

Academic Monograph



Learning and Language Acquisition Theories and Language Teaching Methodologies

Yu Shuying



The Canadian Center of Science and Education

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ACADEMIC MONOGRAPH

**LEARNING AND LANGUAGE
ACQUISITION THEORIES AND
LANGUAGE TEACHING
METHODOLOGIES**

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Preface

Since the end of the 18th century, various teaching methods have been gradually introduced and popularized in China. When one teaching method is popular, other teaching methods are extremely rejected. Thus, when Chinese learn a foreign language, teachers will feel a headache. The importance of English learning can be seen from the position of various examination subjects. Although English learning is highly valued, people have always felt a headache for learning English. As a first-line college English teacher, the author has been engaged in college English teaching for decades, during which she has witnessed various perplexities of students in the process of English learning. In the face of students' questions, the author reflects on how to effectively teach English courses. For a long time, people think that the biggest black box of the human body is the brain. It is like a wonderful tool, full of mystery. Traditional behaviorists study people's explicit behavior and think that the learning process has nothing to do with the internal psychological process. As long as the external stimulus is controlled, the learning effect can be controlled and predicted. There has been no consensus on how the process of reading comprehension occurs, how to retain the meaning after understanding, and how to promote learners' reading comprehension. With the development of cognitive science, people are gradually approaching that seemingly mysterious area, and the process of brain thinking is more and more measurable. If we want to know how to teach English courses, we need to understand what factors will affect the process of reading comprehension.

Traditional teaching methods emphasize that meaning resides in the text. Cognitivism believes that it is inevitable for readers to make efforts to extract the meaning from the print whose deep thoughts or feelings will be paid attention. The meaningful learning theory emphasizes the meaningfulness of learning and the importance of learners' existing cognitive structure in learning new knowledge. With the rise of cognitive science and the development of socio-cultural theory, there has been a tendency of structuralism to constructivism in academic circles in recent years. Constructivism believes that knowledge is constructed by learners themselves, not transmitted by others.

But in the process of learning, do learners use the original knowledge structure? How do they use it? How do they actively integrate into the reading process? Schema theory can better explain how learners' original knowledge structure is activated and actively applied to learners' meaning acquisition and memory.

After analyzing and sorting out various learning and language acquisition theories, we can feel that one theory seems to be better than the other, or a theory has its own advantages. As foreign language teachers, we should make use of the best of all other approaches and methods to SLA.

This book provides teaching inspiration or enlightenment, criticism or comments of both scholars and the author on learning and language acquisition theories, various language teaching methodologies, a wide range of applications of learning and language acquisition theories in English teaching, reading, writing and vocabulary strategies, skills, methods and normal information knowledge from the perspective of theory and practice.

There are many findings in the research. For example, in the study of paragraph comprehension under structuralism in chapter 8, some findings are related this topic: We can use the conjunction relationships between the sentences in a paragraph to determine the structure of the paragraph, whether they are signaled or unsignaled, including finding the main idea; the contextual clues can be adverbs, pronouns, nouns, verbs, and preposition groups besides conjunctions; items in one type of relationships are of equal weight and one sentence in another type of relationships is given more importance than the others; there is a relationship between the type of conjunction relationship involved and the location of the topic sentence; the role of the main idea or topic sentence is not in whether it always provides important information, but in its organizational function.

This book provides important enlightenment for foreign language teaching. While paying attention to the vocabulary and structure of teaching materials, foreign language teaching should pay attention to the generation of meaning, that is, to incorporate the learned knowledge into the original knowledge structure. In teaching, learners' hard work, cognitive structure, existing knowledge structure, language level, thoughts and feelings, and the state of actively integrating into the learning process, etc. should be taken into account. In addition to practice, foreign language teaching should be based on meaningful learning. Reading teaching should focus on the interaction between learners and text instead of text, that is, the active construction of knowledge; reading teaching should shift from focusing on reading results to focusing on the process of meaning generation. Due to the author's limited knowledge, there might be some omissions and errors in this book. Please don't hesitate to correct them.

Introduction

A significantly great number of teachers use a traditional methodology for the teaching of reading comprehension. There should have been enough understanding on the learning theories that underlie the methodology. Listening, speaking, reading and writing are four basic skills that must be mastered to learn English well. But if we have to make a choice, reading comprehension would be a major skill because most of what people learn depends on their ability to comprehend or understand written material, and reading plays a very important role in all kinds of English tests. In English teaching, most teachers emphasize reading and writing. Given the importance of reading, there should have been enough understanding on the nature of reading.

What is reading? Essentially, the only objective of reading is comprehension (Goodman, 1976, p.490). Reading comprehension refers to the “process of discriminating visual features that appear on a printed page and inferring meaning there from” (Dejnozka & Kapel, 1991, p.469) or “the extraction of meaning from text”(Smith, 1971, p.185). According to the definitions, it can be said that reading consists of two stages, but they are interrelated: (1) recognizing the graphic words in the printed matter is the first step in comprehending a text; (2) in order to understand the meaning, a reader must next extract the meaning from these graphic words, which inevitably requires the efforts of readers.

However, for rather a long time, the traditional methodology has neglected the role of readers. The traditional methodology is based on what Goodman (1976) calls the “commonsense notion” which he debunks that “reading is a precise process”. Scholars of the traditional methodology have two assumptions about reading:(1) Reading is the visual process of identifying or perceiving letters, words, spelling patterns and large language units (Goodman, 1976), that is, the graphic words in the print; (2) as for the emergence of meaning, they tended to regard it as the natural result of the input recognition, which is “as if by magic”(Gough, 1976, p.532), thus ignoring the role of the reader. In the traditional view, mastering the linguistic forms of a text would ensure the comprehension of the text.

Under the guidance of these assumptions, the common practice in traditional teaching was to fragment the whole passage into independent parts, analyze them in detail, and then without continuing. In this way, reading was reduced to a means of language acquisition, thus ignoring the main purpose of reading, that is, to extract meaning or to comprehend the text content. By the 1960s, due to the influence of behaviorism and structuralism and the ensuing T-G grammar, this view had even been strengthened, which exerted great pressure on language itself and regarded text as an independent entity. The traditional methodology plays a positive role in the input of information. Now international exchanges are more and more frequent, and the requirements for communicative ability and the ability to use English to solve practical problems are higher and higher. The traditional teaching method is deficient in this aspect.

It is true that the language acquisition is an important purpose of reading, especially for foreign language readers. However, the language acquisition in reading should act as a means of learning knowledge and obtaining information at last, not an end itself.

However, meaning doesn't reside in the medium—the language. Even with the full competence of the words and structures, most students fail to read adequately in the foreign language as Alderson (1984, p. 1) has reported. That is to say, even if the vocabulary and grammar of the text are analyzed in detail, students will not have a fairly comprehensive understanding of the text. Many times, students who read in a foreign language seem to have no understanding as people imagine. Obviously, meaning does not automatically arise from language itself for readers. In addition to the linguistic factors of knowing words and grammar of the language, there are other non-linguistic factors that constitute obstacles to understanding which learners would confront.

As we all know, in addition to context, the two key factors of reading are text and reader. Besides the problem of knowing words and grammar of the language, there are difficulties from the reader. Since the 1970s, especially with the development of cognitive psychology, scholars have gradually realized that reading problems arise not only from language, but also from readers' cognition. That is to say, reading is not only a visual process of identifying or perceiving the graphic words in the print, but also a cognitive process.

Cognitive psychology looks at reading from the reader factor, one of the reading factors, and believes that the prior knowledge in the reader's cognitive structure will have a significant impact on the reading process and the reading text. From a cognitive perspective, more attention is paid to the thoughts or feelings readers have within the internal recesses of the readers' mind where lies the sense of the printed

page rather than just examining the external events or external observable behaviors of individuals, as in traditional teaching. According to modern cognitive psychology, reading is a process in which readers combine the information they perceive from the material with the original knowledge in their cognitive structure to generate meaning. This shift marks an obvious change from traditional form-oriented or text-oriented teaching to content-oriented or meaning-oriented reading, and is expected to bring great improvement to EFL reading teaching.

Based on cognitive psychology, Ausubel's learning theory emphasizes the connection between old knowledge and new knowledge at the cognitive level, that is, at the level of knowledge learning. Meaningful learning theory stresses the importance of readers' prior cognitive structure in acquiring new knowledge and schema theory based on cognitive psychology stresses the process that learners actively use the cognitive structure in reading, actively constructing meaning through reading materials in the process of integrating reading. In this sense, schema theory can better explain how learners' original knowledge structure is activated and actively applied to learners' meaning acquisition and memory.

The theories of learning and language acquisition, in the current spirit of education, are complementary. In fact, to some extent, all theories, methods, and teaching techniques of the SLA are relatively effective. However, all are incomplete and insufficient. English teachers in China can combine all theories and methods in an integrated way; thus, they are possibly approaching to the eclectic methodology.

Based on the background of learning and language acquisition theories, this book analyzes and combs the characteristics of various learning and language acquisition theories, the development status of various learning and language acquisition theories at home and abroad, the research status in English teaching, teaching inspiration or enlightenment, the critiques or comments of both scholars and the author on learning and language acquisition theories, and the main learning models or reading models proposed by scholars according to learning and language acquisition theories, etc. This book analyzes various learning and language acquisition theories, a wide range of applications of learning and language acquisition theories in English teaching、 various language teaching methodologies, reading, writing and vocabulary strategies, skills, methods and related information knowledge from the perspective of theory and practice, aiming to help learners improve the effectiveness of English learning, help teachers improve the effectiveness of English foreign language teaching and can be used for reference by teachers, researchers and interested readers in relevant fields.

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1. Behavioral Approach to Learning

According to linguists, language is a very complex phenomenon that can be seen as a social activity, a psychological process or simply a linguistic event. Explaining the process of native language mother tongue acquisition and foreign language learning, as well as explaining the language phenomenon that occurs in a person, often becomes one of the most interested and troublesome issues for psychologists and linguists. In this book, I shall mainly unscramble the learning and language acquisition theories from the perspective of reading, and the purpose is to help learners to read effectively, not only to acquire knowledge, but also to think based on the enlightenment resulting from reading, to optimize their own knowledge structure, and to help teachers to effectively teach reading comprehension. In this chapter, I shall explain the learning mechanism in the mind with the help of behavioral approach to learning and explore the manifestation of this theory itself or the application of this theory in learning or teaching.

1.1 Behavioral Approach to Learning

1.1.1 The Theoretical Basis

Starting with the theory of behavioral approach to learning, the characteristics of rote learning in language learning are analyzed, and its theoretical basis is pointed out.

Behaviorism was a dominant approach in psychology in the 1950s and 60s, which was first used to explain human behavior and later to account for language learning. It was formed in the early 1900s, contrary to traditional psychology. It advocates the study of human behavior, and advocates that psychology should not only study the invisible things—consciousness, but also study the visible and tangible objective things reflected from human consciousness, that is, human behavior. Behavior is a combination of various physical responses which an organism uses to adapt to environmental changes, which are nothing more than the external responses manifested outside the body and internal responses hidden inside the body, with large and small intensity. The specific behavioral response depends on the specific stimulus intensity from environmental changes. Therefore, stimulus-response is used as a formula for explaining all human behavior. According to behaviorism theory, the task of psychology is to discover the regular links between stimuli and responses so that inferences can be made from each other to achieve the purpose of predicting and controlling behavior. After a response occurs, a reinforcer is then presented, and the likelihood of another response occurring increases. In this perspective, learning is to receive information from the environment, that is, to receive the information stimulus from the environmental changes, and continuous practice and training, and learning is through the connection of both stimulus and response, and when the result of the learning behavior is favorable, this learning behavior is reinforced. Briefly, reinforcement is the consequence of a positive or negative learning behavior, and the extent of its influence on whether the learning behavior is repeated.

According to the above analysis of behaviorism, it can be concluded that a language is a set of habits. Acquiring a language is developing a habit of verbal behavior, and learning a foreign language is learning a new habit. Language learning takes the form of habit formation, that is, the "habit" formed by automatic responses elicited by a given stimulus (Ellis, 1999, p.299). Learning behavior is reinforced by favorable learning outcomes.

The embodiment of the teaching practice at that time was that teachers used the situation method and the audiolingual method based on behaviorism (behaviorists as an overall theory of learning view imitation and mechanical practice as the primary processes in SLA). They used the situation method for the belief that if students know the rule of grammar, they know language, and they used the audiolingual method for the view that teaching is a process of habit formation. They seemed to tell students a truth—the keys toward self-autonomy are mechanical training and learning grammar. In order to learn a foreign language, students imitated sentences mechanically doing pattern practice and memorizing rules and vocabulary based on decontextualized exercises. In order to learn English “well”, they only recited drills and texts and mimicked, besides passing exams in school.

