Original Paper

An Innovative Design of High School English Teaching Based on Thinking Visualization Tools

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Abstract

The General Senior High School English Curriculum (2017 Edition) places a significant emphasis on fostering students' viewing skill. By utilizing thinking visualization tools, teachers can transform implicit thinking into explicit information, enabling students to gain knowledge and enhance their learning interest through viewing. Unlike traditional English classroom teaching, thinking visualization tools facilitate multi-sensory student engagement, effectively enhancing classroom teaching efficiency. This paper takes various types of teaching segments as examples to explore the application of thinking visualization tools in English classroom teaching, providing references for innovative teaching designs in English teaching.

Keywords

Thinking visualization tools, English teaching, Viewing

1. Introduction

In an era marked by exponential growth in information technology, we find ourselves immersed in a "visual reading" culture where images have become the predominant medium for information transmission. Visualization strategies in teaching adeptly incorporate interdisciplinary elements to cultivate students' visual competences, emphasizing the skill of "viewing" and enabling them to assimilate knowledge deeply within a multimodal learning context. The application of visualization tools varies according to the specific teaching tasks at hand. Teacher ought to thoughtfully select and integrate appropriate visualization tools that are tailored to the content being taught, thereby continuously stimulating students' learning motivation and equipping them with the tools for efficient and effective learning.

2. The Concept of Thinking Visualization

The concept of thinking visualization was first proposed by Professor Liu Zhuoyuan and refers to the process of representing the originally invisible thinking (thinking processes and pathways) through a series of diagrams or combinations of diagrams, making them clearly visible. Visualized thinking aids in understanding and memory retention and can effectively enhance the efficiency of information processing and transmission, serving as an effective teaching strategy.

The most common tools for thinking visualization include concept maps, mind maps, and thinking maps. In the context of classroom teaching, these tools can also include graphic organizers, model diagrams, flow charts, fishbone charts, bubble charts, and double bubble charts, among others. These are multimodal discourse resources that transcend the limitations of single textual forms and are composed of key textual information, graphics, symbols, and colors. By utilizing thinking visualization in teaching, these tools can be applied throughout the entire teaching process, thereby enhancing the effectiveness of teaching and learning through a "multi-step assistance, whole-process integration" approach.

3. Theoretical Foundations

3.1 Dual Coding Theory

Paivio introduced the dual coding theory, which posits that information is encoded and stored in both visual and auditory modalities. The scattered memories formed from a single information input are more susceptible to forgetting. However, when multiple types of information are presented simultaneously, the interweaving of different information forms a network of memories that reinforces certain memory points, making them harder to forget. Consequently, in English language teaching, the use of visual tools and other forms of visualization emphasizes the enhancement of students' visual perception, complemented by the auditory sensory input from the teacher's classroom explanations. This integration of visual and auditory senses effectively strengthens students' classroom learning outcomes.

3.2 Socio-Cultural Theory in Second Language Acquisition

The socio-cultural theory integrates social interaction and language development, emphasizing that teaching should create a positive socio-cultural environment to attract students to actively engage in social activities for meaning negotiation. Through the teaching method of thinking visualization, teachers enrich the channels for students' meaning negotiation in the learning process. By connecting with the socio-cultural aspects of everyday life, teachers create situations that are conducive to English language learning, assisting students in vocabulary acquisition within life-like contexts. This approach mobilizes students' multiple senses, promotes the cultivation of their thinking skills, and ultimately enhances their core competences in the English language discipline.

4. Strategies for the Application of Thinking Visualization Tools in Senior High School English Teaching

Images serve as a "second language" in textbooks, and teachers should skillfully transform the "invisible" knowledge content within the textbooks into "visible" thinking visualization tools to facilitate teaching. The effective use of visual elements can arouse students' visual senses, enabling them to truly learn knowledge through the processes of recognizing and reading images, thus enhancing the effectiveness of classroom teaching.

