

Exploration on Thinking Visualization in High School English Reading Teaching Based on the Activity-based Approach to English Learning

Yuxuan He

China West Normal University, Nanchong 637009, China

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Abstract

In high school English reading teaching, the cultivation of students' thinking quality is crucial. The activity-based approach to English learning, however, put forward by the new English curriculum standard provides a framework for activity design in reading teaching. Thinking visualization can externalize abstract thinking which are beneficial to enhance students' reading engagement, promote their deep understanding of the text, and cultivate their thinking quality. This study focuses on the reading thinking visualization in high school English teaching based on activity-based approach to English learning, aiming to explore how to help students construct effective pathways to achieve the synergistic development of students' thinking ability and comprehensive language ability. This study provides practical references for the implementation of the English learning activity concept and the development of students' thinking quality in high school English reading teaching.

Keywords

Thinking Visualization; Activity-Based Approach To English Learning; Reading Teaching

1. Introduction

According to the New English Curriculum Standards in high school(2017 edition, 2020 revision), present curriculum objectives have shifted from the original three-dimensional objectives for developing comprehensive using language ability into four-dimensional objectives for cultivating English core competencies, including language ability, cultural awareness, thinking quality and learning ability(1). Thinking quality, as one of the main components in English core competencies, has been put great emphasis on for the first time(2), which highlights the importance of logic, critical and innovative thinking. It's evidently noticed that such change can be beneficial for developing students' ability to use language comprehensively, analyze and solve problem, and make correct value judgments.

The Activity-Based Approach to English learning, as outlined in China's English Curriculum Standards for Senior High Schools (2017 edition, 2020 revision), is a pedagogical framework designed to cultivate students' core competencies through practical, relevant, integrated and contextually grounded learning activities. Rooted in constructivist and sociocultural theories, this approach emphasizes the integration of knowledge acquisition, skill development, and critical thinking within authentic tasks. The approach revolves around three hierarchical yet interconnected activity types: learning and understanding, practising and applying, transferring and creating. By bridging content and competency, the approach transforms fragmented language drills into holistic, purpose-driven learning. It shifts the classroom from teacher-centered instruction to student-centered exploration, nurturing autonomy, creativity, and intercultural communication skills. Ultimately, it ensures that English learning transcends rote memorization, equipping students to apply language as a tool for lifelong learning and global engagement.

Reading teaching as the most important carrier for developing students' thinking quality is an indispensable component and also a practical way to exercise students' thinking abilities in high school English teaching.⁽³⁾ In actual reading teaching classrooms, however, despite the increased awareness of critical thinking development, studies have shown that high school reading classes still focus on the "text-translation-vocabulary" training, unintentionally neglecting the visualization of cognitive processes. In order to enhance such phenomena, this paper tries to explore the feasible path of combining the activity-based approach to English learning with the cultivation of students' reading thinking visualization. Teachers can take such approach as the teaching pathway in actual teaching, and combine various kinds of visualization tools at different stages of teaching to make the students' thinking processing process traceable and explorable, to promote the students' in-depth understanding of the teaching text, and to deeply explore the meaning of the discourse on the basis of understanding.

2. Brief introduction of thinking visualization

In reading teaching, the quality of thinking, as one of the elements of core competencies in English subject, is difficult to be measured as a kind of abstract thinking in teaching. With the development of modern education technology, a variety of tools that help to teach students' thinking have been developed and used. Thinking visualization, as a multidimensional tool and strategy for reading teaching, plays an important role in enhancing students' reading comprehension, critical thinking and independent learning ability.

2.1. Connotation

In simple terms, thinking visualization is the process of making invisible thinking visible through the use of certain tools. It includes the process of recording an indi-

vidual's or groups' thinking, questioning, reflecting or reasoning achieved through any observable form. (4) It also includes the use of diagrams or diagrammatic combinations to present the thinking structures, paths and methods that are originally invisible to the naked eye and hidden in the mind, so as to realize the manifestation of invisible thinking. (5) Thinking visualization aims to help construct structured knowledge, while developing one's own meta-cognitive strategies in the process of constructing knowledge and autonomously monitoring one's own thinking visualization process. In order to better achieve reading thinking visualization in high school English teaching, it is necessary to rely on certain thinking visualization tools.