Language learning, especially foreign language learning was learned in this way. Learners started with language materials. They first learned the pronunciation of a single phoneme, then transition from phoneme to syllable, from word to sentence, and appropriately learned some grammatical rules and knowledge, and then carried out some grammatical practice to gradually grasp the skills of listening, speaking, reading, and writing. In general, they focused on the form of the language and learned a foreign language consciously, usually in the formal classroom. Behaviorism was effective and powerful in training certain skills, but students ended up with knowing a hundred of rules and vocabulary, but once

in real-life communication, they either felt confused or found it difficult to express themselves. Such outcome of learning bored and demotivated good students. They must tolerate boredom and tedious routine for years to become possibly proficient in English.

The principle of behaviorism is conditioning. In a book entitled *Verbal Behavior*, Skinner explains the way in which conditioning theory is applied to human language acquisition (1957). Skinner believes that learning a language is purely about learning a set of behavior habits. Language is a form of behavior. The model of stimulus-response-reinforcement accounts for how human beings learn a language. In the language learning, linguistic input is regarded as stimulus, learners' correct repetitions and imitations are regarded as responses, and the teacher's approval is regarded as positive reinforcement, and disapproval as negative reinforcement. Thus, language habits are gradually formed in the process of the repeated and cycled stimulus-response-reinforcement. It is very clear that behaviorist psychology emphasizes the external learning behavior between the stimulus and response.

1.1.2 Advantages/Distinct Traces and Disadvantages

Behaviorists believe that knowledge comes from external stimuli, and learning effects can be checked and controlled through behavioral goals. It does have an obvious role in training certain skills, homework practice and behavior correction. But behavioral learning theory only emphasizes the external stimulus but completely ignores the inner psychological process of learners, negates the consciousness, one-sided emphasizes the role of environment and education, and ignores people's subjective initiative.

Behavioral learning theory is not strong enough to explain human learning mechanism. The biggest problem with this theory may be the perspective. Human learning mechanism was explained from an experimental perspective. Behaviorists started their research as makers of experiments and stuck to it. They observed, recorded, and summarized according to the experimental steps. The research method was based on rigorous experiments, so the internal validity of the conclusions obtained from the research was relatively high. But they never changed their position and looked at problems from the perspective of learners, so they explained the learners' mental or psychological process in a simplistic way. In the experiment, they measured the simple psychological process. Some conclusions could not be transferred to real life, so the external validity of the experiment was often not high. This explained why the stimulus-response-reinforcement learning model, characterized by rote learning, passiveness and oversimplification, was a surface work.

Nevertheless, behaviorism theory has left distinct traces, and still plays a positive role in the process of teaching and learning. Firstly, behaviorism theory emphasizes the practice in the process of teaching and learning. In foreign language teaching, teachers must ask students to practice, practice and practice again. Practice is the main way for learners to respond appropriately to stimuli, and it is also an important way to master a foreign language; only through language practice can they respond to stimulus. Secondly, behaviorism learning theory believes that students must form good language habits in the process of foreign language learning. Thirdly, behaviorism learning theory emphasizes timely and appropriate encouragement to enhance learners' confidence in language learning and improve their interest in language learning. Before class, teachers can arouse students' interest and stimulate their learning motivation through warm-up activities.

In conclusion, behaviorism theory has its advantages in the process of teaching and learning, and it is still of positive significance to the present foreign language teaching. Middle-aged and elderly English teachers in China was mainly taught by the teachers using the situation method and the audiolingual method based on behavioral approach to learning and became language masters through unremitting efforts. At present, most are professional college teachers with sound English, enough patience, and English culture, which shows well that behaviorism learning methods are ultimately effective and not completely undesirable. Besides me, the teachers around me agree that the traditional methodology is the way they teach reading comprehension. As has been shown from examination results in the past, there have been successes through the use of the traditional methodology. Behaviorism learning theory emphasizes practice, practice and then practice, and imitation, and emphasizes the accuracy and speed required for successful comprehension. This is good in foreign language teaching because children learn their mother tongue in this way, and doing pattern practice and memorizing rules and vocabulary really lay the foundation for language development, and provide a basic language platform for the step of seeking language meaning and subsequent timely and effective communication, but it is not desirable for good college students as they have already mastered a certain amount of knowledge as adults; behavioral learning theory emphasizes timely and appropriate encouragement and reward which is conducive to enhancing learners' confidence in language learning and improving their interest in language learning. The past half-century has still witnessed Skinner's important position and contribution in the field of

psychology and linguistics.

While it has some benefits for learning a language, it also has some disadvantages for it. Behavioral approach to learning emphasizes purely learning a set of behavior habits but ignores the inner active psychological process of learners in learning a language. It also emphasizes mechanical practice and ignores seeking meaning so that the purpose of communication cannot be achieved in time. Finally, not all language errors can be predicated.

Chomsky is against the theory of Skinner. In fact, their research methods are complementary. Chomsky focuses on the internal process and the structure of language, and completely ignores the external influences while Skinner values the external environment of the language emphasizing that the language learning process is the process of external operational reinforcement.

1.1.3 Some Enlightenment

We can get some enlightenment to better conduct foreign language teaching. First, behavioral learning theory emphasizes the importance of external factors in language learning. Therefore, college students should be provided with or exposed to appropriate and adequate language stimuli as much as possible. But in China, they focus on learning several textbooks. According to behaviorism theory, if they want to improve their reading comprehension, they should read a lot.

Secondly, behaviorist psychology emphasizes the external learning behavior between the stimulation and response. Only external factors are not enough, and the positive response of the learner's internal factors in the process is also required, which can be regarded as some external motivational need or desire of the learner. So, teachers must value the positive effect of internal responses on language learning.

Thirdly, behaviorism learning theory emphasizes the practicality and operability of learning behavior. In the continuous practice, the actual effect of fluent expression is gradually achieved. For college students, they should move from basic practice to complex psycholinguistic activities.

Finally, behaviorist learning theory emphasizes phased repetition and positive encouragement in order to fix learners' language habits. Therefore, students should participate in various English discussion, activities, or competitions, and strive for awards to promote language development.

Behaviorism learning theory is disadvantageous in some aspects, but luckily, after behavioral approach to learning, a new theory, cognitive psychology, was born and has received more and more attention in recent decades. Cognitive psychology emphasizes the research on the internal psychological mechanism of learners which is different from behaviorist psychology mentioned above.

1.2 *Structuralism as Opposed to Constructivism*

1.2.1 Structuralism

The predecessor of structuralism is atomism, which is the idea of analyzing something by separating it into its different parts, and thus emphasizes things' idiosyncrasy and differences. The analysis method is comparison and induction. According to atomism, the world is "composed", not "generated", so that attention is focused on the analysis of its constituent elements, that is, attention is only paid to the understanding of the various parts of the internal knowledge, and the understanding of the relationship between the various parts is ignored.

Structuralism develops atomism. As a mature theory, structuralism was formed from 1920s to 1950s. Structuralism emphasizes the integrity, orderliness, and stability of things, and holds that things are a whole composed of interrelated and mutually restricted parts, and the "relationship" of each part is the structure. The function of the whole is greater than the simple addition of all parts, and all parts are "synchronic".

Unlike atomism, structuralism sees the connection between the integrity of the whole and the parts of the structure. It holds that the whole is a logical priority for parts. Because anything is a complex and unified whole, the nature of any component cannot be understood in isolation, but can only be understood in a whole network of relationships, that is, the connection to other parts.

The concrete embodiment of structuralism in reading teaching is attaching importance to the integrity of the text. Reading is perceiving the text and understanding its meaning. The main idea (that is, the theme) expressed by the structure of the text is relatively stable. The general practice of teaching is explaining words, summarizing paragraph meanings, analyzing structures, and exploring the main idea.

Structuralists still hold that the structure is transcendental and unconscious (i.e., the deep structure of things) because in the general sense, it exists prior to the specific personal experience, and has nothing

to do with people's experience and other factors, and restricts people's rational thinking ability.

The disadvantage of structuralism is that it regards the text as a fixed closed system and overemphasizes the stability and absoluteness of the main idea. In the teaching of reading, the teaching reference books and teachers' personalized meaning interpretation are taken as the authoritative and standard answers (which reflect the absoluteness of knowledge), leading the students by the nose, ignoring the students' learning subjectivity, and limiting the students' intellectual development and innovation-driven development.

In a word, if we view reading from the perspective of structuralism, meaning exists in the text, independent of the reader, and is not affected by the reader's experience, perspective, values and other factors.

1.2.2 Constructivism

On the contrary, constructivism emphasizes the instability, relativity, and openness of knowledge, emphasizes learners' learning subjectivity, and emphasizes the role of learners in intellectual development and innovation-driven development. Constructivism holds that the world exists objectively, but the understanding of things is determined by everyone. Different people have different understandings of the same thing due to their different original experiences. Constructivist learning theory believes that learning is to guide students to start from the original experience and construct new experience. In this view, knowledge does not exist in the printed text, and is even not taught by teachers, but is learned or constructed by learners in a certain situation. The learning process will be affected by learners' historical experience, perspective, and values. According to individual constructivism, learning is a process of meaning construction. Learners form, enrich and adjust their own cognitive structure through the interaction of new and old knowledge and experience. The interaction between the material and the learners produces the result of learning. Learning is a two-way process. On the one hand, new knowledge is incorporated into the existing cognitive structure gaining new meaning. On the other hand, the original knowledge and experience are adjusted or reorganized to some extent because of the inclusion of new knowledge.

To summarize, in traditional teaching, reading was mainly viewed from the structuralism perspective, and was misunderstood as the reader's one-way and passive parsing of the formal attributes of the text in some practice. In this tradition, reading was even equated to the recoding of the graphic symbols in the print. That is, too much stress was laid on the text or the form itself, and the role of the reader was ignored.

But in truth, if a text exists without a reader, there is no meaning. Meaning of a text is not something attached to the text objectively, rigidly, and statically, but something inseparable from human's interpretation. Meaning lies only in readers' understanding of the text. That is to say, the relationship between the text and the reader is not a monologue but a dialogue (Bakhtin, 1981) and only in the dialogue can the text generate meaning. Thus, any text can have living meaning only when it is combined with human's interpretation, without which it would be meaningless. The interaction between the reader and the text is crucial to this understanding. When reading, people choose those aspects of their personal life that contribute to the construction of the meaning of reading experience in a more conscious way. Without such interaction between reader and text, there could be no transfer of meaning. The results of Lee, Yin Lam (2010) show that the participants were not passively decoding the text, but actively constructing meaning during the reading process by referring to their personal history, educational background, and professional knowledge in their quest for meaning. Several studies show that without enough background familiarity with L2 cultural knowledge, readers have great difficulty in understanding the meaning of texts (Aslan, Yasin, 2016). These demonstrate that reading in a foreign language is not simply a problem of knowing vocabulary and grammar of the language, but there are other difficulties that learners will encounter in the reading process.

What are the other difficulties in reading? How do readers participate in the reading process? Or to put it another way, what is the nature of reading comprehension and how is meaning acquired? In light of the bias of the behavioral perspective, much more research has been conducted in this field after the 1960s and the constructive nature of knowledge acquisition is gradually gaining popularity and notions of reading comprehension have changed dramatically. Briefly speaking, learning is a process in which learners participate. Learners construct relevant knowledge by participating in the practical activities of a community. The construction of new knowledge and new meaning lies in the interaction between the material and the learners. The essence of reading comprehension is no longer knowing words and grammar of a language, but the construction of meaning with existing knowledge. In the following part, further explorations after the 1960s on this topic will be given in detail.

1.3 Theoretical Debates on the Nature of EFL Reading and Embodiments in Practical Teaching

From the early 1900s to the 1960s and 1970s, behaviorism and structuralism and the subsequent T-G grammar, which prevailed and dominated the field of linguistics, had major influences on various aspects of language teaching including the teaching of reading, which were later used to explain language learning. The basic view of this trend is that the text itself contains meaning and meaning is in the text. This view is highly controversial in teaching practice, and has hitherto influenced the teaching of reading, and has adversely hindered the development of the learning and teaching of reading. The adverse aspects are as follows (though they may be not exhaustive).

