

Application of Multimodal Teaching in Junior High School English Vocabulary Instruction

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Abstract

Background: Multimodal teaching is a teaching method that combines multiple sensory and media resources to enhance students' learning experience and effectiveness by integrating visual, auditory, tactile, and other modalities. Junior high school English vocabulary instruction is an important part of English teaching, but traditional methods often lack vividness and interactivity, making it difficult to meet the diverse learning needs of students. **Objective:** The study aims to explore the application effects of multimodal teaching in junior high school English vocabulary instruction. **Methods:** This study adopts the teaching case method, selecting an English class from the second grade of junior high school in city N as the research object, with a total of 30 students aged between 13 and 14. Data collection methods include classroom observation, interviews, and tests. **Results:** The students' average pre-test score was 33.47, and the average post-test score was 43.47. Paired sample t-test results indicated that the difference was statistically significant (t -statistic = -17.03, $p < 0.05$). Students had a positive attitude towards multimodal teaching, considering it more interesting than traditional methods, and believed it better stimulated their learning interest and improved their vocabulary memory and application ability. **Conclusion:** This study reveals the significant effects of multimodal teaching in junior high school English vocabulary instruction. By combining multiple sensory and multimedia resources, multimodal teaching significantly enhances students' vocabulary memory and application abilities, boosting their learning interest and confidence. Through scientific design and implementation of multimodal teaching, teachers can significantly improve students' vocabulary learning outcomes, laying a solid foundation for their English learning.

Keywords

Multimodal Teaching; Junior High School English; Vocabulary Instruction; Learning Outcomes; Teaching Strategies.

1. Introduction

Multimodal teaching is a teaching method that combines multiple sensory and media resources[1]. Its core concept is to enhance students' learning experience and effectiveness by integrating various modalities (such as visual, auditory, tactile, etc.). With the development of information technology and the advancement of educational concepts, multimodal teaching has gained widespread attention and application globally[2]. Multimodal teaching is not limited to traditional text and oral forms but also includes images, audio, video, interactive multimedia, and other forms[3]. These elements complement and reinforce each other, creating a rich and diverse learning environment. In educational research, many scholars have pointed out that multimodal teaching helps improve students' cognitive abilities and learning outcomes. Through multimodal teaching, students can use different sensory channels to acquire and process information, thereby deepening their understanding and memory of knowledge[4]. Images and videos can help students visualize abstract concepts, audio and music can enhance the fun and appeal of learning, and interactive multimedia can provide instant feedback and

personalized learning experiences. These advantages make multimodal teaching increasingly valued in modern education.

Junior high school English vocabulary teaching is an important part of English instruction. Vocabulary is the foundation of language learning and a necessary element for students to engage in listening, speaking, reading, and writing activities[5]. For junior high school students, vocabulary learning is not just about mastering the spelling and pronunciation of words but also understanding their meanings and usage so they can use them flexibly in real communication. However, traditional vocabulary teaching methods often rely on rote memorization, lacking vividness and interactivity, which leads to low student interest and unsatisfactory memory effects.

Currently, junior high school English vocabulary teaching faces some challenges. The expansion rate of students' vocabulary cannot keep up with the demands of language learning[6]. Since vocabulary memory requires repeated practice and application, a single teaching method cannot meet the diverse learning needs of students. Traditional vocabulary teaching lacks contextualization and practicality, making it difficult for students to use the learned vocabulary in real contexts, which significantly reduces the effectiveness of vocabulary learning[7]. The cognitive abilities and learning styles of junior high school students differ greatly from those of adults, as they tend to prefer more intuitive and concrete ways of learning abstract language knowledge.

This study aims to explore the application effects of multimodal teaching in junior high school English vocabulary instruction. Through empirical research methods, this study will analyze how multimodal teaching can be effectively implemented in junior high school English vocabulary teaching and evaluate its impact on students' vocabulary learning. By comparing the effects of traditional teaching methods with those of multimodal teaching, the study aims to reveal the potential advantages of multimodal teaching in improving students' vocabulary memory and application abilities.