2.2. Thinking visualization tools

Thinking visualization tools mainly refer to various thinking tools. The most commonly used ones in teaching include mind maps, the eight thinking maps, concept maps and so on. (6) "Chain of questions" and "sequence of questions" and other linguistic aspects can also be used as a path to present the visualization of thinking. Typical thinking visualization tools can, to a certain extent, help to complete the sorting and integration of information, deepen the understanding of the discourse through visual representations, and internalize and apply what has been learned in a more detailed way. Below is a list of some representative visualization tools.

2.2.1 Mind map

Mind Map is a tool for organizing thoughts with the help of graphics. It was invented by the British psychologist Tony Bozan in the 1960s as a method of note-taking, and has since been widely used in the teaching of thinking visualization. Mind Maps mimic the diffuse nature of human thinking, centred around a topic with other related branches radiating outwards to form a visual, hierarchical and structured network. Its core goals are to stimulate divergent thinking, improve memory efficiency, and integrate complex information through visualization. In use, it can also be visually processed, such as using different colors to differentiate between branching topics and reinforcing memory points with corresponding symbols.

2.2.2 The eight thinking maps

The eight thinking maps were introduced by Dr David Hyerle in the USA in 1988. It precisely represents specific thinking skills and the eight illustrations correspond to eight different thinking skills. Circle maps are suitable for making associations about a topic and are used to stimulate students' imagination. Double bubble maps are suitable for comparing similarities and differences between things. Bracket maps are suitable for expressing the relationship between the whole and parts of a thing, and are often used to understand the connection between the topic and its parts. Flow maps are more suitable for revealing the causal or problem-solving relationship of a thing. Bubble maps are similar to the shape of a flower. Its middle bubble is suitable for describing the central word and the surrounding bubbles are used to

explain the content or characteristics of the theme, suitable for describing the details of the characteristics. Tree diagram is suitable for classification, expressing the relationship between the upper and lower levels. Flow chart is suitable for expressing the sequence and development of the things that have happened and the internal logical relationship. Bridge diagram is suitable for analogies. From what have mentioned above, the eight kinds of diagrams play different roles. Teachers should make appropriate choices according to their own teaching design and integrate them into the teaching process, thereby playing a good supporting role in teaching.

2.2.3. Graphic organizers

Graphic organizers are a class of tools that help learners organize, classify and analyse information through a visual framework. They help to reduce cognitive load, enhance logical thinking and information integration through structured diagrams. For example, the two-column structure of a T-Chart compares two different aspects of a topic such as strengths and weaknesses, facts and opinions, etc. The KWL table is an aid for implementing reading strategies constructed on the basis of generative learning theory(7). The table is divided into three columns to record “What I know” - “What I want to know” - “What I learned” . “What I know” represents what students know about the text they have learned; “What I want to know” represents what they want to know more about the target text, and “What I learned” represents the knowledge acquired by students after comprehending the text.

3. The teaching practice of implementing thinking visualization in Senior high school English reading teaching

The reading material is taken from the article “My First Day at Senior High” in the unit of ‘Understanding ideas’ in the English Compulsory Module 1 of the Foreign Research Society edition of senior high school. The theme of the article is “Human and Self”. It mainly talks about the author’s experience and emotional changes on the first day of high school. The genre is diary and the whole text is organized with past tense. The diary can be divided into 4 stages in chronological order.

For students in grade 10 who entered the high school just now, the passage with eight paragraphs is a little longer for them to understand. Therefore teachers can shift their traditional role from knowledge transmitter and lecturer to reading scaffolding provider, so they can design rich teaching and learning activities, as well as use diverse thinking visualized tools to help students deeply understand longer texts and promote the development of thinking quality.

