öztürk and Kalyoncu (2020) was utilized. The test initially consisted of a 25-item multiple-choice question pool, created based on predefined content areas. Expert review ensured content validity, and revisions were made accordingly to form a draft version. Following item analysis conducted using responses from 220 students via Excel, five items were removed, resulting in a final version of 20 items. The test demonstrated acceptable reliability, with a KR-20 coefficient of 0.77, a mean difficulty index of 0.57, and a mean discrimination index of 0.44.

Construct validity was examined to confirm the current validity and reliability of the test used in this study. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were conducted to assess the suitability of the data for factor analysis.

### 2.3.2. Attitude Scale for Musical Experiences of Children Aged 10 to 13

Another data collection tool used in the study was the "Attitude Scale Towards Musical Experiences of Children Aged 10–13," developed by Okay, Ataman, and Kardeş (2021). The original scale included 13 items. The initial exploratory factor analysis (EFA) set a minimum factor loading threshold of 0.50 to ensure item strength. One item (Item 10) fell below this threshold and was removed. A revised EFA confirmed a three-factor structure explaining 59.84% of the total variance. The final 12-item scale demonstrated high internal consistency, with a Cronbach's Alpha coefficient of 0.860.

To reaffirm the scale's validity and reliability for this study, construct validity was re-evaluated. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were conducted to assess the suitability of the data for factor analysis.

## 2.4. Data Analysis

The collected data were coded and analyzed using IBM SPSS 22.0 (The Statistical Package for the Social Sciences) software. In the study, tests were conducted to determine whether there were significant differences in the achievement and attitude scores of 6th-grade students between the pre-test and post-test, with a 95% confidence interval and a p-value of 0.05.

Normality tests were conducted to determine which statistical tests to use for comparing achievement and attitude scores. According to Mayers (2013), if the sample size is  $n \geq 50$ , the Kolmogorov-Smirnov test is used for normality testing; if  $n < 50$ , the Shapiro-Wilk test is preferred. Since the study had 46 participants, the Shapiro-Wilk normality test was used to assess the normality of the distribution.

Parametric tests were employed for comparisons within the study design framework and sub-problems. The Independent Samples t-test was used for between-group comparisons, and the Paired Samples t-test was applied for within-group comparisons. Using the Independent Samples t-test, the mean scores of the experimental and control groups on their pre-tests and post-tests were compared to determine whether there was a significant difference between the two groups. The Paired Samples t-test was used to compare the mean scores of the pre-test and post-test within the experimental and control groups separately, to assess whether significant differences existed within each group over time.

## 3. FINDINGS

The findings related to the study's sub-problems are presented below.

### 3.1. Findings Regarding the Difference Between the Achievement Scores and the Mean Achievement Scores of the Experimental and Control Groups

Table 2.

*Independent Samples t-Test Results for Pre-Test Achievement Scores of Experimental and Control Groups*

Pre-Test	Group	n	$\bar{x}$	ss	sd	t	p
Achievement Scores	Experimental	23	.4348	.14494	44	-.940	.352
	Control	23	.4761	.15290			

According to Table 2, when the arithmetic mean scores of the 23 students in the Experimental group and the 23 students in the Control group were compared in the pre-test achievement test, no statistically significant difference was found [ $t(44) = -0.940$ ,  $p = 0.352 > .05$ ]. The arithmetic mean score of the Experimental group was ( $\bar{x} = 0.4348$ ), while the Control group's arithmetic mean score was ( $\bar{x} = 0.4761$ ).

### 3.2. Findings Regarding the Difference Between the Post-Test Achievement Scores and Mean Achievement Scores of the Experimental and Control Groups

Table 3.

*Independent Samples t-Test Results for Post-Test Achievement Scores of Experimental and Control Groups*

	Group	n	$\bar{x}$	ss	sd	t	p
Post-Test Achievement Scores	Experimental	23	.5527	.21946	44	1.340	.187
	Control	23	.4717	.18939			

According to Table 3, when examining the arithmetic mean scores of the post-test achievement test for the Experimental group (n = 23) and the Control group (n = 23), no statistically significant difference was found [t(44) = 1.340, p = .187 > .05]. However, when comparing the arithmetic mean scores of both groups, the Experimental group's mean score ( $\bar{x} = .5527$ ) was observed to be higher than that of the Control group ( $\bar{x} = .4717$ ).

### 3.3. Findings Regarding the Difference Between the Pre-Test and Post-Test Achievement Scores and Mean Achievement Scores of the Experimental Group

Table 4.