4.1 Application in Vocabulary Teaching

Vocabulary forms the foundation of English learning and is an unavoidable "mountain" for every student. The challenge in vocabulary teaching has always been "how to help students remember words?" Traditional vocabulary teaching tends to rely on rote memorization, which has limited effectiveness in aiding student memory. Students repeatedly copy the spelling of words and their corresponding Chinese meanings lack in-depth learning based on thinking training of the entire "vocabulary chain". By utilizing visualization tools in vocabulary teaching, teachers can cleverly employ images to promote multi-sensory vocabulary learning among students, effectively enhancing their vocabulary memory and allowing students to remember words unconsciously through contemplation.

Figure 1.

During the process of vocabulary teaching, teachers can employ pictographic methods to establish a connection between the meaning and spelling of words, enabling students to recall the meaning when they see the word, thus enhancing the effectiveness and interest of vocabulary memory. For instance, when teachers present a pictographic representation of the word "tour," students can consciously guess the meaning of the word when they see the letter "o" in the shape of the Earth, realizing that it refers to "traveling." When presented with the pictographic representation of "primary," where the letter "i" is replaced with the number "1," students can associate it with being "number one," thus grasping the meaning of primary with the effectiveness of "one image worths a thousand words."
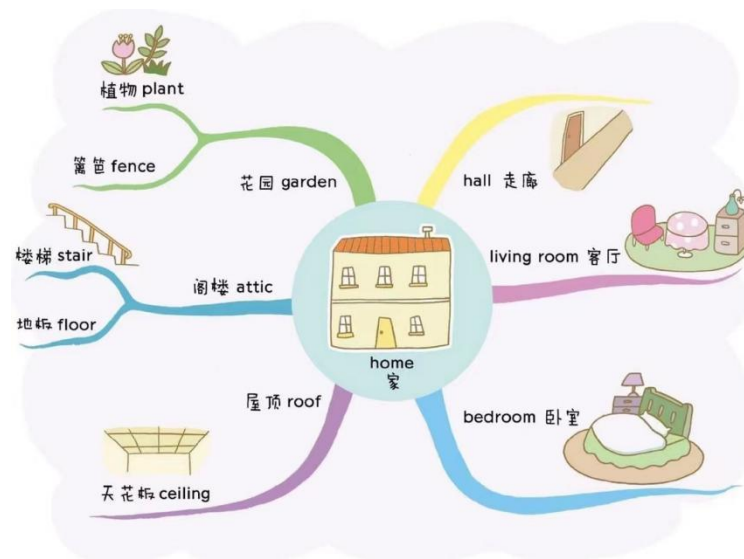
Figure 2.

In addition to using pictographic representations during vocabulary presentation, teachers can actively employ mind maps to assist students in constructing vocabulary chains and forming systematic networks of vocabulary. In traditional vocabulary memorization, students tend to learn in a fragmented and scattered manner, making it difficult for them to form closely connected networks of words themselves, which increases the burden of vocabulary learning and memory. Mind maps used in vocabulary teaching can effectively strengthen the connections between words, making vocabulary learning and review more systematic for students.

For instance, when teaching the word "ceiling," teachers can guide students by asking: "Could you think of any other relevant vocabulary?" Students can easily recall words like "home," "roof," and "bedroom." Teachers can further supplement with words that students might not be familiar with, or ones that they have learned but have not fully mastered, such as "attic," "stair," and "floor." This approach effectively helps students with the retrieval of knowledge and systematic learning. Moreover, when dealing with topic-specific vocabulary in a unit, teachers can also guide students to review by drawing mind maps, integrating the learned knowledge and promptly revisiting unfamiliar vocabulary.

4.2 Application in Reading Teaching

Reading has consistently been a core component of English language learning for students, serving as a vital medium for enhancing their English proficiency and core competences in the subject. However, students often exhibit low interest in English reading, struggle with spontaneous and sustained motivation, and thus require an increase in the efficiency of reading teaching. The use of visualization tools in reading teaching can structure and systematize what might otherwise be chaotic and fragmented learning. This approach makes reading teaching more vivid and impactful. By stimulating students' visual senses and supplemented by the teacher's verbal explanations, complex and abstract reading content can be rendered clearer and more engaging. In teaching practice, teachers can

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selectively choose visual resources and display them at appropriate stages of the classroom teaching to activate students' cognitive processes, thereby shaping their high-level cognitive abilities.

Figure 3.