As for the teaching objectives, by the end of the class, students will be able to: in learning and understanding activities:

- ①Grasp the main idea of the passage
- ②Identify overall emotional changes of protagonist

in applying and practising activities:

- ①Practise skimming and scanning skills

②Apply the reading structure to describe things that happen in chronological order

in transferring and creating activities:

- ①Express their own opinions about how to deal with pressure in life
- ②Offer proper suggestions when they faced with stressful and awkward situation with structure “main clause, when + subordinate clause

3.1 Discourse-based reading thinking visualization activities for learning and understanding

In this phase, learning and understanding activities mainly includes discourse-based learning activities such as perceiving and noticing, acquiring and sorting, generalizing and integrating.

3.1.1 Use Question Chain to lead into the thematic topic

At the beginning of formal teaching, the teacher first plays a video to let students perceive the theme of the unit. Based on the content of the video and the theme of the unit, a series of progressive question chains are designed to stimulate students’ thinking. Question chaining is a highly effective teaching strategy in which the teacher can activate students’ prior knowledge and classroom engagement through progressive question design. Students can develop their critical thinking ability and consolidate their language output by answering the questions from the beginning to the end, laying the foundation for subsequent learning.

Q 1: What’s the video about?

Q 2: Did you still remember your first day at senior high?

Q 3: How was that day?

Q 4: How did you feel on your first day at senior high?

Q 5: Could you please say some words to describe your feelings on your first day at senior high?

3.1.2 Use KWL Chart to improve learning efficiency

The teacher presents the title of the article and the four illustrations in the text, guides students to perceive both and predict the text content. Then students work in groups to complete the KWL Chart and find out what is already known and what they want to know. The teacher guides the students to propose the information they want to get from the text to further predict the text content. Through reading with questions in their mind, students can explore the thematic context more actively, thereby cultivating students’ inferential ability and promote active learning.

What I know	What I want to know	What I learned
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①Meng Hao was on his first day at senior high. ②His feelings were changed because of something.	①How did Meng Hao feel on his first day at senior high? ②What happened on his first day at senior high?	?
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Figure 1. KWL Chart

3.1.3 Use Brace Map to generalize the main structure of the text

The article is a diary, reflecting a clear chronological order. The teacher first guides students to read the article carefully and sort out the paragraphs according to the time clues in the article. Then students integrate and summarize the main idea of each paragraph and present it in the form of a Brace Map. In English teaching, Brace Map can significantly improve the quality of students' thinking by breaking down and integrating the structure of the text in a hierarchical manner. Firstly, students' logical thinking is thus strengthened: they break down the text as a whole into paragraph topics and details, build a clear logical framework, and avoid fragmentation of information. Secondly, their critical thinking is developed: students need to filter core information and assess the validity of information in the process of sorting out gradually developing independent judgement. This tool visualizes abstract thinking and helps students categorize, relate and reconstruct in order to achieve deeper reading, ultimately promoting the integrated development of analytical, evaluative and creative skills.

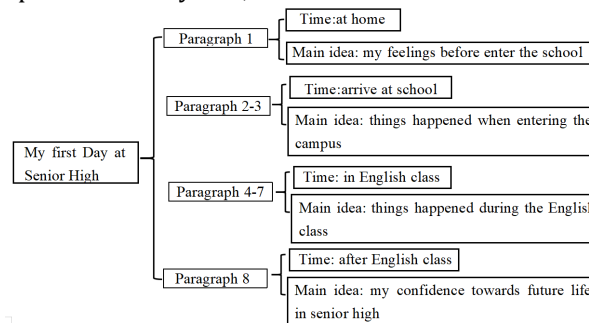


Figure 2. Brace Map

3.2 In-depth discourse reading thinking visualization activities for applying and practising

In this phase, applying and practising activities mainly consists of in-depth discourse learning activities such as summarizing and interpreting, analyzing and judging, internalizing and applying.

3.2.1 Use Event-Emotion Contrast Table to deconstruct the emotional logic of text

Based on detailed time clues, teacher guides students to identify adjectives that describe changes of protagonist's emotions at different times, as well as to explore the verbal evidence that follows changes in mood. Then students try to complete a comparison table that develops students' skills of observation, comparison, organizing and summarizing key information.

