

# Design and Application of Multimodal Teaching Resources in English Major Teaching

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**Abstract:** *In recent years, the application of multimodal teaching resources in English major teaching has attracted increasing attention. This paper aims to explore the design and application of multimodal teaching resources, and through theoretical analysis and practical cases, reveal their role in enhancing teaching effectiveness, promoting student autonomous learning, and cooperative learning. The research shows that multimodal teaching resources can not only enrich teaching content and enhance students' learning experiences but also effectively improve students' learning motivation and language proficiency. This paper first outlines the basic theory of multimodal teaching resources, then details the design principles and methods of multimodal teaching resources in English major teaching, as well as the specific steps of resource development. Finally, through practical application cases, it analyzes the specific applications and effects of multimodal resources in classroom teaching, autonomous learning, and cooperative learning.*

**Keywords:** *Multimodal teaching resources, English major teaching, design and application, classroom teaching, autonomous learning, cooperative learning*

## 1. Introduction

Today, with the rapid development of information technology, multimodal teaching resources have gradually become an important part of modern education. Traditional single-modal teaching resources can no longer meet the diverse learning needs of contemporary students. Multimodal teaching resources integrate text, images, audio, video, and other modalities to provide a richer and more interactive learning experience. Especially in English major teaching, the multidimensional nature of language learning makes the application of multimodal resources particularly important. Through systematic research on the design and application of multimodal teaching resources, this paper explores their role in improving teaching quality and student learning outcomes.

## 2. Basic Theory of Multimodal Teaching Resources

### 2.1 Overview of Multimodal Theory

Multimodal theory is the theoretical basis for utilizing multiple modes in communication and learning. Modes refer to the various symbol systems and meaning-making methods used in communication and expression, including but not limited to language, images, sound, and gestures. Multimodal theory emphasizes the synergistic interaction between different modes, integrating multiple modes to enhance the effectiveness of information transmission and learning experiences.

The origin of multimodal theory can be traced back to the 1970s. With the rapid development of computer and information technology, multimodal research has gradually become a research hotspot in disciplines such as linguistics, education, and communication. Traditional teaching methods often rely on a single mode of information transmission, such as plain text or oral explanations. This limited approach to information transmission often fails to fully engage students' multisensory participation. In contrast, multimodal theory advocates for the integration of text, images, audio, video, and other modes to provide richer, more intuitive, and interactive learning materials, thereby enhancing learning outcomes.<sup>[1]</sup>

In multimodal teaching, different modes can complement and reinforce each other. For example, when teaching English pronunciation, teachers can combine audio and video resources to help students

better grasp pronunciation techniques through dual visual and auditory stimulation. Similarly, when teaching complex grammar structures, teachers can use charts, animations, and real-life demonstrations to help students understand and remember. Additionally, multimodal resources can enhance student engagement and learning motivation through interactive designs such as online quizzes and discussion forums.

The application of multimodal theory is not limited to classroom teaching but also shows great potential in online education, self-directed learning, and blended learning. Through multimodal resources, teachers can provide students with personalized learning paths and diverse learning experiences to meet the learning needs of different students. Furthermore, the application of multimodal resources provides teachers with new teaching tools and methods, enhancing the flexibility and innovativeness of teaching.

In conclusion, multimodal theory provides education with a new perspective and method by integrating multiple modes to enrich teaching content and forms, enhance information transmission effectiveness, and ultimately improve teaching quality and student learning outcomes. This theory not only drives the development of educational technology but also provides important theoretical support for the innovation and transformation of future education.

## ***2.2 Characteristics of Multimodal Teaching Resources***

Multimodal teaching resources have several prominent characteristics

**Diversity:** Multimodal teaching resources integrate various media forms such as text, images, audio, video, and animations, providing rich learning materials. This diversity not only meets the needs of students with different learning styles and preferences but also enhances learning effectiveness through stimulation of multiple senses.

**Interactivity:** Multimodal teaching resources are usually interactive, allowing students to actively participate in the learning process. For example, interactive videos, online quizzes, virtual experiments, etc., can increase students' sense of participation and engagement, enhancing learning enthusiasm.

**Accessibility:** The widespread application of multimodal teaching resources on online platforms enables students to learn anytime, anywhere. This convenience not only extends the time and space of learning but also enables personalized learning. Students can learn at their own pace, greatly enhancing the flexibility of learning.