1.3.1 Form or Meaning

People incorrectly thought that reading was a matter of recognizing or identifying a series of words and phrases, so, in traditional teaching, the meaning of the sentence was nothing more than the sum total of discrete words, and the paragraph main idea or the passage central thought was nothing more than the sum of sentences, therefore, the actual teaching was segmenting whole paragraph(s) into discrete sentences and sentences were segmented into discrete words or phrases. If there were problems with reading, people solely blamed deficiency in language, and the solution was nothing more than reading teaching mainly as an instrument of language instruction. In teaching practice, textbooks were unduly overemphasized without providing a mix of comprehension-based instruction, it was generally believed that mastery of textual vocabulary and structures was the requisite for reading in a foreign language and widely popularized, and in designing exercises, people regarded vocabulary and grammar as entities in themselves neglecting the comprehension and use of vocabulary and the functional use of grammar. Few people try to connect grammar with meaning. Therefore, learning the formal properties of language has become the focus of traditional teaching instead of instruction on comprehension.

Goodman (1982a) made an analysis of oral reading miscues and pointed out the bad effect of too much emphasis on formal properties of language and the practice of segregating the process into constituent bits or skills, which “qualitatively changes not only the process, which through its interrelationships is much more than the sum of its parts, but also changes the nature of the parts, since they normally function as part of a complex process” (p.127). In fact, “words in isolation or sentences out of context are hard to determine what meanings they have”(p.127). Words only get meaning as an advantage of their occurring in sentences (Smith,1971, p.36), and sentences, their occurring in context. To separate words or phrases in sentences for the convenience of analysis does not achieve what it was intended to achieve in that teachers explain and practice the meaning in isolation from the sentence and the content of the article, and even the students can understand the fragments of the isolated forms, but instead of the big ideas, the students can only get the fragments of knowledge used to form the big ideas.

Therefore, learning by dismembering or splitting a language is an unsuccessful strategy if meaning extraction is the goal (Barnett, 1988b). Such learning will divert students' attention to surface details rather than semantic comprehension, which is relied on by language communication to convey information, exchange ideas and feelings through language, and condition learners using this method are convinced that foreign language reading is a mechanical activity in which the goal of the learning task is specific, and the learning task or learning behavior is transformed into smaller subtasks or subskills such as memorizing words and making sentences, etc., like fitting in with all the parts of the puzzlement together rather than using the language constituents to form the big ideas or using the pieces to create a picture.

1.3.2 Focus on Form or Focus on Forms

After the dispute between form and meaning, a new debate between “focus on forms” and “focus on form” was born. The traditional and older method focuses on forms calling for focusing only on linguistic forms when teaching a target language usually involving preparing many drill exercises such as conjugation exercises like verb conjugation exercises, the training exercises of which are some exercises based on the principle of multiple-choice questions, or a type of exercise of choosing a verb at random from a list of the most frequent verbs.

In recent years, the debate about the formal teaching in the field of the second language acquisition mainly focuses on form on how to help the development of the second language teaching more effectively. Long (1991) believed that, unlike teaching solely on linguistic forms, it is more beneficial to attract learners' attention to language form in a meaning-centered communication environment, that is, to bring linguistic elements (such as vocabulary, grammatical structures, and collocations) to students' attention in a larger context of a meaning-based lesson in order to predict or correct comprehension or production problems in the target language. Such teaching method advocates the use of certain skills and means to

attract students' attention to language form that happens to happen in communication-centered classrooms. Ellis (2001) divided such method of focusing on form into prepared (planned) and accidental (incidental). Accidental focus on form is used in meaning-centered behavior when language form appears spontaneously without prior preparation.

According to Ellis (2001), the distinction between the traditional and older method, and the recent method is related to how students view themselves and language. For the traditional and older method, students regard themselves as learners of a language and language as the object of study while for the most recent method, on the other hand, learners regard themselves as users of a language and language as a tool for communication.

1.3.3 Recoding or Decoding

Traditional teaching has long regarded reading comprehension as a process of recoding which refers to a process from code to code (Goodman, 1982b, p.53), and this view still has some effect in the current reading teaching. Compared with recoding, decoding implies that one is going from code to something other than code—that is meaning or message in reading (p.53). Decoding reading method involves meaning extraction. For the purpose of reading, essentially, the only objective of reading is comprehension, and the definition of comprehension is “the extraction of meaning from the text” (Smith, 1971, p.185). As its definition implies, reading should undoubtedly be a decoding process because, as Goodman (1982b) said, anything lacking in meaning extraction is not reading at all (p.52). The traditional methodology is based on the commonsense notion that reading is a precise process. It involves “exact, detailed, sequential perception and identification of letters, words, spelling patterns and large language units” (Goodman, 1976, p.497). Manifested in teaching practice of recoding reading mode, people have learned to respond orally to print, but cannot or do not comprehend what they are reading, and readers can answer mostly literal questions on the text in a generally accepted manner over reading materials without knowing about what they read. Consequently, readers only switch from one language representation to another, and the text is still in a coded state, far from fully understanding the text, let alone extracting meaning from the print or reaching communication with the author. As the goal of reading comprehension is “always meaning” (Goodman, 1982c, p.18). Their basic manifestation in reading practice is that the text itself contains meaning and meaning is in the text.

1.3.4 One Way or Two Way

The basic point of traditional belief was that text itself contained meaning and meaning was in the text, text was thus given top priority in reading teaching and teaching became deductive and highly text-based. Alternatively, in the teaching of reading, the teaching reference books and the teachers' own personalized meaning interpretation are taken as the authoritative and standard answer. From this perspective, reading is reduced to the author's monologue, no longer the communication (Widdowson, 1984) or a dialogue (Bakhtin, 1981) between the reader and the author, the relationship of whom was thus no longer equal but became that of the obedient and the authority. In this relationship, the reader should obey the author, and the author has absolute authority as the text itself contained the intended meaning, and all the task of the reader was to decipher or interpret this meaning from the printed matter. A reader only seems to go from print to meaning as if by magic that the reader really plods through the sentence, letter by letter, and word by word. Reading follows the one-way process of visual stimulus-oral recoding-word meaning response. Understood in this way, reading has become the reader's unidirectional decipheration or interpretation of the author's meaning through the text. In this reading mode, readers only respond to the language form, ignore the role of context and other factors, and underestimate the active role of readers in the reading process. Obviously, using this reading theory to guide the teaching is not conducive to the improvement of learners' reading ability. Therefore, on the surface, reading seems to be just a unidirectional language activity. In essence, it involves both the author and the readers in which readers can not only learn language knowledge but also cultivate personality.

In the teaching of reading comprehension specifically, techniques include: learning vocabulary in isolation, (i.e., written on the board and looked up in the dictionary); reading aloud; line by line or even word by word explanation, etc. Attention is not paid to the role of the reader who tends to be tied to the text itself and can neither be actively involved in the reading process, in which the reader actively thinks, understands, and absorbs information, nor can he make use of their own knowledge, for example, the reader's active interaction between the old and new, given his background knowledge, thus he excludes inferential thinking. But reading is a linguistic activity in which the readers and the author communicate with each other. Further research showed that meaning was not considered intrinsic in the semantics of words, but was taken out of the text through the negotiation (Widdowson, 1990) between the readers and the author, so the key to successful reading processing seems to be what Carrell (1988) called

“bidirectional processing (p.108)”, in which the information in the text and the interpretation in terms of the reader's own knowledge would be both important. Readers' prior knowledge, values and worldview will influence their understanding of the text. Rumelhart (1984) emphasized the importance of a learner's schemata in the teaching of reading comprehension, which come from the experience of the reader and the available knowledge the reader brings to the task. Therefore, reading only drawing upon the text or reading conducted in a unidirectional way would most possibly suffer communication failure. Therefore, reading is a written communication activity between the readers and the author, which is a complex intellectual psychological activity of the advanced nervous system. It is an important way to acquire knowledge and develop intellectual emotion. It requires not only mastering a certain amount of vocabulary, sentence patterns and grammar knowledge to understand the general meaning of sentences and articles, but also analyzing and pondering through the surface meaning of sentences and articles, so as to really understand the author's intention. Language structure is acquired when the learner's attention is focused on meaning, and its understanding is in a larger context of a meaning-based lesson, and it is undoubtedly effective communication. Therefore, the cultivation of reading ability is not achieved overnight. Like the process of reading, it is a gradual and development process, also a process of positive thinking, and a very effective language communication activity of learning a foreign language.

1.3.5 Passive or Active

Traditional teaching viewed reading process as one of simply and automatically passing the eyes over written language and passively receiving a series of words in the print with little motivation involved. This view affects practical teaching leading to readers' little understanding of the text and readers' tiredness or boredom to reading material. In order to possibly become a proficient reader, he must tolerate boredom and tedious routine for years.

According to this view, the human learning process can be summed up as a perceptual process of passively receiving external stimuli and the task of students is to receive from the text and the teachers who only impart knowledge to them. In fact, as proposed by Ausubel et al. (1978), meaningful receptive reading is far from a passive and perceptual process. Much cognitive activity is obviously involved in it as well (p.123). In other words, in the reading process, in addition to passively receiving input from the text, readers are “seeking meaning” (Goodman, 1982d, p.61), a kind of meaningful learning based on comprehension of meaning instead of learning passively by rote learning, and they are engaged in comprehending and constructing meaning through the negotiation with the writer trying actively to make sense of data. In this sense, a reader is no less active as an information processor than a writer and is no less demanded than a writer. The learner focuses attention on meaning only to best understand language structure.

1.3.6 Structuralism or Constructivism

Structuralists were wrong in holding that the structure is transcendental and unconscious. As we all know that people learn by practical experience and discover or understand by reasoning, and a person is aware of the occurrence of psychic activity in that part of mind. Meaning is not independent of the reader and is learned or constructed by learners in a certain situation, for instance, in the interaction between the material and the learner, and will be affected by the reader's experience, perspective, values, or other factors.

To summarize, in traditional teaching, reading was seen as the reader's unidirectional and passive parsing of the formal properties of the text in some practice and was a kind of oral response to print and was equivalent to the recoding of the graphic symbols in the print with much stress laid on the text itself or much attention focused on forms themselves but with the learning subjectivity of readers neglected. But Joanne Golden (1983) stressed the importance of a reader in meaning comprehension. Golden revealed that meaning lies only in reader's understanding of the text. Reading is not simply knowing more words and grammar, but requires readers' active interaction with the text and understanding of the information in it (p.160). In other words, reading requires the readers' coordination of attention, memory, perception, and comprehension processes (Kern, 1989). Researchers found out that reading comprehension and effective reading do not mean just understanding words, sentences, or texts, but involve a complex integration of the reader's prior knowledge, language proficiency and his metacognitive strategies (Hammadou, 1991). Reading involves the reader, the text, and the interaction between the reader and the text (Rumelhart,1977). Simply put, reading involves how readers read, how they acquire or retain meaning, and how they participate in the complex physiological and psychological activities in the process of reading comprehension.

Given the bias of the behavioral perspective, more research has been conducted in this field since the 1960s and the constructive nature of knowledge acquisition is gradually gaining popularity, which

espouses approaches focusing on the processes of comprehension and involves the learner both cognitively and affectively who is placed in a highly responsible and active situation, and notions of reading comprehension have changed dramatically, that is, the nature of reading comprehension is the construction of meaning with existing knowledge instead of simply knowing words and grammar of the language.

1.4 Reading Models after the 1970s

1.4.1 Further Explorations on the Nature of Reading

In the traditional and older times, serious scientific research on the reading process was neglected. According to Goodman (1988), the reason why scholars ignore this field comes from two opposite views: "(1) Reading is what reading is and everybody knows that; (2) nobody knows how reading works" (p.11). The first view perceives reading as a natural process like eating or drinking, considers it as without explanation, and sees reading as "matching sounds to letters" (p.11) and remembering them—a common view drawing upon philology at first and then behavioral theory before the 1970s. But learning to read also requires children's being able to connect printed text with sound. This is more complicated than it sounds because a word is more than the sum of its letters. This view overemphasizes the text itself and mainly advocates bottom-up treatment. In fact, this view has a profound impact on teaching practice. Even now, there are still some remnants in the current teaching.

The second view exaggerates the complexity and mysteriousness of the reading process. Reading is described as a very complex procedure involving many aspects. The complexity is complicated by the view that comprehension is a set of psychological processes consisting of a series of mental operations which process linguistic information from its receipt to an overt decision that could be made. Since the explanation of these processes depends on the products, that is, the behaviors generated after comprehension has occurred, it is not surprising that the comprehension process has been resistant to the explanation. To make the matter complicated further, reading comprehension has also been regarded as part of language comprehension and has become a huge topic. Thus, its complexity has long been recognized because of its unobservable nature and pure scope. Nevertheless, as learning in foreign language takes place mainly via reading mode, effective reading comprehension has become crucial to successful learning. With the development of some disciplines, scholars in various fields have explored the process of reading from different perspectives, and began to realize that reading is accessible and understandable. It is not only a simple process of sound and letter matching and remembering. In recent decades, Chinese scholars have conducted research on foreign language reading. Classroom practitioners and those who participate in the teaching process learn from a lot of research in reading and reading comprehension, and lay the most advanced foundation for their teaching.

