

# The Use of Schema Theory in the Teaching of Reading Comprehension

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## Abstract

Reading is one of the important links in English teaching, and it is the fundamental way for students to accept texts, acquire knowledge and exchange ideas. Schema theory refers to the use of different schemas such as form, content and language in reading teaching to help students activate the original schemas and create new ones, so as to realize the transition from passive acceptance and perception of text information to independent reorganization of text information, improve reading efficiency and further enhance students' comprehensive ability of reading comprehension. This paper will use the schema theory, combined with the characteristics of reading teaching in junior school English teaching, to study the application of the schema theory in the middle school English reading teaching, in order to cultivate students' interest in English reading and improve their English reading ability.

## Keywords

Schema Theory; Reading Comprehension; Reading Teaching.

## 1. Introduction

As is well-known that English is characterized as humanistic and instrumental. Therefore, the aim of English is to cultivate and develop students' comprehensive ability which lays a solid foundation for lifelong learning. Similarly, reading covers a variety of language knowledge, including vocabulary, grammar, discourse, pragmatics and other aspects of knowledge. Improving students' reading ability is not only the purpose of English learning, but also serves as a means of stimulating students' whole language ability. Wang Qiang (2017) pointed out that English reading teaching plays a vital role in improving students' core competences, especially language ability, cultural awareness, thinking quality and learning ability.

In this study, the schema theory is applied in reading teaching to perfect the teaching mode and improve the current situation of reading teaching. Under the guidance of schema theory, a series of practical and efficient teaching measures are put forward to improve the quality of English class in order to improve students' reading level and help them enhance their English learning ability.

## 2. Schema Theory

### 2.1. The Definition of Schema

The word schema is originally a psychological term, which refers to the basic units of knowledge already existing in the human being. Schema was first proposed by Kant in 1778. He believes that there are pure concepts in the human brain, and that schemas are the link between concepts and perceived objects. Carrell (1983) defined schema as the acquired knowledge. According to Widdowson (1983), schemas are knowledge structures in which information can be stored orderly in the reader's mind Anderson (1984) proposed that schema is an abstract, complex and variable dynamic knowledge structure stored in the brain for understanding the

external world. Brown & Yule (2000) considered schema as a kind of knowledge structure that could be activated to understand the text.

The concept of schema varies, but in general, the nature of these definitions is the same: schema is a knowledge structure, which is the basic structure to represent knowledge.

## 2.2. The Definition of Schema Theory

As mentioned in the previous section, the term schema was first mentioned by Kant in Germany, and it took more than a century for schema theory to be further developed. Bartlett (1932) summarized that schema is the introspection of past experience and the active organization of them based on the previous research and later proposed the schema theory for reading psychology. In the 1940s and 1950s, the schema theory was replaced by behaviorism and empirical theory. Ausubel's cognitive structure assimilation theory also contributed to the development of schema theory, which emphasized meaningful learning of learners and introduced the concept of "prior organizer".

Donough & Shaw (2005) held schema theory borrowed the process of interactive reading to explain that efficient readers connected their knowledge with the reading material. Modern schema reading theory is essentially an interactive theory. It believes that the process of reading is the interaction between textual information and the knowledge structure (schema) already existing in the reader's brain, thus reading comprehension is thus the result of the interaction between textual information and the schema in the reader's mind (Bruen,2020). The process of reading comprehension is two-way: there are both bottom-up information processing (from decoding words and phrases to integrating sentences, and then to constructing the meaning of paragraphs and discourse, from small to large) and top-down information processing (based on high-level schemas such as cultural background knowledge, subject content knowledge, and discourse structure). Effective reading comprehension is achieved through the interaction of this bottom-up information input and top-down prediction, validation, or revision.

## 2.3. Three Categories of Schemas

Carrel (1983) pointed out that schema can be divided into three types: language schema, content schema and formal schema. Language schema refers to the language knowledge mastered before reading, that is, the knowledge of phonetics, vocabulary and grammar. It is very vital for English reading to establish language schema. The reason is that the premise of reading is to understand and master the basic language knowledge.

Content schema is mainly related to some cultural knowledge and background knowledge. An article not only reflects the writer's thoughts and feelings, but also a specific cultural background (Kang,2011). The schema theory believes that in cross-cultural language reading instruction, enhancing the supplement of cultural background knowledge will help reduce cultural schema gaps and cultural schema interferences.

Formal schema is about the structure of a particular article type, that is, the knowledge of genre and rhetoric, which is of great help to readers to accurately predict the following and capture the core information of the article. Different genres of writing have different structural characteristics and discursal styles. For example, an argumentative essay usually has a topic paragraph, an expansion paragraph and a conclusion paragraph, and each paragraph usually has a topic sentence, some detail sentences and a conclusion sentence.