**Usability:** The design of multimodal teaching resources usually emphasizes user experience, providing students with a convenient and intuitive operating interface and friendly user interaction. This usability reduces technological barriers, enabling more students to benefit from multimodal teaching resources.

## ***2.3 Framework of Multimodal Teaching Theory***

The framework of multimodal teaching theory mainly includes the following aspects:

**Modal Integration Theory:** Modal integration theory explores how to effectively integrate different modes to maximize teaching effectiveness. In this framework, the mutual support and complementarity between different modes are considered crucial for enhancing learning outcomes. For example, combining text and images can enhance understanding and memory, while combining audio and video can provide a more vivid learning experience.

**Multimodal Resources and Cognitive Theory:** The application of multimodal teaching resources needs to consider students' cognitive load. Cognitive load theory believes that, in the learning process, the presentation of information should minimize students' cognitive burden and avoid information overload. Multimodal resources, by distributing information across different modes, can effectively reduce the information load of a single mode, thereby enhancing learning efficiency.

**Principles of Multimodal Resource Design:** The design of multimodal teaching resources needs to follow certain principles to ensure their effectiveness. The principle of goal-oriented teaching requires that the design of resources should closely align with teaching goals, ensuring that the content and form of resources serve the achievement of learning objectives. The learner-centered principle emphasizes that resource design should focus on the needs and characteristics of students, providing personalized and adaptive learning experiences. The principle of interactivity and participation emphasizes enhancing students' participation and learning initiative through interactive design.

The framework of multimodal teaching theory provides theoretical guidance for the design and application of multimodal teaching resources, emphasizing the synergistic interaction of different modes to enhance teaching effectiveness and student learning outcomes. This framework not only contributes to the development of theoretical research but also provides practical guidance for the design of multimodal resources in actual teaching.

### **3. Design of Multimodal Teaching Resources in English Major Teaching**

#### ***3.1 Design Principles and Methods***

When designing multimodal teaching resources, a series of principles and methods should be followed to ensure the effectiveness and applicability of the resources. These principles and methods not only guide the development process of resources but also provide a theoretical basis and operational framework for their application in teaching.

##### ***3.1.1 Teaching Objective-Oriented Principle***

The teaching objective-oriented principle requires that the design of multimodal teaching resources should be closely aligned with specific teaching objectives. The selection and use of each resource should clearly demonstrate its role in achieving teaching objectives. For example, in teaching English pronunciation, video resources can be used to demonstrate mouth shape and vocal position, combined with audio resources to strengthen auditory stimulation, to help students accurately grasp pronunciation techniques.<sup>[2]</sup>

##### ***3.1.2 Learner-Centered Principle***

The learner-centered principle emphasizes that when designing multimodal teaching resources, the needs, characteristics, and learning styles of learners should be fully considered. Different students have differences in cognitive abilities, learning interests, and background knowledge. Therefore, resource design should provide personalized and adaptive learning experiences as much as possible. For visual learners, for example, more images and videos can be used, while for auditory learners, more audio and explanatory content should be added.

##### ***3.1.3 Interactivity and Participation Principle***

The principle of interactivity and participation requires that the design of multimodal teaching resources should focus on interactive design to enhance student engagement and involvement. By designing interactive elements such as online quizzes, interactive videos, and virtual experiments, students can maintain an active state during the learning process, enhancing learning effectiveness. Interactive design not only enhances the fun of learning but also helps students correct errors in a timely manner and consolidate learned knowledge through real-time feedback.

##### ***3.1.4 Operability and Ease of Use Principle***

The principle of operability and ease of use emphasizes that the design of multimodal teaching resources should be simple and easy to use, with a friendly interface. Complex operations and cumbersome interfaces increase the learning burden of students and affect learning effectiveness. Therefore, resource design should focus on user experience, providing intuitive operation interfaces and clear usage guidelines to help students quickly get started and smoothly conduct learning.

#### ***3.2 Development Steps of Multimodal Resources***

The development of multimodal teaching resources is a systematic project that requires multiple steps to ensure the quality and applicability of the resources. The following are the main steps of developing multimodal resources:

##### ***3.2.1 Needs Analysis***

Needs analysis is the foundation of developing multimodal resources. Firstly, the teaching objectives and tasks need to be clarified, and the difficulties and key points of teaching content need to be understood. Secondly, research on students' learning needs and characteristics, collecting data on students' learning habits, interests, and cognitive levels. The analysis in this stage provides a scientific basis for the subsequent resource design.<sup>[3]</sup>

### **3.2.2 Resource Collection and Screening**

After clarifying the teaching needs, resource collection and screening are needed. Resources can be obtained from existing teaching resource libraries, the internet, professional publications, etc. The collection of resources should pay attention to their quality, copyright, and applicability. Afterwards, according to the teaching objectives and requirements, the collected resources are screened, retaining high-quality resources that meet the requirements.