*Paired Samples t-Test Results for Pre-Test and Post-Test Achievement Scores of the Experimental Group*

	Test	N	$\bar{x}$	ss	sd	t	p
Experimental Group Achievement Test Pre-Test and Post-Test	Pre-test	23	.4348	.14494	22	-3.239	.004*
	Post-test	23	.5527	.21946			

\*p<.05

According to Table 4, when examining the arithmetic mean scores of the pre-test and post-test achievement tests for the experimental group consisting of 23 participants, a statistically significant difference was observed [t(22) = -3.239, p = .004 < .05]. The arithmetic mean score of the experimental group in the pre-test was  $\bar{x} = 0.4348$ , while the arithmetic mean score in the post-test increased to  $\bar{x} = 0.5527$ .

### 3.4. Findings Regarding the Difference Between the Pre-Test and Post-Test Achievement Scores and Mean Achievement Scores of the Control Group

Table 5

*Paired Sample t-Test Results for the Difference in Pre-Test and Post-Test Achievement Scores of the Control Group*

	Test	N	$\bar{x}$	ss	sd	t	p
Control Group Achievement Test Pre-Test and Post-Test	Pre-test	23	.4761	.15290	22	.118	.907
	Post-test	23	.4717	.18939			

According to Table 5, when examining the arithmetic mean scores of the pre-test and post-test achievement tests for the control group, consisting of 23 participants, no statistically significant difference was observed [t(22) = 0.118, p = 0.907, p > .05]. The arithmetic mean score of the control group in the pre-test was  $\bar{x} = 0.4761$ , which is close to the post-test arithmetic mean score of  $\bar{x} = 0.4717$ .

### 3.5. Findings Regarding the Difference Between the Pre-Test Attitude Levels and Mean Attitudes Toward Musical Experience of the Experimental and Control Groups

Table 6.

*Independent Samples t-Test Results for the Difference in Pre-Test Attitudes of the Experimental and Control Groups*

Attitude	Group	n	$\bar{x}$	Ss	sd	t	p
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Experimental	23	2.2899	.27279	44	.916	.365
Control	23	2.1884	.45589			

According to Table 6, when examining the pre-test attitude score means of the experimental group, consisting of 23 participants, and the control group, composed of 23 participants, the arithmetic mean value of the experimental group was  $\bar{x}=2.2899$  and that of the control group was  $\bar{x}=2.1884$ . No statistically significant difference was found between the pre-test attitude score means [ $t(44) = 0.916, p = 0.365 > .05$ ].

### 3.6. Findings Regarding the Difference Between the Post-Test Attitude Levels and Mean Attitudes Toward Musical Experience of the Experimental and Control Groups

Table 7.

*Independent Samples t-Test Results for the Difference in Post-Test Attitudes of the Experimental and Control Groups*

	Group	n	$\bar{x}$	ss	Sd	t	p
Attitude	Experimental	23	2.5362	.31565	44	2.556	.014*
	Control	23	2.2717	.38289			

\* $p < .05$

According to Table 7, when examining the differences in post-test attitude score means between the experimental group, consisting of 23 participants, and the control group, composed of 23 participants, the arithmetic mean of the experimental group was  $\bar{x}=2.5362$ . In contrast, that of the control group was  $\bar{x}=2.2717$ . A statistically significant difference was found between the post-test attitude score means [ $t(44) = 2.556, p = .014 < .05$ ].

### 3.7. Findings Regarding the Difference Between the Pre-Test and Post-Test Attitude Levels and Mean Attitudes Toward Musical Experience of the Experimental Group

Table 8.

*Paired Samples t-Test Results for the Difference in Pre-Test and Post-Test Attitudes of the Experimental Group*

	Test	n	$\bar{x}$	ss	sd	t	p
Experimental Group Pre-Test – Post-Test	Pre-Test	23	2.2899	.27279	22	-2.828	.010*
	Post-Test	23	2.5362	.31565			

\* $p < .05$

According to Table 8, when examining the difference in mean scores between the pre-test and post-test of the experimental group, which consisted of 23 participants, the arithmetic mean of the pre-test was  $\bar{x}=2.2899$ . In contrast, the post-test mean was  $\bar{x}=2.5362$ . A statistically significant difference was found between the pre-test and post-test attitude score means [ $t(22) = -2.828, p = .010 < .05$ ].

### 3.8. Findings Regarding the Difference Between the Pre-Test and Post-Test Attitude Levels and Mean Attitudes Toward Musical Experience of the Control Group

Table 9.