The second view regarded reading as something that happened in the black box, and believed that questions were difficult to answer, the phenomena were not directly observable, and the structures and processes were hidden, in short, there was no way to approach. Accordingly, reading ability was considered to be inborn, and reading was treated as unteachable and learners need to learn how to read by themselves, and thus in instruction, as long as teaching was effective, the teaching process had justification. But Ye Shengtao, the famous educator of China, said: "Teaching is for not teaching but learning is for eternal learning." This shows the importance of autonomous learning, also of teaching. After all, not teaching is based on teaching which has already taken place. What is known is taught or learned. Therefore, teaching must be treated teachable, and is not least teachable among four skills of English teaching.

Influenced by behaviorist psychology, reading was seen as a passive, precise, bottom-up process from letters and words to the recognition of larger single languages (such as phrases, sentences, etc.) in the 1960s. Meaning was obtained by word-by-word decoding because meaning was attached to the text. Little or no consideration was given to affective factors, and word for word brought about reading inefficiency, the most serious problem of which was hindering understanding and mastery, and thus the traditional method has not appeared to have work for some students. It may seem as if such a description of the traditional methodology is an exaggeration and could not have been, nor is practiced. However, a lot of classroom practitioners and those involved in the teaching process agree that this is the way they teach reading comprehension. As has been shown from examination results in the past, there have been successes by this method.

With the development of some disciplines, scholars in different fields have explored the reading process from different perspectives, and began to realize that reading is far from so mysterious as to be difficult to understand. Nor is it a simple process of "matching sounds to letters" and remembering as structuralists

have expected. In view of the ineffectiveness and inefficiency of reading brought about by the behavioral perspective, much more research, especially after the 1970s, has been conducted, with those old assumptions to their foundations shaken, and new ones given on the explanation on the nature of the reading process.

Reading model is a strategic factor in the structure of the text interpretation system. Only by using the appropriate reading model can a reader improve the effect of text interpretation. As for the cognition and research of reading patterns, the academic circles have experienced a gradual development process.

1.4.2 Three Models after the 1970s

At first, people focused on the object of reading—the text itself. E. H. Lenneberg, S.T. Samuels and D. B. Gough successively put forward the bottom-up model centered on language units in the early 1960s and 1970s.

But people find reasons to prove that strict bottom-up reading cannot fully explain how the reading subject understands words; and simply reading the article word by word will affect the reading efficiency. Students with learning difficulties like to read word for word when reading, and this step-by-step piecemeal processing cannot effectively absorb and organize information, but will cause difficulties in text interpretation.

From the end of the 1960s to the middle of the 1970s, F. Smith, T. Hudson, Goodman K.S. and others successively proposed the reader-centered top-down model. The top-down reading model opposes viewing reading as a perception of a series of words and sentences, and believes that the reading subjects do not need to use all the hints in the text. They choose and select enough information in the text to make predictions, and use their own experience and knowledge about the objective world to verify their predictions.

But, because it emphasizes the role of experience and understanding, and believes that the reading process only requires few clues about words, there are also some problems for it such as ignoring the importance of low-level processing, ignoring the ability to recognize words, and thinking that if there are unknown words, students can fill the gaps in understanding through the operation of experience. This will have a negative impact on the formation of students' reading skills. Therefore, there are limitations in using the absolute top-down model to explain the process of text interpretation. The complex psychological activities in the reading process decide that reading cognition cannot be a single line movement similar to bottom-up or top-down. Therefore, in 1977, the American artificial intelligence expert Rumelhart proposed an interactive model characterized by two-way crossing.

The interactive model holds that the essence of reading is neither top-down nor bottom-up, and reading activities are the result of using all these sensory knowledge and non-sensory knowledge at the same time. Reading comprehension is not only restricted by reading materials, but also depends on readers' existing knowledge and experience as well as their reading methods. Reading is a result of the interaction of words, vocabulary, syntax and semantics, and a process of bottom-up and top-down interaction. The key is the cognitive processing of the reading subject, which is characterized by continuous cross and two-way progress.

In a word, the reading subject chooses the appropriate reading mode according to different text contents and different subject characteristics. It can be said that selecting an appropriate reading mode is a very important reading strategy because what is suitable is good. At that time, the reading subjects were more encouraged to use the interactive model although it also had limitations.

Psycholinguistic Model

This model fully recognizes the limitations of only focusing on the text itself, and realizes the role of readers in reading. Smith and Goodman took the lead in observing and analyzing the first language reading process with psycholinguistic theory. In 1971, Smith first proposed the redundancy theory. He believes that readers can reduce their demand for visual information by making full use of other information sources such as auditory, syntactic, and semantic aspects. He further points out that redundancy exists at all levels of the language. Therefore, if readers can use all other sources of information (world knowledge, etc.), they can reduce the need for reading visible information. In his attack against the behavioral view, Smith (1971) argued that word identification was fundamentally different from reading for comprehension (p.35). In his view, word identification and reading for comprehension are all outcomes of reading but different in nature, word identification is word perception, and it is possible to read for comprehension without actually identifying individual words. In his opinion, readers can get meaning by “reduction of uncertainty” (p.35), which can be achieved by testing and recombining the author's message with the understanding of readers and readers' prior knowledge as

well as their background. From his point of view, reading is only incidentally visual, more information is contributed by the reader than by the print on the page, and reading is an effective process of the interaction between language knowledge and world knowledge.

According to this theory, Goodman (1967) proposed the reading process of “psycholinguistic guessing game”. This understanding breaks the traditional concept of the nature of reading, begins to regard the learning of a language as a whole, and produces different reading theories and models from the traditional language learning methods, for example, bottom-up model. In his opinion, reading is a “psycholinguistic guessing game”(Goodman,1982e, p.33), that is, a process of sampling, predicting, confirming, and correcting. Comprehension, in his view, is a reconstruction of meaning through the interaction of thought and language. The reader uses the minimal graphic-phonetic, syntactic, and semantic information to form hypotheses, and confirms, modifies or rejects these hypotheses as he reads. Effective reading does not rely on the exact identification of all language components, but on whether readers can make the best choices possible with the fewest cues possible in the input information. According to Goodman (1976), reading is an active process in which the reader selects the fewest cues possible from those available to him and makes the best choices possible (p.483).

Therefore, reading is a selection process, and in the process of selection, readers constantly guess according to the language symbols, and then test whether their guessing is correct. When readers see a new word, they can assume its possible meaning according to its word formation form, contextual and situational relationships such as the structure of the word—roots, prefixes and suffixes. Generally speaking, word fixes can provide a grammatical meaning such as -ness as a noun, -full as an adjective, and -ly as an adverb. Context provides clues to the lexical meaning such as:

All the furniture had been completely removed so that not a single table or chair was to be seen.

Readers can guess the meaning of *furniture* from the table or chair listed, and situational relationships can often guide the direction of guessing such as the word *paper*, which means official documents for the police, a long, formal piece of writing for scholars or researchers, an essay, or a part of a written examination for the students, and a report for a government or a committee, etc.

Both Goodman and Smith have made great contributions to developing a reading psycholinguistic perspective focusing their research on emphasizing the active cognitive processes in reading. But unfortunately, they just go to extreme from one to the other. They place an excessive emphasis on the top-down processing, overestimate the role of readers, and underestimate the role of the text, thus making reading a process difficult to operate or process.

Cognitive Model

In contrast to Chomsky's autonomous view of language that what children know seems impossible to be taught, and language is basically not acquired, but gifted, cognitive linguistics argues that language is both embodied and situated in a specific environment. Embodied experience refers to sensory information obtained through the body. The human body has complex sensory channels and motor systems such as listening, smelling, touching, seeing, and smelling. They not only perform their respective functions, but also cooperate with each other to receive various external stimuli, providing rich basic sensory information for subsequent cognitive processing. Human beings can receive external stimuli through those sensory channels and motor systems. These direct experiences are the indispensable foundation and premise for information cognitive processing. Therefore, cognition comes from various experiences of the body with different perceptive motor abilities (Varela et al., 1991).

“These individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological and cultural context” (Varela et al.,1991, pp.172-173). Perception is fundamentally inseparable from living cognition. The sensory and cognitive movement of an organism does not only exist in the brain, but is closely linked with its physical, biological, psychological, and cultural environment, and evolves with these factors.

Language is learned in a specific environment, so a specific environment will inevitably put a specific brand on the language. Word identification cannot be done correctly without looking at the context and the importance of the context cannot be neglected. Only in the space-time environment can we comprehensively and deeply understand the relationship between language and the natural environment and the human environment.

Cognitive view of language learning emphasizes the importance of human's specific experience in learning and believes that the understanding of the objective world comes from the experience of the real world. Language is the result of the general human cognitive activities, and its structure and function are the product of human experience. The mediation of language is the human concept driven by human

experience. Human body structure, physical experience and social experience will have a significant impact on human beings. Therefore, information representation requires a certain background knowledge to understand its form and meaning and to process the input information. "It would be a mistake to suppose that cognition consists simply of building maximally accurate representations of input information"(Milkowski, 2013, p.4). Learning lies in the integration by cognitively active readers of the text information with its relevant prior knowledge, and the change in his cognitive structure, and learners' previous experience plays an important role in integrating new knowledge. In this sense, reading is a complex cognitive process requiring information not only from the text itself but also from the context of the reading situation and the reader's existing world knowledge. In short, reading involves the interaction of three factors: reader, text, context.

Viewed from a cognitive perspective, meaning does not exist *priori*, in other words, meaning does not exist in the text itself, not to mention preexisting in the natural state, on the contrary, it arises from interaction, that is, meaning is read through negotiations, therefore, meaning is given by readers, that is, constructed by learners in their processing of information. Therefore, reading is the process of constructing meaning through the dynamic interaction among: (1) the information implied by the written language; (2) the context of the reading situation; and (3) the reader's prior world knowledge.

EFL reading should not be regarded as the recoding of materials by learners, nor does meaning exist in the form of materials presented. Learners' vocabulary cognitive ability, prior knowledge, conceptual ability and language ability including the use of reading skills or strategies, etc. together to arrive at the meaning of the material.

Interactive Model

In view of the bias of the above two kinds of unidirectional processing which only stressed the text and only stressed the reader, there emerged interactive model to achieve some balance between the two, which was put forward by Rumelhart (1977). The interactive model allowed the information contained in the higher processing stage to affect the analysis that occurred in the lower processing stage. It also recognized that comprehension also depended on the reading material and the background knowledge (what readers brought to a text) which was used for the text to trigger the reader's previous relevant information or schema. The interactive reading model more obviously indicated the nature of reading as it held the perspectives from both models at the same time. Rumelhart (1977) argued that reading was "at once a perceptual and a cognitive process" (p. 573), and was a complex and active process of two mutual directions between the readers and the author. Although the reading models that turned up about 1980s have different purposes and keys, they all emphasize the mutual interaction of both models rather than the unitary process. His basic viewpoint was that in the reading process, the information from syntactic, semantic, lexical and orthographic sources simultaneously provided language input, different sources of knowledge, both sensory and non-sensory, clustered in one place, and the reading process was the product of the simultaneous joint application of all the knowledge sources (Rumelhart, 1977, p.588).

Later, Stanovich (1980) supplemented and improved the model further. Stanovich (1980) added a new feature to the interactive model by arguing that strength in one processing stage could compensate for weakness in another. Any level in the process of reading can communicate mutually no matter where they are. That is, no matter at which level readers deal with reading, if readers do not have enough information from one source, they will rely on information from other sources. In this way, if readers cannot thoroughly analyze printed material at the beginning of reading, they will try to rely on a higher level of knowledge structure to supplement. Sometimes if readers can not recognize words thoroughly, but have a good understanding of a text title, the problem will be alleviated with top-down model. According to Stanovich (1980), problems in bottom-up and top-down model processing could be alleviated with this interactive compensation model (Barnett, 1989, p.26). This view helps scholars explain why some students understand a text well even if they lack background knowledge. Lacking background knowledge, students may read the text with the objective connotation of the text itself to mobilize their life experience and emotional experience so as to realize the students' personalized reading of the text and the students' communication with the text and the author.