### **3.2.3 Resource Integration and Optimization**

The screened resources need to be integrated and optimized. The integration process includes organically combining resources of different modes to form complete teaching units. For example, text explanations, image examples, and video demonstrations can be integrated into a multimedia courseware. At the same time, optimize the presentation of resources to ensure their high quality in technology and content. Optimization work also includes localizing resources to adapt to the specific teaching environment and student groups' needs.

### **3.2.4 Interaction Design and Technical Implementation**

Interaction design is a key link in the development of multimodal resources. Based on the integration of resources, design various interactive elements such as quizzes, discussion areas, and virtual experiments. Through technical means, embed these interactive elements into resources to enhance the learning experience. Technical implementation needs to consider factors such as platform compatibility, user-friendly operation, and resource loading speed to ensure the efficient operation of resources.

### **3.2.5 Resource Testing and Evaluation**

After the development of resources is completed, testing and evaluation are needed. Through small-scale trials, collect feedback from students and teachers to identify problems and deficiencies in the resources. Based on the feedback, further modify and improve the resources. The evaluation work should include a comprehensive consideration of the teaching effectiveness, student satisfaction, and ease of operation of the resources to ensure that the resources ultimately achieve the expected teaching results.<sup>[4]</sup>

The design and development of multimodal teaching resources is a complex and innovative work that requires a close integration of theoretical guidance and practical verification. By following scientific design principles and systematic development steps, the quality of multimodal teaching resources can be effectively improved, providing strong support for English major teaching.

## **4. Application of Multimodal Teaching Resources in English Major Teaching**

### **4.1 Application of Multimodal Resources in Classroom Teaching**

In classroom teaching, the application of multimodal teaching resources can effectively enrich teaching content and enhance teaching effectiveness. Specific application methods include the following aspects:

#### **4.1.1 Pre-class Preview**

Multimodal resources can help students effectively preview before class. Teachers can pre-publish video explanations, audio-recorded lecture notes, or interactive courseware, so that students can have a preliminary understanding of the upcoming learning content before class. This not only improves the efficiency of classroom teaching but also enables students to enter the classroom with questions, thereby enhancing the quality of classroom interaction.

#### **4.1.2 Classroom Presentation and Interaction**

In the classroom, multimodal resources provide teachers with various display methods, such as using PPT combined with images, videos, and audio in multiple forms to make the teaching content more vivid and intuitive. In addition, teachers can use interactive whiteboards, click interactions, and other tools to enhance interaction between teachers and students. For example, through instant voting, online Q&A, etc., teachers can understand students' grasp of the content in real-time and provide targeted explanations.

#### **4.1.3 Classroom Activities**

Multimodal resources have unique advantages in designing classroom activities. For example, teachers can simulate real situations through video case analysis, role-playing, etc., to help students

understand complex language phenomena and cultural backgrounds. Interactive multimedia courseware can also be designed with activities such as games and group discussions to enhance student engagement and learning interest.

#### ***4.2 Application of Multimodal Resources in Self-directed Learning***

The application of multimodal resources in self-directed learning can greatly improve students' autonomy and learning effectiveness. Specific application methods include:

##### ***4.2.1 Autonomous Learning Platform***

The application of multimodal resources provides students with a rich autonomous learning platform. Students can choose learning content and progress autonomously through online course platforms such as MOOCs, micro-courses, and MOOCs. The platform usually provides various resources such as video explanations, audio materials, interactive exercises, etc., to meet the learning needs of different students.

##### ***4.2.2 Personalized Learning Paths***

Multimodal resources can provide personalized learning paths for students. Through intelligent learning systems, analyze students' learning data and recommend learning resources and tasks suitable for their level and interests. For example, through Learning Management Systems (LMS), students can independently select video courses, e-books, interactive exercises, etc., according to their progress and interests, forming a personalized learning path to enhance learning effectiveness.