*Paired Samples t-Test Results for the Difference in Pre-Test and Post-Test Attitudes of the Control Group*

	Test	n	$\bar{x}$	ss	sd	t	p
Control Group Pre-test – Post-test	Pre-Test	23	2.1884	.45589	22	-.671	.509
	Post-Test	23	2.2717	.38289			

According to Table 9, when examining the difference between the pre-test and post-test mean scores of the control group consisting of 23 participants, it is observed that the arithmetic mean of the pre-test is  $\bar{x} = 2.1884$ , while the post-test mean is  $\bar{x} = 2.2717$ . The analysis indicates that there is no statistically significant difference between the pre-test and post-test attitude scores [ $t(22) = -0.671, p = .509 > .05$ ].

## 4. RESULTS, DISCUSSION, AND RECOMMENDATIONS

This study investigated the impact of the Quantum Learning Model (QLM) on the academic achievement and attitudes of middle school students in music classes. The results, discussion, and recommendations based on the findings are presented below.

- As a result of the research, it was concluded that music lessons conducted using the QLM positively impacted students' academic achievement.

Upon reviewing the literature, it becomes apparent that numerous studies have been conducted on the QLM and its applications in various disciplines. In Yıldız's (2024) master's thesis titled *"The Effect of the Quantum Learning Model on Students' Academic Achievement in 5th Grade Social Studies Course,"* it was found that QLM improved students' academic achievement. Similarly, in another master's thesis titled *"The Effect of Science Education Based on the Quantum Learning Model on the Academic Achievement and Scientific Process Skills of 5th Grade Students"* by Erkoç (2019), it was concluded that QLM-based instruction had a positive effect on students' academic achievement and scientific process skills in science lessons.

In the study by Azzahra et al. (2025), titled *"The Effect of the Quantum Learning Model on Social Studies Learning Outcomes of Grade V Elementary School Students,"* the effectiveness of QLM in enhancing achievement in social studies was attributed to the model's ability to engage all the students' senses and create an interactive and enjoyable learning environment. Additionally, the use of positive reinforcement and motivational components within the model was found to have beneficial effects on student motivation and academic success.

This research aligns with findings from studies in other disciplines, collectively indicating that the QLM contributes to improved student achievement.

In various other studies in the literature, Lestari and Rhokhayati (2024), in their research titled *"Application of the Quantum Learning Model Assisted with Audio Visual Media to Improve Tembang Dolanan's Singing Skills of Students at SD Negeri 1 Sukomangu,"* concluded that the QLM can effectively enhance students' singing skills. In another study titled *"The Application of Quantum Computing in Music Composition,"* Lee and Yang (2024) found that quantum algorithmic composition integrates music, art, and technology, offering new theoretical and practical approaches to music composition.

In this context, the current research findings and existing literature support the conclusion that music lessons conducted using the Quantum Learning Model have a positive impact on student achievement.

The Quantum Learning Model is a holistic approach that addresses learning through cognitive, affective, psychomotor, and social dimensions. The model increases student engagement and intrinsic motivation by emphasizing meaningful learning experiences and active participation. It supports learning retention and is an effective tool for academic success among contemporary educational approaches.

- It was found that music lessons conducted using the QLM positively affect students' attitudes.

When reviewing other studies in the literature, Şimşek (2016), in his master's thesis titled *"The Effect of the Quantum Learning Model on Academic Achievement, Attitude Towards Science and Technology Course, Motivation, and Knowledge Retention,"* concluded that QLM had a positive impact on academic achievement, attitude, motivation, and knowledge retention in science and technology classes. Wahyudi et al. (2019), in their article *"The Effectiveness of Information Service with Quantum Learning Models Using Music to Improve Student Learning,"* reported that QLM incorporating music effectively enhanced students' learning motivation. In Akman Mağaracı's (2025) doctoral dissertation titled *"The Effect of Quantum Learning-Based English Teaching on Academic Achievement and Foreign Language Learning Anxiety,"* it was determined that providing students with freedom of movement within the learning environment, facilitating effective communication, easy access to materials, group work, and artistic and autonomy-supportive applications such as background music contributed to psychological comfort during the teaching process. This indicates that the QLM is not limited to a specific subject or content but is similarly effective across various disciplines.