For instance, in the teaching of Module 1, Unit 2 "Strangers under the Same Roof?" from the Yilin Press high school English textbook, during the teaching part of lead-in, teachers can display a word cloud (as shown in Figure 3) and pose questions to guide students in predicting the reading content: "What are the words that first come to your mind? Do the words create a positive or negative image in your mind? Can you group the largest words into several categories based on their associations?" These questions are designed around the word cloud, and through predictive understanding, students can better engage in reading and prepare for subsequent in-depth reading.
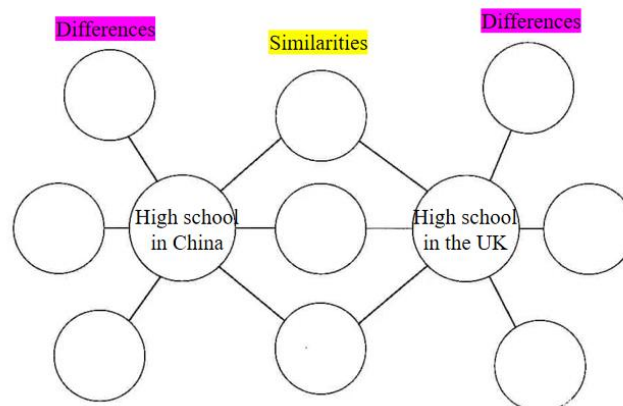

Figure 4.

During the teaching process, teachers can utilize double bubble maps to assist students in organizing their thoughts and sorting through reading material. For instance, in the Extended Reading section of Unit 1 from the Yilin Press high school English textbook, before discussing John's high school life, teachers can present a double bubble map comparing the high school experiences in China and the UK. Before asking students to read, they can first contemplate the similarities and differences they know

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about Chinese and Western high school life. This approach helps students to set "predictions" before reading, which facilitates a more effective and engaging reading experience. Furthermore, it allows students to clearly perceive the cultural differences between China and the West, enhancing their cultural awareness.
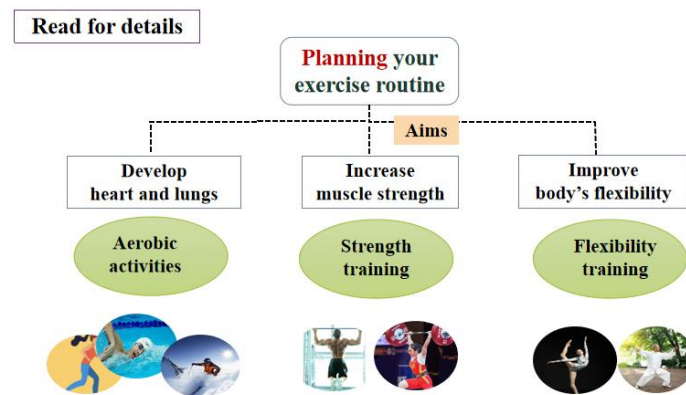

Figure 5.

During the teaching process, the strategic use of flowcharts can assist students in clarifying the content of reading articles. By engaging students in a "visual" process, the information within the article can be systematically conceptualized. This enables students to autonomously engage in "analysis" during the "viewing" process, facilitating better thinking and association, and thereby enhancing the quality of their thinking. For instance, when teaching the reading material from Unit 2, "A Beginner's Guide to Exercise," in the second compulsory high school English textbook from the Yilin Press, teachers can use flowcharts to segment the content of the reading text. According to the titles of the four sections, students can organize the content into four sections in the form of mind maps. However, the content within each section may not be particularly well-defined. Teachers can prepare the flowcharts in advance and complete the fill-in-the-blanks exercise with the students in class, as shown in Figure 5. The flowchart extracted from the second paragraph of the article can help students quickly understand the text content, and the visual elements can enhance students' interest in reading and aesthetic appreciation.