In short, in the process of reading, students have formed various kinds of schema in their minds. Schema can help students make constructions. American cognitive psychologist Goodman (1967) believes that learning is the process of constructing internal mental representations. Learners do not directly transfer the outside world knowledge to their minds, but set up a relationship on the basis of the existing knowledge and experience through the interaction with

the outside world. Then, schema is of service to make inferences. People can use the internal connections among schema variables to infer implicit or unknown information, because it plays a significant role in acquiring or understanding (Qin,2020). Therefore, if students are proficient in various schemata, they will effectively increase their reading speed and enhance their understanding of reading materials.

### **3. Problem Identification**

In fact, reading has been regarded as a huge difficulty by a number of students. Because of the lack of vocabulary and background knowledge, students gradually lose interests when they read an article. For some English teachers, they prefer to teaching reading based on the bottom-up model, which shows that teachers teach key words and expressions first, then translate and analyze the sentences that are not easy for students to understand, and finally, translate the passage into Chinese paragraph by paragraph so that students can understand what they have read, students are in a passive position in this model since they rely too much on teachers.

#### **3.1. The Current Situation of English Reading Teaching in Junior Middle School**

Wang Qiang (2019) pointed out the current problems existing in English reading teaching in primary and secondary schools were few changes about the traditional teaching idea and lack of the guidance of reading skills, etc.

##### **3.1.1. Don't Focus on Cultural Background**

English is not only a subject, but also a language with profound cultural heritage. However, in the process of English reading teaching, many teachers lack cultural awareness in text interpretation and cannot realize the real emotional communication. The purpose of reading is not only to learn grammar, vocabulary and other language knowledge, but to obtain the information that the author tries to convey and communicate with the author. In English reading, mastering the background knowledge and cultural connotation of English texts is a prerequisite for students to read effectively (Deng,2016). For a long time, English teachers have focused on the expression form of reading knowledge, but ignored the overall ideological pattern and cultural background of the article. Lack of adequate understanding of foreign cultural background will hinder students' correct understanding of the text content, and also limit their deep interpretation of the text, so that they cannot effectively communicate with the author's ideas.

##### **3.1.2. Ignoring the Connections between Knowledge**

Traditional classroom teaching, teachers do not put more emphasis on the connection between knowledge, and many teachers do not even realize the importance of helping students establish knowledge schema (Cui,2002). They can only use a single teaching method to teach, and the teaching method is old-fashioned, has not been suitable for the characteristics of the current new era of students and the requirements of the new curriculum reform. In such a fractured, fragmentary teaching environment lacking overall schema, students' understanding of knowledge is lack of system and connection, which is not conducive to the development of students' core literacy. In fact, knowledge never exists in isolation. There is always some logical connection between them.

##### **3.1.3. Neglecting the Cultivation of Reading Ability and Strategies**

Lu Xia (2022) considers the fundamental reason for students' failure to capture the key information in reading comprehension is that teachers lack of guidance on the formation of students' reading skills and strategies in reading class. As a result, students do not know what reading skills and methods can be used to capture effective information, which prevents them from making correct reasoning and judgment. In most English reading classes, teachers only present and teach language knowledge and then translate sentences to explain the general idea

of the article in Chinese. Teachers lack guidance on reading skills and neglect the cultivation of reading strategies, which is not helpful for the cultivation of students' thinking quality. How to guide students to read English articles quickly? What are the scientific ways to read? In this teaching method, students tend to lack the content schema and formal schema when they read a topic. So it is difficult for them to have a thorough understanding of the article, especially make a necessary logical reasoning and judgment on the discourse structure and the author's writing attitude. In the long run, students are prone to have problems such as slow reading speed, low reading efficiency and limited extracurricular knowledge, which leads to a lack of interest in English reading.

#### **4. Suggestions to Improve Reading Teaching Efficiency**

In the process of learning English reading in junior middle school, teachers need to help students prepare and activate schemata at the pre-reading stage, establish and enrich schemata at the while-reading stage and accumulate and consolidate schemata at the post-reading stage, so as to help students better understand and promote English reading. Based on this classification, specific activities are proposed to use schema theory to guide students' English reading in different reading stages and to give students some examples by combining them with textbooks in junior middle school.

##### **4.1. Activate Students' Language Schema before Reading**

In pre-reading activities, teachers should combine the article content with students' existing knowledge and experience to design some effective questions when preparing lessons (Zhu, 2018). For example, teachers can guide students to familiarize themselves with vocabulary related to the article's content in advance through games or activities. For one thing, they can predict the content of the article by recalling the meaning of the vocabulary. For another, when students encounter these vocabularies in the article, they can remember the meaning of these words more easily. In the reading activity of Unit 3 from the eighth grade in People's Education Press, teachers can give a pre-reading preparation activity to fill in the comparative forms of the following adjectives. The vocabularies given are as follows: popular, funny, quiet, hard-working, serious, friendly, outgoing, smart and shy. The topic of this reading material is whether friends should be the same or different. Everyone compares with friends in the description, so there are more comparative forms of adjectives in the article. Before reading, the teacher guides students to review the rules and usages of comparative adjectives in advance. It can not only help students remember and familiarize with vocabulary and reduce the difficulty of reading the text, but also remind students of the usages of comparative adjectives and guide them to summarize the different changing rules of adjectives through the reading material.