Time Clues	Events	Emotions	Verbal Evidences
at home	picture the big day over and over again in mind	eagerness excited	woke up early rushed out of the door
in campus	look at the school noticeboard	curious	decided to explore a bit
before doing self-introduction	ask to do the self-introduction	nervous	tried to turn on my brain but the engine wouldn't start
be laughed at	can't say a word when doing the self-introduction	frightened panic embarrassed	breathed deeply looked at them in panic
after class	listen to what the teacher said	relaxed confident	a lot more relaxed a good beginning to my new school life

Figure 3. Event-Emotion Contrast Table

3.2.2 Use Line Chart to comb protagonist's emotional change

Based on the existing charts above, teacher guides students to use Line Chart to depict protagonist's mood fluctuation over time. Line Chart requires students to extract time clues and corresponding emotional keywords from the text and convert them into quantifiable data points. This process requires students to structure the text to clarify cause-and-effect relationships (e.g. "how a certain event triggers a change in mood"), thus training their logical reasoning skills. After visualizing the charts, students can intuitively identify patterns of mood changes (e.g. sudden change nodes), and then think about why the author made this change. In addition, students may be able to predict subsequent plot twists based on mood changes in the chart, and then test their hypotheses through reading. This "hypothesis-verification" process is at the heart of the development of thinking in the English reading teaching and enhances students' deep engagement with the text.

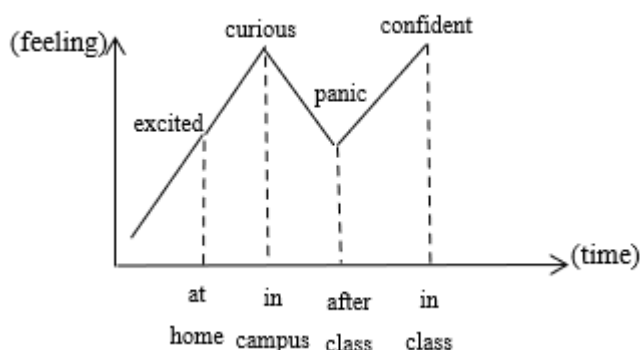


Figure 4. Line Chart

3.2.3 Use Frayer's Model to explain the characteristics of narrative essays

Teacher asks students about the type of text in terms of the chronological order and the tense of the text throughout the text, from which students conclude that the text is a narrative essay. After gaining insight and knowledge about the definition of a narrative text, the teacher uses the Frayer's Model to help students learn the differences between narrative texts and other genres, consolidating their understanding of other genres, and expanding their knowledge.

Definition Narrative writing is a style of writing in which the main mode of expression is to narrate events, describe people or record experiences. Its core is to tell a complete story or process, and convey the author's feelings, views or ideas through the chronological or logical order, so that readers can feel the development of the events and the feelings of the characters. Narrative Essay	Characteristics ① The six elements of a narrative are clear, including time, place, characters, and the cause, process, and result of the event so that the story is complete and clear. ② Its language is mainly narrative and descriptive, through language, action, psychology, environment and other descriptive means to enhance the authenticity and infectiousness of the story. ③ Narrative essays have a clear structure, with clear clues, often unfolding in chronological or spatial order, and are logically coherent. ④ The language is vivid and imaginative, with many metaphors, similes and other rhetorical devices, focusing on the sense of picture and expression of emotions.
Example ① Character-Driven Narratives ② Plot-Centered Narratives ③ Landscape Descriptive Narratives ④ Objective-Focused Narratives	The differences among four types of essays ① A narrative essay is a story with a beginning, middle and end. ② An expository essay is factual, providing information on a subject. ③ An argumentative essay aims to convince audiences. ④ A descriptive essay aims to describe a subject and its special details clearly.

Figure 5. Frayer's Model

3.3 Beyond discourse reading thinking visualization activities for transferring and creating

In this phase, transferring and creating activities mainly includes learning activities that go beyond discourse such as reasoning and argumentation, critique and evaluation, imagination and creativity.