Within this scope, attention is drawn to the positive effects of QLM on music and science, foreign language learning, and other disciplines, including learning attitudes, motivation, and achievement. Therefore, these findings, which demonstrate the interdisciplinary applicability of QLM and the effectiveness of student-centered teaching approaches, are consistent with the current study and support the conclusion that music lessons conducted using the QLM positively influence students' attitudes. It has become increasingly challenging to capture students' interest and maintain their motivation towards lessons using traditional teaching methods. Therefore, it is essential for teachers to stay current with new programs and training, and to implement various teaching methods beyond the conventional approach, making their lessons more effective and lasting. In Classroom Management (KÖM), the preparation of the environment and atmosphere, such as bringing live plants to the lesson, using colorful cushions in the classroom, airing the classroom before students arrive, playing Baroque music, and posting materials related to the lesson topics on the board beforehand, holds significant importance in organizing the lesson setting and design. Incorporating this entire lesson design into the learning process positively affects students' comfort within the school environment and their learning outcomes. Designing student environments constitutes a crucial dimension of learning that enhances students' motivation towards the lesson, positively influences their attitudes towards the course, and improves their academic success. Based on this information, it is likely that students who develop a positive attitude towards a lesson will also achieve success in it. In the study titled "The Effect of Attitude towards Social Studies Course on Achievement" by Tay and Akyürek Tay (2006), research on attitudes revealed a significant relationship between students' school achievement and their attitudes. Similarly, in the study "The Effect of Classroom Climate and Attitude on English Course Achievement" by Candan Hamurcu and Orman (2023), attitude towards the course was a significant predictor of success. Upon reviewing the above studies, it is evident that students' attitudes towards the course and their academic success demonstrate a parallel relationship. In this regard, the research findings are consistent with each other.

Classroom Management QLM, with its profound philosophical foundation, offers a multifaceted and development-oriented learning environment that values individuality and enables learners to enjoy the learning process while achieving lasting results. Preparing lesson plans through implementing KÖM and designing lessons with careful attention to the environment, atmosphere, and layout will enhance students' perspectives toward the course and positively impact their academic achievement.

Based on the research findings, the following recommendations have been proposed:

1. It has been observed that music lessons conducted using Classroom Management QLM positively affect students' achievement and attitudes in music courses.
  - In this context, it is recommended that the instructional process of music lessons conducted in schools be structured by considering the implementation steps of QLM. Additionally, providing in-service training to teachers on this model may enhance the effectiveness of its application.
2. QLM's importance on the classroom environment, spatial arrangement, and learning atmosphere positively influences students' attitudes toward the lesson.
  - Therefore, it is recommended that classroom environments be arranged with aesthetic, colorful, and attention-grabbing materials (e.g., live plants, music listening corners, bright cushions, instrument corners, etc.) to capture students' interest and make them feel valued. Additionally, audiovisual materials that increase student participation should also be supported.
3. No significant changes in students' achievement levels and attitudes have been observed in music lessons taught using traditional methods.
  - This indicates that memorization-based and teacher-centered approaches limit students' learning motivation and interest in the lesson. Therefore, especially in teaching theoretical subjects such as "musical perception and awareness" in music lessons, supporting instruction with interactive, practical, and contemporary methods can enhance students' academic success and foster positive attitudes towards the subject. Additionally, it is recommended that internationally recognized music teaching models (e.g., Orff, Kodály, Dalcroze) be integrated with QLM.
4. The study is limited to the learning outcomes within the domain of "musical perception and awareness," which include using basic music notation and elements, understanding the formation of the human voice, and recognizing the voice change characteristics during adolescence.
  - In future studies, the effects of QLM should also be examined on other learning areas and outcomes included in the music curriculum, and how the model performs across different content areas should be investigated.
5. The study was conducted exclusively with 6th-grade students. However, due to its flexible structure and incorporation of multiple learning approaches, KÖM is adaptable to all age groups and educational levels.
  - Therefore, the effects of the model should be evaluated by implementing it across different grade levels. Additionally, the model's long-term impact should be examined through extended applications.

### Research and Publication Ethics Statement

Throughout the research process, the researchers conformed to all ethical standards. The data collected from the participants have not been used outside the scope of the present study, and the reporting process was also carried out in accordance with the guidelines for research ethics.

The Ethics Committee of Gazi University reviewed this study at its meeting on June 20, 2023, and numbered 12. The committee unanimously approved the conduct of the study.

### Contribution Rates of Authors to the Article

The first author was responsible for the study's conceptual framework, data collection, analysis process, and interpretation. The second author contributed to the study design, determination of the overall framework, and final approval of the manuscript.

### Statement of Interest

There is no conflict of interest.

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