The interactive model avoids the bias of these two models, and draws upon the reasonable points in both behavioral and psycholinguistic models at the same time: meaning not only exists in the text itself, but also is brought to the text by readers, and reading is a process of both decoding and assuming. The interactive model connects both bottom-up and top-down models in the reading and is comprehensive and can explain kinds of phenomena in the process of reading, and has gained great popularity. Interactive, just as the name of this model tells, is mainly manifested in the interactive use of the bottom-up and top-down processing skills in reading, and many kinds of knowledge and written information in readers'

brain interact simultaneously to propel through comprehension of reading material. Thus, reading comprehension is the result of many kinds of information that readers provide interacting mutually with the text, a process of interaction between the visual information and readers' previously acquired knowledge.

The interactive model is a big step further, but it is still unknown how readers make use of these skills or how they interact with the text. Schema theory gives a further explanation in this aspect.

1.5 The Recent Explorations on the Nature of Reading

From the above introduction and analysis, it can be concluded that natural language processing involves a series of human's cognitive operations or mental operations, and the cognition involved in language skills is inextricably linked with the organization of information in human memory and with human thought process. The following will give a perspective perception of the nature of reading based on the above introduction and analysis.

1.5.1 The Communication between the Writer and the Reader.

Meaning does not reside in the text. Rather, it serves as a mediator of communication between the writer and the reader. Modern educators believe that reading is a communication (Widdowson, 1984) or a kind of dialogue (Bakhtin, 1981), the process of mutual dialogue between the reader and the text to produce new meaning. That is, when the writer decides to use language to write something, he has certain information, feelings, and ideas in his mind to convey, exchange, and express. To pass them to the reader, he constructs them through the set of operations by using a given code, and they are encoded into graphic words to form a discourse. The reader decodes language by recognizing the symbolic elements constituting the message through the operation or rather the program of operations with the help of a code and identifying them with the discrete units of the natural language based on which the code has been elaborated. On the one hand, the reader decodes graphical words into meaning engaging in linguistic interaction through them. On the other hand, the reader tries to derive the organization or structure, the prominence, the register, and the style, etc., of the text in his mind, which he believes reflects them that the author has in his mind. That is, the reader not only transfers discrete signs and entire messages but also extralinguistic signs of the text because they all contribute to the conveyance of the meaning of the text. In the process of realizing mutual communication, the writer encodes thought to language and the reader decodes language to thought. Therefore, the text is the intermediary of the communication of brain thought and knowledge between the readers and the author, and the utterance in the discourse serves to bring "two networks of knowledge together" (Widdowson, 1984, p.214).

In our daily life, we can communicate with others through the language, and this language-based information transmission is based on how both sides can understand the meaning behind the language. This corresponds to a complete set of conventional language systems, with the readers and the author having a consistent "consensus" on the meaning behind the discourse. We know how easy it is to communicate emotion to those we are in sympathy with. Conversely, as we know from experience, conveying emotion can present difficulties in interaction with people whose ideas and feelings seem alien to our own. Moreover, speakers and writers deliberately play on the emotions of their audiences, and they seek to persuade, and hope to appeal to the audience's emotions. To some extent, the writer's stance will reflect his or her assumptions about that audience. Of course, they may or may not appeal to their emotions. As Alderson (1984) claimed, language in discourse as a mediator to transfer meaning has never been "complete". That is, when the writer encodes his thoughts, he deliberately omits something, which he thinks, the reader already knows, but in fact he doesn't know. So, the text is presented in a fragmentary description of situations—what he is supposed to know, inevitably creating ambiguity and misunderstandings, and even creating a traditional distrust of rhetoric, associating it with insincerity, irrationality and rabble-rousing. In addition, language input is not the realization of the world but the reflection of it. Therefore, as highly abstract and simplified concepts, words in discourse can serve as guidance or "mental instructions" (Alderson, 1984, p.1) to direct the reader to the situation or to guide the reader to the closest understanding of the writer's intentions. In this way, the reader understands the situation by expanding and developing this minimal input, which is crucial for understanding.

In short, as meaning does not reside in the text and the text itself is never incomplete, only the perception of the graphic words by decoding them into meaning engaging in linguistic interaction through them is far from enough to understand the writer's intention. Rather, the graphic words serve as a trigger or clues for the reader to make the best choices. Therefore, reading process is far from a precise and perceptual one as traditional teaching has expected. For the conveyance of the meaning of the text, in addition to discrete signs and entire messages, extralinguistic signs of the text are also transferred. As is known that the meaning of a text is not something objectively, rigidly, or statically attached to the text, but something

inseparable from human interpretation. The relationship between the text and the reader is not a monologue but a dialogue, and only in the dialogue can the text produce meaning. In a word, meaning analyzing is not simply a kind of linear relationship between grammar, syntax, and static semantic content, but an option of pragmatic factors in addition to the above item.

1.5.2 The Integration with Readers' Prior Knowledge

Meaning lies in the integration of the graphic input with readers' prior knowledge. Instead of passively accepting information, schema actively connects the graphic input information with readers' old knowledge represented by schema putting the newly input information into the framework of the schema and connecting it with the corresponding variables to make the variables concrete and integrated. Thus, in essence, the reading process is a process of integrating old and new knowledge. From the cognitive perspective, "the language does not automatically specify meanings" (Fauconnier, 1997, p.17), and the language undergoes cognitive processing to produce meaning. The reader thinks or reacts to the graphic input according to the original knowledge in memory. That is, graphic input does not have meaning, but has the realized meaning potential, a definition given by SFL for text. For this potential meaning to be realized, graphic input must be related to the reader's cognitive structure, or as Anderson and Pearson (1988) has said—the reader must integrate graphic input into a "mental home" (p.37) and assimilate that new information through modifying an existing "mental home" (p.37) leading to changes in cognitive structure.

Whether it is through the integration with or the modification of an existing "mental home" in the reader's mind, new information will find that "home" (p.37) and become part of the reader's cognitive structure leading to the assimilation of that new information. Arguably, meaning is a function of the interaction because meaning is acquired by the reader after integration. It is this interaction itself that becomes the focus of meaning and it is this interaction itself that makes the reader actively select the fewest cues possible from those available to him and make the best choices. In this view, a reader can get meaning from written language when he is ready cognitively to integrate the graphic words. Therefore, the conceptual and experiential background the reader brings to the task and what his processing of the writers' language evokes in him are successful factors in the reader's comprehending (Goodman, 1982f, p.109). In the absence of such knowledge structure in the reader's mind, meaning analyzing of a discourse will be groundless, and a discourse will be unintelligible and meaningless, even if every sentence in it is well formed and grammatically proper because meaning analyzing is a network of pragmatic factors besides grammar, syntax, and static semantic content.

1.5.3 The Creation and Reconstruction of the Reader.

Meaning is not in the text itself, but arises through the creation and reconstruction of the reader. As is acknowledged now that the reading process is far from perceiving individual linguistic signs passively as traditional teaching has assumed, it is a highly active and motivational one. As the text does not have meaning in itself, comprehension is achieved by a reconstruction of meaning through the interaction of language and thought or the integration of language into a person's prior knowledge instead of by mere perception and identification of letters, words, etc. in the print. For the understanding of the realized meaning potential of the text, a definition given by SFL for text, the reader must depend heavily on his context of situation (Halliday, 2001, p.109), that is, the background from which the things which are said derive their meanings" (p.28), and various kinds of "reasoning, construction of meaning, and negotiation of meaning" (Fauconnier, 1997, p.8) to reconstruct the similar situation or message in his mind. In order to understand meaning potential actualized in context of culture (Halliday, 2001, p.109), the reader must know about the social environment including the modes of thought and action of the society, its beliefs and values and the principles on which the social groups are organized. Cultural context is the environment of all language systems. For an individual, cultural background or context is the environment in which he grows up as a member of the society, and builds up his own knowledge, world outlook and his way of thinking.

Because meanings of language are created by social system and are exchanged by the members in the form of text (Halliday, 2001, p.141), the context plays a critical role in their understanding of the meaning of language in the network of relations with interactive situation and culture. Simply speaking, on perceiving individual linguistic signs, one must understand their meaning in context and connect the isolated linguistic signs into a coherent interpretation. In other words, to understand and interpret, the active reader goes beyond a literal text and makes "extra textual extensions" (Golden, 1983, p.160) in language processing, which expands and develops minimal input.

Good readers organize the text into units at least as large as phrases, and try to get meaning instead of identifying words, and they sample for meaning from the total text. In reading the text, they bring

structures and meanings to it. Spiro's contention that language is a "blue print for the creation of meaning" (Spiro, 1980, p.245) also suggests that the reader must construct the meaning based on not only the understanding of words and sentences, but also carry out complex cognitive operations such as reasoning, integration, and meaning extraction. From this standpoint, reading is not a simple visual perception process; rather it is a highly complex cognitive one. That is, linguistic understanding is based on the correct perception of the language, but understanding the language does not simply transplant the semantics into the reader's mind through graphic words.

Understanding language is an active process of constructing meaning. The reader thinks about the situation described by the language in his mind, and reveals the meaning of the language through expectation and reasoning activities. Understanding the language depends on the reader's existing knowledge and experience. Readers' knowledge and experience are different, and the understanding of the same language material will also be very different. Language, in this perspective, is a "superficial manifestation of hidden, highly abstract cognitive constructions" (Fauconnier, 1997, p.34), or as Fauconnier (1997) has pointed out in another way, "visual language is only the tip of the iceberg of invisible meaning construction" (p.1). It is the reader's reconstruction efforts in the process of information processing that create meaning beyond the explicit language of the text, thus achieving the purpose of comprehending the text. Therefore, reading is the process of constructing meaning through the dynamic interaction among: (1) the information implied by the written language; (2) the context of the reading situation; and (3) the reader's prior world knowledge.

To summarize, the existence of meaning is not separated from the author and the reader. Instead, it is "invited by the writer and inputted to the text by the reader"(Schallert et al., 1984, p.272). Far from a mere perceptual process, reading has been shown to be a highly complex cognitive and dynamic process of interaction among: (1) the information implied by the written language; (2) the context of the reading situation; and (3) the reader's prior world knowledge. In the process of reading comprehension, readers input or reconstruct meaning by integrating graphic words into their prior knowledge.

What is this prior knowledge? and what is the function of prior knowledge in the process of reading comprehension? How do readers use their prior knowledge in the process of reading comprehension to conduct meaningful learning to acquire meaning and retain it? A further explanation of this aspect should be meaningful reception learning proposed by Ausubel (1968) and schema theory as a theoretical explanation of how the reading process happens and how the structure of prior knowledge of readers works in the reading process.

2. Cognitive Approach to Learning

After behavioral approach to learning, cognitive psychology, a new theory, was born and has received more and more attention in recent decades. Cognitivists' view denies the positive aspects of behaviorism, like Anderson (1980), by claiming that learning a language employs more complicated process and skills than reciting text and mimicking. Cognitive research regards foreign language acquisition as the acquisition of complex cognitive skills.

Unlike behaviorist, cognitivists changed their position in their research, took a learner's stand, and looked at problems from the perspective of learners. They took language learning as an active mental process. In this process, language learners actively participated in language learning and use, and accumulated experience. In turn, considerable experience helped to internalize language rules and language using rules into the minds of learners, the so-called internal representation. In this chapter, in order to better understand cognitive theory, I shall draw on cognitive psychology represented by David P. Ausubel and J. Piaget.

2.1 Cognitive Psychology Represented by David P. Ausubel

2.1.1 David P. Ausubel's Contributions to Cognitive Theories of Learning

David Ausubel is critic of rote learning. According to Ausubel (1967), rote learning is only based on learning in the laboratory, and is extrapolated without analysis, and has nothing to do with learning in the classroom. He believes that a real and scientific learning theory mainly focuses on various complex and meaningful language learning in schools or similar learning environments, and there are various factors affecting this learning. The most important factor affecting this kind of learning is what students know. According to him, learning is a meaningful process of relating new events or items to already existing cognitive concepts or propositions—hanging new items on existing cognitive pegs (Brown, H. Douglas, 1993, p.79). Meaning is not an implicit response, but a “clearly articulated and precisely differentiated conscious experience that emerges when potentially meaningful signs, symbols, concepts, or propositions are related to and incorporated with a given individual's cognitive structure on a non-arbitrary or substantive basis” (Anderson and Ausubel, 1965, p.8). From this description we can see that they believe that students' learning should be as meaningful as possible if it is to be valuable.