##### ***4.2.3 Learning Feedback and Assessment***

Another important application of multimodal resources in self-directed learning is to provide real-time learning feedback and assessment. After completing online exercises, quizzes, or assignments, students can immediately receive feedback from the system, including correct answers, error analysis, and learning suggestions. This instant feedback mechanism not only helps students discover and correct errors in a timely manner but also stimulates their learning motivation, promoting continuous improvement.<sup>[5]</sup>

#### ***4.3 Application of Multimodal Resources in Collaborative Learning***

The application of multimodal resources in collaborative learning provides students with more opportunities for interaction and collaboration, enhancing learning effectiveness and teamwork skills. Specific application methods include:

##### ***4.3.1 Group Collaboration and Task Allocation***

In collaborative learning, multimodal resources can help students collaborate and allocate tasks. Teachers can divide students into groups through online platforms and assign different learning tasks. Each group can use multimodal resources, such as shared documents, online discussion forums, video conferences, etc., for collaborative learning and task completion. This approach not only enhances students' teamwork skills but also improves the efficiency and effectiveness of learning.

##### ***4.3.2 Interactive Tools and Collaboration Platforms***

Multimodal resources provide rich interactive tools and collaboration platforms for collaborative learning. For example, students can use collaboration software such as Google Docs, Microsoft Teams, etc., for real-time collaboration and communication. Through video conferences, online discussions, file sharing, etc., students can communicate and collaborate anytime, anywhere, breaking the limitations of time and space, and enhancing the effectiveness of collaborative learning.

##### ***4.3.3 Evaluation and Optimization of Collaborative Learning Effects***

Multimodal resources can also be used to evaluate and optimize the effects of collaborative learning. Teachers can monitor students' learning progress and collaboration through online platforms, providing real-time feedback and guidance. For example, by analyzing students' participation and quality of discussions in online forums, completion of collaborative projects, etc., teachers can identify problems in a timely manner, provide targeted advice and support, and help students optimize the process and effects of collaborative learning.

The application of multimodal teaching resources in English major teaching not only enriches teaching methods and enhances teaching effectiveness but also provides students with a more

personalized and interactive learning experience. By designing and effectively applying multimodal resources, students' learning interest and potential can be greatly stimulated, and their autonomy and teamwork skills can be cultivated, thereby achieving higher-level educational goals.<sup>[6]</sup>

## 5. Conclusion

This article systematically investigates the theoretical foundation, design methods, and practical application of multimodal teaching resources, revealing their important value in English major teaching. The research finds that multimodal teaching resources can not only effectively enhance students' learning motivation and language abilities but also promote the deep integration of classroom teaching, self-directed learning, and collaborative learning. Although the application of multimodal teaching resources has achieved certain results, it still faces some challenges in practical operation, such as insufficient technical support and high resource development costs.

Future research should focus on the following directions: first, further improve the design theory and methods of multimodal teaching resources to enhance the practicality and usability of resources; second, strengthen empirical research on the application effects of multimodal teaching resources, quantitatively analyze and evaluate their specific impact on student learning outcomes; third, explore more diversified application scenarios of multimodal resources to promote their wide application in different educational fields. In addition, with the continuous advancement of technology, the introduction of new technologies such as artificial intelligence and virtual reality will bring more possibilities for innovative applications of multimodal teaching resources.

## References

- [1] Deng Ye, Shi Ya. *Research on the Application of Multimodal in College English Vocabulary Teaching under the Digital Background* [J]. *Journal of Xingyi National Normal College*, 2024, (02):95-100.
- [2] Cui Ying. *Multimodal Teaching Practice of High School English from Interdisciplinary Perspective* [J]. *Journal of Class Teacher in Primary and Secondary Schools*, 2024, (S1):39-41+63.
- [3] Wan Jie. *Research on Multimodal Teaching of College English in the Era of Artificial Intelligence*[J]. *Overseas English*, 2024, (04):141-143.
- [4] Lu Yang, Xie Bin. *Research on Multimodal Teaching Mode of College English Listening and Speaking Courses* [J]. *Teacher*, 2024, (06):66-68.
- [5] Huo Dan. *Exploration of Multimodal Teaching Mode of College English Oral English Teaching Based on Multimodal Theory* [J]. *English Square*, 2024, (02):64-67.
- [6] Yan Ruofang. *Multimodal Discourse Analysis in Vocational College English Classroom*[J]. *Knowledge Repository*, 2023, 39(24):83-86.