2. Literature Review

2.1. Theoretical Foundation of Multimodal Teaching

2.1.1. Multimodal Learning Theory

Multimodal learning theory posits that humans acquire and process information through multiple senses, including visual, auditory, and tactile, thereby forming a comprehensive understanding and memory of knowledge[8]. This theory emphasizes the importance of multisensory interaction in the learning process. According to multimodal learning theory, presenting information through different modalities can enhance learners' understanding and memory because different modalities can complement and reinforce each other[9]. For example, the combination of pictures and text can help students better understand and remember vocabulary, and the use of audio and video can increase the fun and engagement of learning.

2.1.2. Core Elements and Implementation Strategies of Multimodal Teaching

The core elements of multimodal teaching include diverse teaching resources and multisensory engagement. In actual teaching, teachers can use various resources such as pictures, videos, audio, and interactive software to capture students' attention and stimulate their interest in learning[10]. In terms of implementation strategies, teachers need to design multimodal teaching activities based on the teaching content and the specific conditions of the students[11]. For instance, in vocabulary teaching, teachers can use pictures and audio to introduce words, show the actual usage scenarios of the words through videos, and conduct vocabulary practice and reinforcement through interactive games and activities.

2.2. Existing Research on Junior High School English Vocabulary Teaching

Traditional methods of junior high school English vocabulary teaching mainly rely on rote memorization and repetition, where students learn the spelling and pronunciation of words through mechanical memorization[12]. However, this method often lacks fun and interactivity, leading to low student interest and poor memory retention. Traditional teaching methods often ignore the practical application and contextualization of vocabulary, making it difficult for students to use the learned words flexibly in real language communication, thus limiting the practicality and effectiveness of vocabulary learning.

In recent years, more and more research has begun to focus on the application of multimodal teaching in vocabulary instruction[12]. Some studies have shown that multimodal teaching can effectively improve students' vocabulary memory and application ability[13]. By combining various modalities such as pictures, videos, and audio, students can understand the meaning of words more intuitively and practice and reinforce them through interactive activities. Multimodal teaching can also increase students' interest and enthusiasm for learning, encouraging them to actively participate in the learning process.

3. Research Methods

3.1. Research Design

This study adopts a case study approach, selecting junior high school English vocabulary teaching as the research subject, aiming to explore the application effects of multimodal teaching in actual classrooms[14]. The case study method is suitable for deeply investigating complex educational phenomena, revealing the impact of multimodal teaching on students' vocabulary learning through detailed descriptions and analyses of individual cases. This study will comprehensively evaluate the implementation process and effects of multimodal teaching through various data collection and analysis methods.

3.2. Research Subjects

This study selected an English class from the second grade of junior high school in N City as the research object. The class consists of 30 students, aged between 13 and 14. These students are at an elementary level of English proficiency, primarily learning basic vocabulary and sentence patterns through the school's English curriculum. To ensure the representativeness and validity of the study, the selection of research subjects considered factors such as gender ratio and academic performance, ensuring the diversity and balance of the sample. The basic information of the research subjects is as follows:

Number of students: 30 (15 boys and 15 girls)

Age: 13 to 14 years old

English proficiency: Elementary (based on the school's English curriculum standards)

3.3. Data Collection Methods

To comprehensively evaluate the application effects of multimodal teaching in junior high school English vocabulary instruction, this study employs various data collection methods, including classroom observation, interviews, and tests.

Classroom Observation: Classroom observation is one of the primary data collection methods in this study. By directly observing the implementation process of multimodal teaching in actual classrooms, the study records teachers' teaching strategies, student participation, and classroom interactions. This study adopts a systematic observation method, setting specific observation indicators in each class, such as the types of multimodal resources used by teachers, students' reactions and engagement, and the frequency of classroom interactions. The

observation data will be recorded in observation forms to ensure the systematicity and reliability of the data.

Interviews: Interviews are another important data collection method in this study. By interviewing students, the study aims to understand their views and experiences regarding multimodal teaching. Group interviews will be conducted with several groups, each consisting of 5 to 6 students. The interview questions include: the degree of students' preference for multimodal teaching, their perception of the benefits of multimodal teaching for vocabulary learning, and their learning experiences in multimodal classrooms. The interview content will be recorded and transcribed to ensure the authenticity of the data.