##### **4.2. Strengthen Content Schema during Reading**

According to Jiang Ying (2021), the purpose of scanning is to train students to find the details of the article quickly, filling in and correcting previously formed content and genre framework through detailed reading. In the process of scanning, teachers can guide students to find the details of the article by setting up questions or providing students with tasks (Huang, 2020). Furthermore, teachers should also guide students to mark what they read, such as drawing important information points and central sentences. For one thing, the teacher should set up the time sequence of the questions that are different from the logical sequence of the article (Zhang & Wang, 2021). In this way, students are trained to match accurately according to the general idea of the paragraph and find details to enrich the schema under the guidance of established schema previously. For another, the teacher can train students to think independently and solve problems, such as providing diagrams, mind maps and other logical frameworks (Huang, 2018). Teachers can help students find and summarize details step by step,

so as to memorize information more efficiently and enrich the schema. For example, the reading part of the eighth grade in People's Education Press Unit 7. What's the highest mountain in the world? is shown as follows. In the reading section, the teacher asks students to scan the article and answer the following questions quickly. What does Lin Wei do? What do the baby pandas eat for breakfast? Why are pandas in danger? What does the Chengdu education program do? Why do scientists have research? The purposes of these questions are to test whether students have the ability to find specific information and help students establish and enrich content schema.

#### **4.3. Pay Attention to Language Schema during Reading**

In the process of English reading teaching using schema theory, teachers can take the development of students' cognitive ability as the starting point, pay attention to transfer teaching, and guide students to absorb new knowledge through existing knowledge, so as to complete the transfer of knowledge. To be specific, teachers should establish a sense of big ideas guided by the theme, deeply explore the meaning of unit themes, integrate the fragmented knowledge and shift from fragmented learning to integrated and structured learning (Chen & Liu, 2021). Students need to master the deep meaning, intricate knowledge and structure of the article, so as to establish and enrich the language schema. There exist higher requirements for students' reading at the careful reading stage. Students need to understand the language knowledge of the article and master the complex grammatical structure. In addition, students should have a deeper understanding of the article's central idea, writing intention, emotional attitudes and other aspects. Students are allowed to understand the layouts and details of the article and continuously be enriched with the various schemata in their minds through activities in this stage. Besides, students can combine the old schemata with new schemata in their minds to predict and infer the author's writing intentions until grasping the main idea of the article.

#### **4.4. Enrich the Formal Schema during Reading**

According to Cao (2016), reading comprehension is not only affected by the language and content of the text, but also by the structure of any text. English reading text types are very rich, such as narrative, expository and argumentative. Each genre has its own unique style of writing. If students lack the stylistic analysis and guidance of the text, it is also difficult to figure out the macro structure of each part of the text, unable to establish the correlation of each part of the article (Liang Xiaolan, 2021). In order to ensure the smooth progress of reading, teachers consciously explain the characteristics of different articles according to different genres, and constantly analyze and summarize them in the process of reading, so as to cultivate students' ability to invoke structural schema. Through the understanding and application of formal schema, students can consciously form the awareness of context connection, and obtain the knowledge and analysis of context skillfully through the understanding of context details. On this basis, students are guided to pay attention to the use of contextual transition, cause and effect, progressive and other relative adverbs, so as to promote the understanding of the text. For instance, the reading part of the eighth grade in People's Education Press Unit 3. Could you please clean your room? In the reading section, students are first asked whether they help their parents do housework at home. Then students are required to look for the article illustrations and predict the theme to be learned in this lesson. After that, students are guided to find the topic sentences of this article. At last, students quickly find the primary sentence of each paragraph from the beginning of the paragraph through skimming.

#### **4.5. Accumulate and Consolidate Students' Schema after Reading**

To make good use of the reader's existing schemata, teachers should consciously cultivate students to use three schemata for reading in school textbooks and in their daily life reading. In

particular, it is important to cultivate students' content schema and formal schema. Therefore, it can't be ignored to accumulate and consolidate students' schema after reading. As Qin (2020) pointed out teachers can use a brainstorm or a mind-map to guide students to summarize the information they have just collected in post-reading activities. For example, teachers can use similar words or positive and negative words to summarize the vocabulary and then consolidate the language schema. The teacher can also use time clues or narrative elements to summarize or retell the article's content in order to consolidate the language schema and content schema. Taking the reading part of the eighth grade in People's Education Press Unit 8. Have you read Treasure Island yet? as an example, after reading "A Country Music Song Changed Her Life Forever", teachers can ask students to write a summary about the article in their own words. Summarizing can help students better understand the article. In addition, teachers can also use the mind-map to help students summarize and retell the article's main content. From the mind-map, students can clearly understand the article.

## 5. Conclusion

By reviewing the schema theory and its composition, this paper discusses how to apply schema theory into reading teaching. Teachers introduce schema theory into the classroom and make reasonable use of it, which can not only improve students' understanding efficiency of English reading content, but also have a very important practical value for improving the overall quality of English teaching.

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