To this end, he carefully distinguished the relationship between mechanical learning and meaningful learning in language learning according to the different nature of the knowledge learning process. By contrasting rote learning with meaningful learning, he made his cognitive theory of learning perhaps the most understandable. Ausubel described mechanical learning as the process of acquiring material as “discrete and relatively isolated entities that are relatable to cognitive structure only in an arbitrary and verbatim fashion, not permitting the establishment of relationships” (Ausubel 1968, p.108). That is, rote learning involves the mental storage of items having little or no association with existing cognitive structure (Brown, H. Douglas, 1994, p.79).

Take, the process of learning meaningless syllables, for example. Since the learners don't have corresponding concepts in the real brain, they cannot establish substantive connections between the learners' meaningless syllables and the appropriate concepts present in the cognitive structure. Therefore, in the learning process, they can only remember words, sentences or combinations of certain symbols, and don't understand the meaning and method expressed by certain symbols, so it is mechanical learning. Sometimes people give some meaning to meaningless materials in order to facilitate memory, but this meaning is not logical, and varies from person to person. This kind of connection is arbitrary, so it belongs to mechanical learning.

This example shows what kind of learning is done by rote. Rote learning occurs when the learning task consists of merely arbitrary associations, and rote learning happens if the learner lacks relevant prior knowledge, and if the learner adopts a set merely to internalize it in an arbitrary, verbatim fashion (Ausubel et al., 1978).

In contrast with rote learning, the concept of meaningful learning has a new significance. Meaningful learning can be described as a process of relating and anchoring new material to relevant established entities in cognitive structure. According to Ausubel et al. (1978), meaningful learning involves gaining new meaning by relating new knowledge (concepts and propositions) to what learners already know. It takes place if the learning task is relatable to what the learner already knows in non-arbitrary, substantive fashion, and if the learner adopts the corresponding learning set to achieve such non-arbitrary, substantial associations.

When new knowledge enters the cognitive field, it interacts with a more inclusive cognitive system and is appropriately incorporated. The fact that knowledge is incorporated, that is, relatable to stable elements in cognitive structure, explains its meaningfulness. If cognitive structure is considered as a system of building blocks, rote learning is a process of obtaining isolated blocks with no specific function in building a structure, and therefore with no relationship to other blocks. Therefore, rote learning is a separate and isolated learning process, but meaningful learning is a process in which blocks become an integral part of already established categories or systematic clusters of blocks (Brown, H. Douglas, 1994, p.80).

Meaningful learning aims to acquire new meaning, which is also the result of meaningful learning. More specifically, new meanings appear in the learners reflecting the completion of a meaningful learning process. But the means is through the cognitive structure of the brain or the pre-existing knowledge structure to which new knowledge is relatable to, based on which meaningful learning is carried out, and meaning is acquired.

If the meaning and method expressed by some symbols are understood through thinking and internalized (actively linked with the appropriate knowledge in the existing cognitive structure, be thought and processed, and then integrated), then this learning is meaningful learning. The learning of concepts, propositions and principles is meaningful learning while the learning of symbols has the characteristic of word by word of some mechanical learning.

Of course, there is no absolute distinction between meaningful learning and mechanical learning. In fact, they are at the two extremes of a continuum and there must be much learning at a certain point or segment between the two ends. In addition, sometimes they occur at the same time. For example, this is the case when students learn an ancient poem by recitation.

2.1.2 The Advantages and Disadvantages of Meaningful Learning Theory

The advantages of meaningful learning theory are the emphasis on the existence of prior anchoring cognitive structure, the significance of acquiring meaning from learning materials relatable to cognitive structure in a non-arbitrary, substantial way, and the effective role of advance organizers. The existence of a priori anchored cognitive structure does provide possibilities for learners to better comprehend and retain information. The resulting meaning from this meaningful learning is easy to understand and retain. Advance organizers provide conceptual support for new learning, improve the discrimination between old and new concepts, and promote learning and transfer through organizing and presenting teaching materials.

But there are disadvantages for this theory. It does not explain how the human brain interacts with external stimuli. Learning includes the change of people's cognitive structure, that is, the internal psychological process. It does not reveal the psychological structure of the learning process. That is to say, it pays attention to the study of the intellectual factors of the psychological basis of the learning process, but pays insufficient attention to the study of non-intellectual factors of the psychological conditions of the learning process.

2.1.3 Inspiration from Meaningful Learning

We can get inspiration from meaningful learning. The learner should have a meaningful learning set by adopting the learning pattern of focusing on comprehension and production, constantly relating new learning task to existing knowledge or skills, and actively constructing meaning, rather than only learning language through passive imitation and repetition. Teachers should arrange meaningful practice rather than drills as the main learning technique. Furthermore, the learning task should be set up appropriately, otherwise the effect will not be good.

The choosing of language materials is an important part of learning task setting. When selecting materials, we should always consider the learner factors. Different learners have different cognitive levels. Generally speaking, material choosing should comply with learners' cognitive levels. Complex and abstract materials should be designed for adults like college students because they can understand complicated things or abstract concepts, which may be within their reach and close to their personal experience. Finally, when selecting materials, we should remember different learners have different interests and needs. In a word, suitable materials can motivate learners and encourage them to actively participate in learning.

In fact, the selected material should not 100% comply with learner's cognitive level. Krashen's input hypothesis claims that an important "condition for language acquisition to occur is that the acquirer understands input language that contains structure 'a bit beyond' his current level of competence. In other words, learners should be exposed to a language just far enough beyond their current competence, so that

they can understand most of the language, but still need to make progress because it is new and difficult which requires great effort and determination. Therefore, input should neither be so far beyond their reach to drown them out, nor should they be close to their current stage, and they are not challenged at all.

The idea of meaningful learning also implies a key learning principle: When we are learning, we constantly resort to our existing concepts for the purpose of comprehension and retention. It means learners must be willing to do so, that is, a disposition to relate new learning task to what he already knows. Therefore, it is necessary to help adult learners put into action the intention of combining new content with existing knowledge and skills.

2.1.4 The Learning Characteristics of Adult Learners

Based on the personality characteristics of adult learners, the learning characteristics of adult learners are summarized below.

First, learning needs are factors that should be considered. In China, college students who graduate and find a job need to pass CET-4 and CET-6 tests or get higher scores of CET-4 and CET-6 tests, need the corresponding test when going abroad, need to take English exam for postgraduate qualification exam, etc. In order to meet the needs of college students' learning, teachers should arrange the required learning content, help them to achieve the learning goals and the benefits of the goals. In a word, teachers should consider students' need to prepare knowledge and skills for future work.

Second, the dependence of college students as adult learners should be faced up to by teachers. It is true that they have mature physiology and psychology, a strong sense of self-concept and independent personality, and they can do a lot of things such as making independent decisions, being self-responsible, stimulating the learning motivation, formulating learning plans, controlling and managing the learning process, and setting learning goals, etc., but, as adult learners, they occasionally encounter dependence in the course of learning, and need teachers' positive help and guidance, such as establishing the correct English reading concept, mastering reading strategies, skills and methods, and obtaining normal information, which can be independently applied to reading to improve the reading comprehension ability of learners.

Third, in the cognitive process of learning, attention should be paid to the learning experience of college students as adult learners. As adult learners, college students can accumulate experience in social life and practice, and use experience in carrying out learning activities, enriching learning resources, and understanding and mastering knowledge. Adult experience is the source of their own identity. Positive affirmation of their experience, namely, positive recognition of their identity, can further stimulate their self-awareness; furthermore, college students, as adult learners, can exchange experience, learn from each other, jointly explore the truth, enrich collective understanding, and provide the experience for the connection of new knowledge and old knowledge. Teachers can combine the original experience and learning content of college students as adult learners in teaching activities, and make full use of the experience to promote practice.

Fourth, the learning purpose of directly applying the knowledge learned to solve practical problems in social life and work should be achieved. When setting up learning tasks, teachers can set up tasks for solving problems or fulfilling social responsibilities. Teachers can make learning plans and arrange learning contents that are closely related to social roles and tasks. In addition to preparing knowledge and skills for future work, college students should directly apply knowledge, that is, apply what they have learned to solve practical problems in social life and work. In the problem-solving process in the application of knowledge, the relevant knowledge related to the solving of problems is regenerated because of the association of the two, and the existing relevant knowledge system incorporates new knowledge to understand its nature, and then ways are sought to solve the problem from the existing relevant knowledge system.

Fifth, teachers should pay attention to the interpretation of meaningful learning or intersperse the setting of meaningful learning tasks when teaching courses.

In short, the above can give learners a disposition to connect old and new knowledge. They are nothing more than meeting the needs of learners, solving the problems encountered by learners, encouraging learners to accumulate and use experience, and promote teachers' teaching methods to solve problems. In this way, the learner can exhibit a tendency to relate new knowledge to the cognitive structure in the brain.

2.2 Cognitive Psychology Represented by J. Piaget.

2.2.1 J. Piaget's Contributions to Cognitive Theories of Learning

J. Piaget (1980) has made great contributions to cognitive theories of learning. In the early 1960s, J. Piaget, a famous Swiss philosopher and psychologist, founded his theory of cognitive development. He believes that cognitive development is essentially a process of maturation in which genetics (the simplest inherited initial schema) and experience interact. In order to develop thinking, individuals constantly seek balance between what is known and what is currently being experienced, which is accomplished through the complementary processes of assimilation and accommodation. During the assimilation process, the information obtained is transformed into individuals' minds to fit in with existing cognitive ways or what individuals already know, the original knowledge is constantly enriched and developed, so as to prepare for the absorption of the new knowledge, that is, the connection and assimilation process of new and old knowledge. Assimilation changes the quantity of schema and affects the growth of schema.

During the accommodation process, individuals will restructure and transform the cognitive structure in their minds to adapt to new information when the external environment changes and the original cognitive structure cannot assimilate the information provided by the new environment. When individuals encounter new information or stimuli that they cannot assimilate, they are faced with two choices: One is to establish a new schema that can incorporate new stimuli; the other is to modify the original schema so that it can include new stimuli. Both situations are manifestations of accommodation, which is a qualitative change process of schema. Through accommodation, their cognitive ability has reached a new level. Individuals modify what they already know to absorb new information in the accommodation process.

J. Piaget uses the assimilation and accommodation processes to explain children's cognitive development, which is the result of the changes in children's original cognitive structure under the influence of environment through constant assimilation fitting in with the original knowledge structure, and accommodation adapting to the environment. The new stimulus makes the individual's cognition fit in, and then assimilates it into the individual's cognitive schema to achieve balance.

Equilibration is the process of the balance between assimilation and accommodation. Piaget believes that the process of assimilation and accommodation is very important for the development and change of cognitive abilities, but both assimilation and accommodation need to be balanced in the process of individuals' cognitive development. Balance is relative, and imbalance is absolute. Based on the existing schema, individuals' cognition continues to develop from a low level to a high level in the process of balance-imbalance-balance cycle. They work together to form what Piaget terms the central process of cognitive accommodation.

Take English sentence-making as an example: Chinese students master Chinese and know the order of Chinese characters. When they learn English and contact another language, they will make English sentences in the order of Chinese characters. In this way, assimilation will happen in their minds when they modify English word order to fit it into the already existing Chinese language system in their minds. The combination of Chinese characters is not like that of English words, and it may even be the opposite, and Chinese characters have rich connotation. These differences will prompt Chinese students to convert the order of Chinese characters into the order of English vocabulary and express Chinese in the order of sentence components in English sentences. In this way, they will experience a process of accommodation. That is, they adapt to the new language vocabulary order to take in the new knowledge of the new language.

Schema theory is the core of the famous genetic epistemology he founded in the early 1960s. Schema refers to the structure or organization of actions that induce migration or generalizations due to repetition in the same or similar environments (Piaget, 1980). The acquisition of schemata by children is a process of interaction with the environment with the help of assimilation and accommodation.

Piaget believes that under the influence of environmental education, children's action schema forms essentially different psychological structures through the continuous assimilation, accommodation and equilibration processes, thus forming the continuity and periodicity of cognitive development. According to Piaget, the schema was not immediately fixed. It has a process of occurrence and development, constantly changing with the interaction of subject and object. Schemas are generated and developed from the simplest genetic initial schema in the interaction between subject and object. With the development and growth of the subject, in the process of adapting to the environment, the scope of activities is constantly expanding, and the subject is constantly stimulated. Therefore, the subject has gradually enriched and perfected his cognitive structure. Through continuous differentiation and

generalization, schemas change from simple to complex, and new schemas are constantly formed. With the continuous increase and complexity of schema, the development level of the schema is constantly improving. Various schemas began to work together, and the human psychological level developed from low to advanced. That is the process of the schemas going from low to high.