Tests: To evaluate the impact of multimodal teaching on students' vocabulary mastery, this study designed pretests and posttests. The pretest is conducted before the implementation of multimodal teaching to assess students' initial level of vocabulary mastery. The posttest is conducted after the completion of multimodal teaching to assess students' mastery of the same vocabulary.

Pretest: The test content includes the spelling, pronunciation, and meaning of the target vocabulary that students need to master. The test duration is 30 minutes.

Posttest: The test content is the same as that of the pretest and is used to assess students' mastery of the vocabulary after multimodal teaching. The test duration is also 30 minutes.

The design of the pretest aims to assess students' initial mastery of the target vocabulary before the start of multimodal teaching. The test content includes:

- 1) **Spelling:** Students are required to correctly spell the target vocabulary.
- 2) **Pronunciation:** Students' ability to correctly pronounce the target vocabulary is assessed.
- 3) **Word Meaning:** Students' understanding of the meaning of the vocabulary and their ability to use it in appropriate contexts are checked.

The scoring criteria for each part are as follows:

Spelling: 1 point for each correctly spelled word; no points for incorrect spelling.

Pronunciation: 1 point for each correctly pronounced word; no points for incorrect pronunciation.

Meaning: 1 point for each correctly understood word meaning; no points for incorrect understanding.

Assuming the test includes 20 target vocabulary words, each word has a total score of 3 points (1 point each for spelling, pronunciation, and meaning), making the maximum score for each student 60 points.

The design of the posttest is the same as that of the pretest, assessing students' mastery of the same target vocabulary after the completion of multimodal teaching. By comparing the scores of the pretest and posttest, the study evaluates the impact of multimodal teaching on students' vocabulary learning.

3.4. Data Analysis Methods

The data analysis mainly focuses on the test data. Through statistical analysis, the study compares the pretest and posttest data to evaluate the impact of multimodal teaching on students' vocabulary mastery. Descriptive statistics are used to calculate the mean and standard deviation of the pretest and posttest scores. Paired sample ttests are used to compare the differences between the pretest and posttest scores to assess the actual effects of multimodal teaching. By combining qualitative and quantitative analyses, this study aims to comprehensively reveal the application effects of multimodal teaching in junior high school English vocabulary instruction and provide specific suggestions and guidance for educational practice.

4. Research Results

4.1. Description of the Implementation Process of Multimodal Teaching

In this study, multimodal teaching was implemented through the integration of various sensory and media resources. In the classroom, images and diagrams were used to help students understand and memorize the spelling and meaning of vocabulary. Pictures of the target vocabulary were displayed, and students were helped to deepen their memory through multiple repetitions and associations. Pronunciation recordings of the target vocabulary were played, allowing students to listen and mimic repeatedly to improve their pronunciation accuracy. Audio resources also included short passages or dialogues related to the vocabulary to help students understand the usage of vocabulary in context. Short videos were used to show the actual application scenarios of the vocabulary. Animated videos demonstrated the usage of words, helping students understand the meaning and usage of vocabulary more intuitively. Interactive activities were also designed, such as vocabulary games, group discussions, and role-playing, encouraging students to use the learned vocabulary in real situations. Through these interactive activities, students were able to reinforce their vocabulary memory and improve their practical application skills.

4.2. Analysis of the Effects of Multimodal Teaching

4.2.1. Changes in Students' Vocabulary Memory and Application Ability

According to descriptive statistical data, multimodal teaching significantly improved students' vocabulary mastery (Table 1):

Table 1. Students' Scores Before and After.

Indicator	Pre-test	Post-test
Mean	33.47	43.47
SD	8.16	7.65

The results of the paired sample t-test (Table 2) indicate that the differences between the pre-test and post-test are highly statistically significant ($P < 0.05$). This demonstrates that multimodal teaching has a significant effect on enhancing students' vocabulary memory and application abilities. After multimodal teaching, the durability and accuracy of students' vocabulary memory have significantly improved, enabling them to better use the learned vocabulary in real communication.