3.3.1 Use Bubble Map to stimulate divergent thinking

Teachers create a situation around future plans in high school life as the central topic for discussion, combined with the characteristics of the Bubble Map to allow students to brainstorm around the central topic to conceive aspects of future planning. In reading teaching, the use of Bubble Map around the central topic of the discussion, can be a useful way to stimulate students' divergent thinking and associative ability, promoting the multi-dimensional analysis of the text theme. Besides,

fragmentation of thinking is avoided, because through the visual framework of the Bubble Map, students can integrate text details into a thematic network, avoid memorizing episodes in isolation, and form a systematic knowledge map.

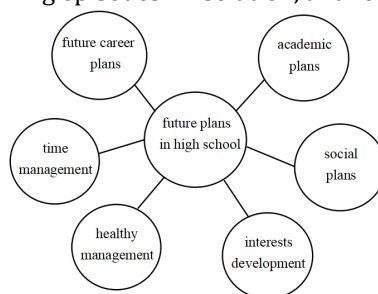


Figure 6. Bubble Map

3.3.2 Use Mind Map to build a framework for retelling

After brainstorming, the teacher allow students to use and internalize the language they have learned in class so as to really enable them to carry out inquiry activities around the meaning of the theme(8). In response to the broad aspects envisaged in Bubble Map, the teacher guides students to use the language they have learned to propose corresponding concrete implementation measures to complete the mind map, and to choose one aspect to elaborate orally according to the mind map. Through the task of “designing a mind map + oral retelling”, students can closely integrate visualization of thinking with language output, and realize the transition from “structured thinking” to “logical expression”.

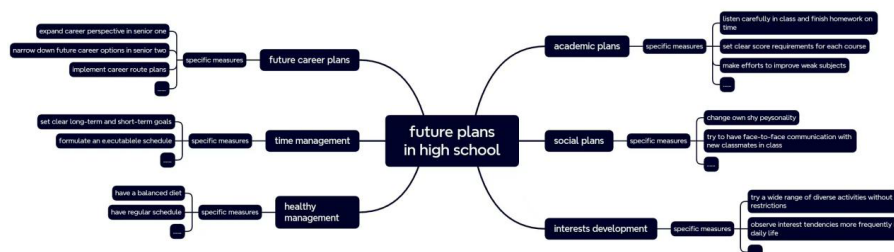


Figure 7. Mind Map

3.3.3 Use Self-Evaluation Checklist to promote teaching-learning-assessment integration

After learning the entire article, the teacher provides students with a self-evaluation checklist. Students try to finish the self-evaluation checklist and grade themselves according to the requirements in it which empower students to self-assess their progress, identify gaps and set improvement goals in the following study. The integration of teaching and learning through self-assessment is essential for developing students ability to take responsibility for their own learning. When students can clearly answer the questions “what have I learnt” and “how to improve”, education

has completed the transition from “knowledge transfer” to “autonomous learner”.

Items for evaluation	Excellent (3 points)	Good (2 points)	To be improved (1 points)
I can get the main idea of the passage.			
I can grasp the varying feelings of Meng Hao.			
I can identify different stages according to time.			
I can put paragraphs into each stages properly.			

Figure 8. Self-Evaluation Checklist

4. Conclusion

As the English curriculum reform based on core competencies continues to deepen, the cultivation of thinking quality has become an important goal of English reading teaching in high school. Language and thinking are closely related. Learning and using language draws on thinking while promoting the development of thinking at the same time. Based on the theoretical framework of activity-based approach to English learning, this study focuses on the application of thinking visualization tools in high school English reading teaching, and through teaching cases, it reveals the promoting effect of visual thinking strategies on students’ logical analysis, critical thinking, and innovative transfer abilities, providing a practical path for the implementation of the teaching concept of “combining learning and thinking with creativity”.

However, we ought to pay special attention to the fact that we should not blindly adopt visualization tools for the sake of visualizing thinking. Thinking visualization is not a simple “drawing game, but a cognitive scaffolding for “externalizing-reconstructing - iterating”. Teachers should always take the development of thinking as the core goal, and remain critically alert in the selection of tools, process guidance, and evaluation design, so as to avoid falling into the traps of “technological dependence” and “formalism”. Only through the deep integration of visualization tools with the nature of the subject, students’ cognitive rules and the activity-based approach to English learning can students’ thinking development and deep learning be truly realized.

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