Construction is a process of diachronic development of the same structure from low level to advanced level, from simple to complex, and from scattered to overall. The construction process of the schema is done during assimilation and accommodation. Kant (1781) points out that the essence of schema is a form of cognition. Piaget follows the concept of Kant's schema arguing that the schema is only a starting point in the process of cognitive development, and is mainly gradually formed in the subject's acquired activities. Schema is the basis of the human understanding of things. Thus, humans essentially develop cognition by forming and changing a schema under the influence of three processes: assimilation, accommodation, and equilibration.

Piaget uses the schema construction to explain the development of psychological structure. In the construction process, the subject constantly interacts with the environment and develops cognition, and the subject produces a cognitive structure that responds to a particular situation, which is called schema. Therefore, the psychological structure of the subject, after its formation, is in the process of constant change under the influence of the context.

In short, the essence of cognition is accommodation while the essence of accommodation is interaction with the environment. Schema is not a priori, but is constructed by the interaction of subject and object in the process of subject growth. During construction, the so-called schema is the cognitive structure that the subject produces to handle a specific situation. During the construction of the schema, the subject responds to a certain situation and produces a cognitive structure.

2.3 The Differences between Cognitivism and Behaviorism

Different from behaviorism, cognitivism believes that learning is a process of storing and organizing all kinds of materials to form a knowledge structure, a process of sensation and perception realized through the subjective organization of the subject's brain or the subject's subjective action, a process of relying on the subject's epiphany, which acts as a mediator of stimulus and response rather than relying on trial and error. This is a process of psychological phenomena. In this process, the subject relies on the subject's subjective structure to form a cognitive structure, and actively and selectively obtains and processes stimuli such as the interpretation rather than a direct and mechanical or passive stimulus-response connection, which is characterized by receiving stimuli mechanically and responding passively. Thus, cognitive learning is a process of perception and psychological cognition.

As for knowledge structure or cognitive structure, the subject forms structural actions and activities in the process of transforming the object, and those structural actions and activities achieve the balance between the subject and the environment by obtaining the adaptation of the subject to the natural social environment, and the subject promotes the development of cognition by adapting to the action object.

It is clear that cognitivism shows that human cognition is not directly given by external stimuli, but the result of the interaction between external stimuli and context of culture or situation. The human cognitive activity of external things relies more on the internal psychological movement of cognitive subjects than on a passive acceptance process. According to this view, the learning process is interpreted as an active and selective information processing process performed by the current learner on external stimuli according to his own needs, interests, and attitudes, and using past knowledge and experience. Although students are still the object of stimuli, but cognitive learning theory is a little better than behaviorism in that note is taken of students' subjective initiative.

In conclusion, the cognitive view as an overall theory of learning takes the learner to be an active processor of information and, briefly regards learning as a process in which the learner actively tries to make sense of data. According to cognitivists' view, what learning means is that learners learn by thinking about and trying to make sense of what they see, feel, and hear. Cognitive view strongly stresses that learning will only take place when the matter to be learnt is meaningful to learners in terms of problem-solving tasks and the process actively involves the learner in applying what they know. In the process of learning, learners will be able to use their strategies and skills in dealing with tasks, solving problems, and getting information across.

2.4 Inspiration from Cognitivism

We can get some inspiration from cognitivism. First, teachers and students should pay attention to the importance of using strategies in reading. Teachers should be aware that learning is a process in which students actively construct cognitive structures in their minds. The teacher is no longer the authority to impart knowledge, but a good counselor in the process of learning and a senior collaborator of students' learning. In this sense, teachers should tutor not only the learning content, but also the learning strategies while students must take the initiative to learn, and make sense of the knowledge they have learned. From this perspective, college students should have the initiative to pursue learning, choose difficult tasks, and actively explore the main concepts, main principles, and rules of the discipline, with a higher level of generalization. They should adopt new processing strategies, new learning styles, and form a psychological model that they are the builders of knowledge.

Second, teachers should play the role of creating real teaching situations in English teaching. Teachers should adopt some real meaningful tasks and daily practice in the subject field in the classroom teaching. These complex tasks close to life integrate many knowledge and skills, which can help students to apply the knowledge they have learned in a real way, and help students to clarify the relevance and significance of the knowledge they have learned. Creating a real teaching situation in English teaching plays a role in English teaching. It can effectively stimulate and improve students' interest in learning English; it can help students to understand the world from an English perspective, help them to open the window of the world, observe the world, and form a world view; it can cultivate students' ability to transfer and apply their knowledge, help them to analyze and observe learning problems, transfer and apply relevant knowledge, and explore ways and methods to solve problems or complete tasks; it can help students to apply knowledge to answer questions with a situational background in the exam. Content-based English teaching is highly professional and rich in content, which can provide students with obvious professional teaching content close to their needs and help them apply relevant knowledge to solve reading problems encountered in exams. For example, if a student reads an article about an earthquake before the exam and understands the English vocabulary about the earthquake, in the exam he can use the earthquake vocabulary learned to solve the problem of the words not known in the earthquake article and successfully read the article. Therefore, in daily teaching, teachers should train students on how to solve problems in a real situation because the test question is not simply whether knowledge can be mastered, but whether knowledge can be applied.

Third, teachers should design a conceptual framework to help students construct cognitive schemas. The result of learning is to reconstruct the cognitive schemas in the students' minds. In order to facilitate the students' learning, teachers can provide students with a conceptual framework to create the most adjacent development area. With the help of the conceptual framework, students build a bridge between their original knowledge and their new knowledge, which supports the students' learning from low to advanced, from simple to complex, and from scattered to overall.

Fourth, teachers should give full play to the subjective role of students. They should give random lectures and strengthen the transfer. Learners can gain an understanding of the complex whole picture of things, comprehensively grasp the internal essence of things, achieve a leap in understanding, and overcome obstacles in migration. This kind of multiple learning is not a simple repetition, but each has its own focus.

Fifth, teachers should conduct strategic training to teach students to learn. Cognitive psychology emphasizes that students as the constructors of knowledge, in the situation of applied knowledge, actively participate in authentic activities and tasks, think critically and creatively in the process of task completion, and constantly build their own knowledge, and construct the meaning of the knowledge they have learned. Therefore, teachers should not only guide students to learn various cognitive strategies, but also train students to use metacognitive strategies, for example, introspective thinking.

3. Meaningful Learning Theory

The basic idea of meaningful learning can go back to Dewey (1938). In his *Experience and Education*, he believes that all genuine education comes from experience, and stresses that teachers should keep in mind learner's experience when arranging teaching materials. He also stresses that learning can only happen when the learning materials are meaningful and make sense to the world around the learners.

The concept of meaningful learning was proposed by Ausubel (1968). Similarly, it emphasized the prior knowledge of learners, the connection between new content and learners' existing knowledge structure in meaning extraction, and the meaningfulness of learning materials or tasks to the world around the learners. Contrary to meaningful learning, rote learning refers to the isolated and mechanical learning of individual words or phrases.

In this chapter, I shall focus on the theories related to meaningful learning and their ways to promote reading comprehension in foreign language learning.

3.1 What is Meaningful Learning?

3.1.1 Definition and Four Prerequisites

Reading comprehension can only happen when the stimulus of printed reading material collides with the thought in the brain. Reading is not only the oral pronunciation of printed words, the eye movement along the lines or mechanical reading, etc. Reading comprehension happens when the reader thinks about an experience which is similar to what the writer intends to convey (Carr, 1936). In this way, the reader can extract the meaning, and thus truly realize the reading comprehension.

Ausubel (1968) described meaningful learning as a process of a substantial and non-arbitrary connection of the new knowledge expressed by language words or represented by language symbols with the existing relevant knowledge in the learners' cognitive structure. The substantive connection is a non-literal connection, which means that although the words expressed are different, they are equivalent. The non-arbitrary connection is a connection between new knowledge and relevant concepts in the learner's cognitive structure based on a reasonable or logical basis.

From this definition, we can arrive at two important factors affecting this learning. One is what learners know, that is the learner's prior cognitive structure. Second is learners' meaningful learning material selection and the meaningful learning task set. The material is potentially meaningful to the learner, and the learner adopts a set merely to internalize it in a non-arbitrary, non-verbatim fashion.

But how can meaningful learning take place when a learner acquires a language? The following four prerequisites serve as the criteria for meaningful learning to happen. One is that the learning material has logical meaning which means the learning material itself is non-arbitrary and can be substantively related to any appropriate concepts in the learner's cognitive structure. That is to say, the learning materials are meaningful to the learners in terms of problem-solving tasks. Or learning tasks can be related to learners' knowledge structure on a non-arbitrary and non-word for word basis. The process involves the learners' application of what they already know (Brown, H. Douglas, 1993, p.81). Therefore, in initial learning situation, learners should not be introduced to words or longer language units with similar characteristics, such as *too*, *to* and *two*; *affect* and *effect*; *they're*, *there*, and *their*. Presenting these words simultaneously and in isolation will ensure lifelong confusion.

The second is that the learner has appropriate concepts in their cognitive structure that connect with new knowledge. The interaction between potentially new meanings and relevant concepts in the learner's cognitive structure gives rise to actual or psychological meaning.

Third, when acquiring a language, a learner shows the intention to think about, to try to make sense of the data dealing with the information, that is, a desire to actively connect the new knowledge represented by symbols with the appropriate knowledge in learners' cognitive structure establishing a non-arbitrary and substantive connection between old and new content.

Finally, learners actively make this potentially meaningful new knowledge interact with the old knowledge related to his cognitive structure. As a result, the old knowledge is transformed, and the new knowledge gains actual meaning, that is, psychological meaning.

3.1.2 Importance and Limitation of Original Knowledge Structure

How does meaningful learning take place? In meaningful learning process, learning materials are adapted to and are assimilated into students' cognitive structure. Potentially new meanings of learning materials interact with relevant concepts in the learner's cognitive structure, which makes the actual or

psychological meaning emerge. That is to say, the result of meaningful learning is the acquisition of psychological meaning.

In the book entitled *Educational Psychology: A Cognitive View* (Ausubel, 1978), learners' prior cognitive structure is highly emphasized, but how learners adopt a meaningful learning set to internalize knowledge is not stressed in meaningful learning theory.

According to Ausubel et al. (1978)'s definition of rote learning, meaningful learning set can be inferred as the learning set to internalize learning material in a non-arbitrary and non-verbatim fashion. However, how this internalization process happens, in fact, has not received enough attention. In fact, the meaningful learning material selection and the presence of prior knowledge cannot guarantee the happening of meaningful learning. It is the learner who plays an active role in establishing the connection between new and old knowledge and integrating the new meaning into the existing cognitive structure, thus making the meaning emerge. The theory of meaningful learning emphasizes the meaningfulness of learning and the importance of learners' existing cognitive structure for learning new knowledge. As Ausubel et al. emphasized the importance of receptive learning for learners, he was accused by the academic community of overemphasizing the passive acceptance of students instead of focusing on students' learning in terms of creativity and discovery, that is, the active role of learners in the learning process was ignored by Ausubel et al. This is the reason why meaningful learning theory was sometimes criticized by scholars and was treated coldly for a long time.

To sum up, it should be noted that Ausubel et al. (1978) have made great contributions in realizing the importance of readers' prior knowledge and the role of prior knowledge in integrating new knowledge, but they do not realize the active role of learners. Meaningful learning theory well explains that learners' original knowledge structure has an important influence on learners' acquisition and memory of the meaning in the reading materials, and holds that it is the most important factor affecting students' knowledge learning, but it does not explain how learners actively construct meaning through reading materials, and how they use original knowledge or cognitive structure. Schema theory can make up for the shortcomings of meaningful learning. Schema theory emphasizes learners' active knowledge construction, and pays more attention to the process of learning while meaningful learning emphasizes cognitive structure itself.

But, when learners acquire knowledge, they need to acquire meaning and retain it longer. In this respect, meaningful learning is more effective than rote learning. In the following section, I shall explain how meaning acquisition and retention happen in reading from the perspective of meaningful learning theory.

3.2 Meaning Acquisition in Meaningful learning

3.2.1 The Historical Origin of Cognitive Assimilation Theory

The theory of cognitive assimilation came from gestalt psychology. Norman put forward the concept of cognitive structure. Piaget put forward genetic epistemology. Ausubel inherited the viewpoint of genetic epistemology and put forward the theory of cognitive assimilation.