Table 2. Paired Sample t-test

Index	Value
<i>t</i>	-17.03
<i>p</i>	1.22E-16

4.2.2. Students' Attitudes and Feedback on Multimodal Teaching

Through interviews and classroom observations, it was found that students generally have a positive attitude towards multimodal teaching. They find multimodal teaching to be more interesting and engaging compared to traditional teaching methods. Multimodal teaching stimulates students' interest in learning through diverse teaching resources and interactive activities, making them more focused and engaged in the classroom. Students reported that the combination of various modalities such as images, audio, and video helped them understand and remember vocabulary more deeply and durably. Interactive activities and real-life

application scenarios enabled students to use the learned vocabulary more flexibly in real communication, boosting their confidence.

Multimodal teaching not only improved students' vocabulary memory and application abilities but also enhanced their interest and enthusiasm for learning, providing an effective teaching method for elementary school English vocabulary instruction.

5. Discussion

The findings of this study indicate that multimodal teaching has a significant positive effect on junior high school English vocabulary teaching[15]. By combining images, audio, video, and interactive activities, multimodal teaching can effectively enhance students' vocabulary memory and application abilities[16]. Students in the multimodal teaching environment showed higher learning interest and enthusiasm, and were able to better understand and use the vocabulary they learned. This finding has important implications for junior high school English vocabulary teaching, suggesting that multimodal teaching can be an effective teaching strategy to help teachers improve students' vocabulary mastery and learning experience.

Consistent with many studies that indicate multimodal teaching can improve students' learning outcomes and interest, this study also found that multimodal teaching significantly enhances students' vocabulary memory and application abilities[17]. Existing research also points out that multimodal teaching enhances students' learning experience and understanding through multisensory engagement and diverse resources[18]. Some studies may focus more on the application effects of multimodal teaching in different subjects or grades, while this study focuses on the specific application in junior high school English vocabulary teaching. Although the overall results are consistent, the specific teaching strategies and implementation details may differ. Additionally, this study provides detailed quantitative data on the effects of multimodal teaching, which may not be as explicitly supported by data in some literature.

Based on the findings of this study, the following specific suggestions and strategies are provided for teachers to effectively apply multimodal teaching in junior high school English vocabulary instruction:

- 1) Teachers should make full use of various resources such as images, audio, video, and interactive multimedia to design rich and diverse teaching activities. Use pictures and videos to introduce new vocabulary, practice pronunciation through audio, and reinforce vocabulary memory through interactive games and activities.
- 2) Design more interactive activities in the classroom, such as group discussions, role-playing, and vocabulary games, encouraging students to use the learned vocabulary in real-life contexts. This not only helps with vocabulary memory but also improves students' practical application abilities and confidence.
- 3) Adjust the content and forms of multimodal teaching according to the different learning needs and levels of students. Use technology to provide personalized learning materials and feedback, helping each student achieve the best results in vocabulary learning.
- 4) Continuously evaluate the effects of multimodal teaching through regular tests and classroom observations, and adjust teaching strategies in a timely manner. Teachers should pay attention to students' feedback, understand their learning experiences and needs, and continuously improve and optimize multimodal teaching.

Multimodal teaching provides an effective and innovative teaching method for junior high school English vocabulary instruction. Through the scientific design and implementation of multimodal teaching, teachers can significantly enhance students' vocabulary learning outcomes, laying a solid foundation for their English learning.

6. Conclusion

This study aims to explore the application effects of multimodal teaching in junior high school English vocabulary instruction, revealing its potential advantages in enhancing students' vocabulary memory and application abilities. By combining images, audio, video, and interactive activities, multimodal teaching can effectively enhance students' learning experience and outcomes. The study results show that multimodal teaching significantly improves students' vocabulary mastery and has a significant effect on enhancing the durability and accuracy of students' vocabulary memory, enabling students to better use the learned vocabulary in real communication.

Through interviews and classroom observations, it was found that students generally have a positive attitude towards multimodal teaching. They find multimodal teaching to be more interesting and engaging compared to traditional teaching methods, stimulating their learning interest and increasing their classroom participation and initiative. Students reported that the combination of various modalities such as images, audio, and video helped them understand and remember vocabulary more deeply and durably. Interactive activities and real-life application scenarios enabled students to use the learned vocabulary more flexibly in real communication, boosting their confidence. Through the scientific design and implementation of multimodal teaching, teachers can significantly enhance students' vocabulary learning outcomes, laying a solid foundation for their English learning.

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