4.3 Application in Continuation Writing Teaching

As a new question type in the reform of the new college entrance examination, Continuation Writing emphasizes the importance of reading before writing. Teachers need to pay attention to students' reading and writing needs during the teaching process, using visual tools to reduce the difficulty of reading and writing in Continuation Writing and improve teaching effectiveness.
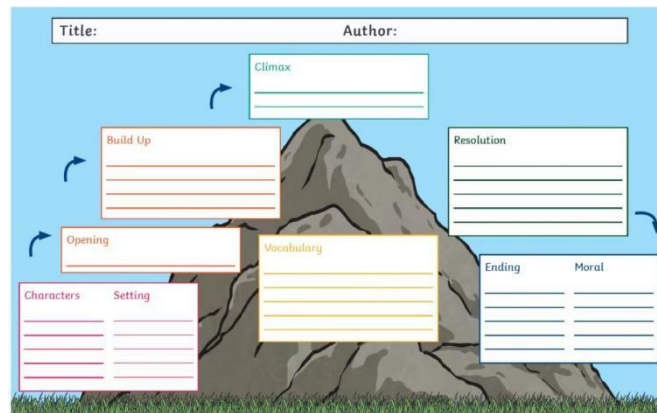
Figure 6.

For instance, during the reading process, teachers can present the Story Mountain model to help students clarify the content of the given text. The Story Mountain consists of narrative elements such as the Beginning, Rising Action, Climax, Resolution, and Ending. The Beginning section introduces the protagonist, setting, and context; the Rising Action sees events escalating, leading to conflicts and challenges for the protagonist; the Climax is the most tense and dramatic moment in the story, typically involving the protagonist's ultimate confrontation with an adversary or the resolution of a problem; the Resolution signifies the story's gradual resolution as the protagonist returns to a state of calm; and the final Ending is where the story concludes, with the protagonist having learned an important lesson or gained a new understanding. These five components help to clarify the narrative structure in Continuation Writing.
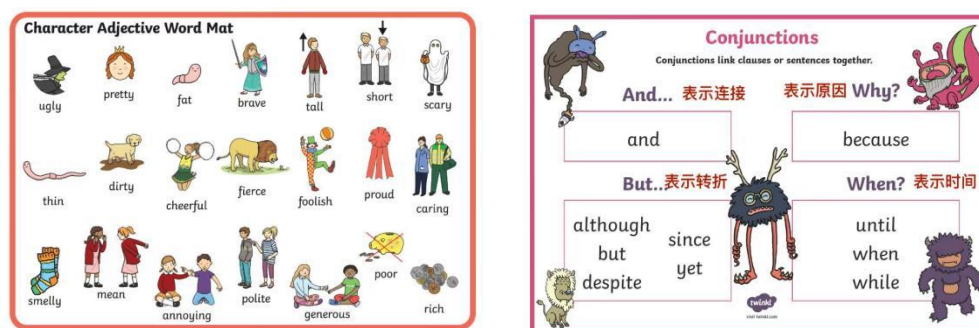

Figure 7.

In the writing phase, the systematic visualization of vocabulary teaching can enhance students' learning effect in continuation writing. For instance, when writing a continuation, it is often necessary to describe characters. In this case, teachers can summarize common adjectives used to describe character traits, pair them with corresponding images, and integrate them into a single diagram to guide students' learning. Furthermore, when emphasizing coherence and cohesion in writing, teachers can summarize commonly used cohesive devices and present them with corresponding images, making classroom

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teaching more vivid and interesting. This approach can strengthen students' interest in English learning, involving multiple senses and allowing them to experience the depth and interest of English learning.

It is evident that through the use of visual tools, teachers can guide students to learn in a combined visual and textual manner in English classrooms, enhancing multimodal and multisensory responses, effectively improving students' learning interest and efficiency, activating their brains, promoting thinking, and facilitating language ability, cultural awareness, thinking quality and learning ability in various ways. Ultimately, this approach aims to promote the development of students' core competences in the English subject.

5. Conclusion

In English teaching, by utilizing specific, clear, and visual images, teachers can enable students to inevitably learn language knowledge while reading images, promoting active and meaningful construction of knowledge. This teaching method, which employs various visualization tools for active inquiry, not only increases the interest of learning but also guides students in various cognitive activities such as analysis, comparison, prediction, evaluation, and creativity, fostering the development of students' core competences in the English subject. Therefore, in English vocabulary teaching classrooms, teachers should actively explore the visual elements in English teaching materials, converting text into image information to promote students' deep and efficient learning, enhancing their thinking abilities and learning skills.

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