Gestalt psychology emphasizes the internal organization of psychological activities, which is the basic principle of brain dynamics. Learning is realized through insight, which is generated after discovering the relationship between things

Norman regarded human learning as the process of forming sign-gestalt-expectance, that is, the process of forming cognitive structure or cognitive map, and regarded human learning as the change of cognitive structure guiding behavior. Norman believed that reward or reinforcement plays a small role in learning. Learning is not a simple mechanical movement, but learning symbols to achieve their goals or learning what symbols stand for. In other words, organisms have the knowledge about the environment, the meaning of goals, and the ways and means to achieve them.

Piaget's genetic epistemology introduced the concept of assimilation in biology into psychology, and began to use cognitive assimilation theory to explain the development of children's intelligence. He argued that any behavior is grafted on the previous schema, innate natural maturity for children. According to his genetic epistemology, schema or cognitive structure is developed through the balance of assimilation and accommodation. Assimilation means that people integrate the perceived new stimulus into the existing schema of the subject so as to realize the understanding of things. Assimilation is one of the mechanisms of individual cognitive development. Assimilation only brings changes in cognitive quantity. If people cannot assimilate, people should reorganize or create new schemas to adapt to the changing environment. Accommodation causes changes in schema quality to better adapt to the environment. Cognitive development is carried out through the balance of assimilation and

accommodation.

According to the assimilation theory of cognitive psychology, the result of meaningful learning is to acquire psychological meaning, and the acquisition of meaning is the process of knowledge assimilation. Cognitive assimilation is the internal psychological mechanism of meaningful learning. Ausubel inherited and developed the assimilation theory of cognitive psychology, and made a new interpretation of classroom learning.

Ausubel's cognitive assimilation theory regards learning as the organization or formation of cognitive structure, and attributes the assimilation and accommodation of genetic epistemology to the interaction of new and old knowledge. He argues that learning is an internal cognitive process, and only through the interaction of new and old knowledge can psychological meaning be generated. This interaction between new and old knowledge is the assimilation process of new and old meanings, and then forms a more differentiated cognitive structure.

He thought that new knowledge gains meaning through some certain assimilation learning processes which describe how human beings generate new knowledge through the interaction of old and new knowledge so as to understand knowledge. Ausubel's assimilation learning theory embodies the dialectical thought that external cause (The new learning materials themselves have a logical significance.) is the condition of change, and internal cause (the interaction of old and new knowledge) is the basis of change.

3.2.2 Meaning Acquisition in Meaningful Learning

In order to account more completely for the acquisition, retention, and organization of meanings in cognitive structure, Ausubel et al. (1978) inherited the viewpoint of genetic epistemology and developed the assimilation theory of cognitive psychology and made a new explanation for classroom learning.

According to the assimilation theory of cognitive psychology, the result of meaningful learning is the acquisition of psychological meaning, and the acquisition of meaning is the process of knowledge assimilation.

In the elaboration of meaning acquisition, Ausubel et al.(1978) divided meaningful learning into three types: representative learning, concept learning, and propositional learning. In fact, all these three types of learning will be involved in the reading process.

The first type of meaningful learning is representational learning. For Ausubel, representational learning was building on some form of representational equivalence between language and mental content to gain meaning. It is also called symbol learning which involves the learning of the meaning of a single symbol or a set of symbols, or more precisely, learning what they represent. It is also called vocabulary learning as the main content of representational learning is vocabulary learning, that is, the psychological mechanism of representational learning is learning what words represent, which is the corresponding equivalent relationship between the symbols and what they represent or ideas in the cognitive structure of learners. Vocabulary learning is in fact about building the corresponding equivalent relationship between vocabulary and their representative things or ideas in the cognitive structure of learners to acquire meaning. Although the symbols themselves are artificial, and, in most cases, they must be remembered mechanically, with certain mechanical learning characteristics, meaningful vocabulary learning does not mean rote memorization, but manifests a meaningful and active cognitive process which involves building the representational equivalence between a new symbol and relevant cognitive content its referent signifies. Ausubel contributed much to cognitive learning theory in his explanation of meaningful verbal learning which he saw as the predominant method of classroom learning.

Take, a cat, for example. Learning the word, learners must establish the relationship between this word and the visual image about the actual cat. If children already master the general concept about a cat, learning this name is not a completely arbitrary learning. Moreover, children need to recall and think about the characteristics and specific behaviors of a cat in the process of establishing the relationship between this word and the visual image about the actual cat.

The second type of meaningful learning is concept learning. Concept learning, in essence, is to master the common key characteristics of similar things. For concept learning, the most important way of meaningful learning is through concept assimilation. In other words, learners can use existing related concepts as criteria attributes to accelerate the process of defining new concepts.

The third type of meaningful learning is propositional learning. Propositional learning can be divided into two categories: non-general propositions (which only represent the relationship between more than two special things) and general propositions (which represent the relationship between several things or properties). Propositional learning attaches great importance to related concepts in cognitive structure,

which is similar to representational equivalence learning. If a student does not master the relevant concepts in the proposition, he cannot understand the proposition. For propositional learning to be meaningful, the potentially meaningful task is connected to and interacts with relevant ideas in cognitive structure

Meaningful learning, in fact, does not mean that new information forms a kind of simple bond with preexisting elements of cognitive structure, but means the interaction between them and the assimilation of both in meaning. In meaningful learning, every process of acquiring information results in a modification of both the newly acquired information and the specifically relevant aspect of cognitive structure to which the new information is linked. This is termed as assimilation theory by Ausubel et al. (1978). The preexisting ideas in their cognitive structure are regarded as anchoring information to integrate new information, and meaningful learning is essentially absorbing new information. Ausubel et al. believe that whether students can acquire new knowledge mainly depends on the existing ideas in their cognitive structure. Meaningful learning occurs through the interaction of new information and the existing ideas in students' cognitive structure. The result of this interaction leads to the assimilation of the meaning of old and new knowledge. Cognitive assimilation is the internal psychological mechanism of meaningful learning, and assimilation occurs through the interaction between the logically meaningful new learning material and the original knowledge in his brain, and its result is the assimilation of the meaning of new and old knowledge to produce psychological meaning, and its assimilation puts heavy emphasis on the learning patterns. It is clear that the assimilation theory of cognitive psychology explains the result of acquiring psychological meaning in meaningful learning and the result of acquiring meaning in the process of knowledge assimilation. Of course, according to the relationship between old and new information, meaningful learning can occur through some assimilation processes.

The interpretation of meaningful learning for reading learning is just like the emergence of meaning in meaningful learning. As meaning is extracted and integrated into readers' cognitive structure, the preexisting knowledge is modified, and learning or meaning emerges in the reading processes.

As mentioned above, Ausubel's theory of cognitive assimilation emphasizes cognitive structure and learning patterns. About the process of psychological learning, Piaget's schema theory would serve as a supplement.

3.3 Meaning Retention in Meaning Learning

3.3.1 Psychological Mechanism

The previous section describes the process in which learners integrate new information into existing cognitive structures in meaningful learning to modify preexisting knowledge and make new knowledge available for future replication or problem solving, as well as the knowledge assimilation process in which learners acquire information or meaning. Meaningful reception learning facilitates both the acquisition of meaning and the retention of meaning once acquired.

Reception learning is a learning method that teachers explain knowledge to students in the form of systematic organization. The content to be learned is mostly ready-made, conclusive, and scientific basic knowledge; it includes some abstract concepts, propositions, rules, etc., which are directly presented to learners by definition through the teacher's description. Different from traditional teaching where teachers blindly explain and students listen but do not speak, teachers act as advance organizers to promote students to learn actively. Reception learning is the process of concept assimilation, which is the main form of classroom learning.

In this section, let's analyze the psychological mechanisms whereby acquired knowledge can be retained in the cognitive structure over extended periods of time and cannot be easily forgotten in the memory in meaningful learning.

While meaning acquisition is a process of making meanings available, retention is a process of maintaining the availability of a replica of the acquired new meanings (Ausubel et al., 1978, p.134). Retention or later availability is a function of initial availability.

To explain more completely the acquisition, retention, and organization of meanings in cognitive structure, Ausubel et al. (1978) further developed the assimilation theory.

Ausubel et al. (1978)'s cognitive assimilation theory explains the retention of meanings in cognitive structure. In the process of meaning retention, learners may adopt some processes to assimilate new information, to acquire meaning in the process of knowledge assimilation. When a new idea is meaningfully learned, it will be connected to preexisting idea. After the assimilation, the structure of both

the new idea and the preexisting idea will be modified and form a composite product. This new interactional product, in fact, will be more complex than the preexisting idea, and it is likely that this new product may be used as a new preexisting idea, that is, anchoring ideas, to incorporate other new information. This process is a circular one.

In short, in the process of knowledge assimilation, learners constantly acquire meaning, constantly relate new ideas to cognitive structures, constantly modify cognitive structures, constantly form new preexisting ideas, and constantly incorporate other new information so as to achieve the purpose of meaning retention.

In the process of cognitive assimilation, basic concepts are deepened and knowledge is consolidated. Therefore, it is easier to meaningfully remember the concepts and principles obtained through meaningful learning than specific examples. Therefore, it is more economical, labor saving and convenient to master limited basic concepts and principles than remembering a large number of facts.

In the process of cognitive assimilation, meaningful meaning retention is a process of continuous reorganization and recombination. Meaningfully forgetting specific examples is also the result of continuous assimilation. Cognitive assimilation runs through meaningful learning.

As the anchorage of the prior knowledge structure to the new information is in a non-arbitrary and non-verbatim way, that is to say, new information is linked to the anchoring ideas in certain cognitive structure, new information can be protected from the interference of the previously learned, concurrently experienced or subsequently encountered similar ideas, new information can be understood correctly and can finally be remembered.

3.3.2 Advantages of Meaningful Retention

Meaningful retention bears some advantages over rote retention in the following three ways if explained from the perspective of assimilation theory according to three main cognitive structural variables proposed by Ausubel: availability, distinguishability and stability, which affect meaning acquisition and long-term retention.

Three Main Cognitive Structural Variables

The first is availability. In meaningful learning, as the anchorage of the prior knowledge structure to the new information is in a non-arbitrary and non-verbatim way, that is to say, new information is linked to the anchoring ideas in certain cognitive structure, which means certain prior knowledge structure plays an effective role in anchoring, that is, the availability of the prior knowledge structure, new information can be protected from the interference of the previously learned, concurrently experienced or subsequently encountered similar ideas. The anchorage between the new information and the prior knowledge structure is the assimilation of new and old meanings, and then forms a more differentiated cognitive structure. That makes it easier to remember concepts rather than specific examples. From the perspective of meaningful learning, the meaning of new information is meaningfully generated and thus meaningfully retained. As new information is linked to the anchoring ideas in certain cognitive structure, it can make the retrieval process less arbitrary and more systematic, thus more available to the future reproduction or problem-solving. Moreover, less confusion may emerge for meaningfully retained ideas.

Whether there is an appropriate prior knowledge structure that can be used is an important variable that affects the meaning acquisition and retention. An appropriate prior knowledge structure can provide corresponding relationships and anchorage points for new learning, and provide conditions for meaningful learning. As a result, new knowledge is effectively anchored to the cognitive structure, which leads to stable and clear meaning acquisition and retention. If learners do not have appropriate anchorage concepts, or fail to make full use of them, they learn mechanically. Therefore, it is necessary to introduce some guiding materials before the formal presentation of learning materials, which are more general than learning materials. The connection with learning materials makes learning tasks clear, and guiding materials act as a cognitive bridge between old and new knowledge. Ausubel calls guiding materials "organizer". Because their presentation is generally prior to the formal presentation of learning materials, they are also called "advance organizer".

The second is the discriminability of old and new knowledge. The discriminability between new learning content and prior concepts of assimilating new learning content means when the new learning content is clearly discriminated from prior concept in the cognitive structure, when learners realize the similarities and differences between old knowledge and new knowledge, can new meaning be acquired and not be replaced by the prior stable meaning, and can meaning be retained. Therefore, only those discernible meanings have the potential for long-time meaning retention. Therefore, improving the discrimination between old and new knowledge can promote meaning learning and long-term memory, which is based

on the consolidation of existing knowledge. So, teachers should help students consolidate the existing knowledge to help with such discrimination for meaning learning and long-term memory. If the original fixed idea itself is unstable and unclear, then there is no distinguishability between the two, and the new meaning gained will be vague, confusing, and erroneous.

The third is stability. Propositional learning attaches great importance to the relevant concepts in cognitive structure. The relevant concepts in the cognitive structure are the conditions for understanding propositions. For propositional learning to be meaningful, the potentially meaningful task connects to and interacts with relevant ideas in cognitive structure. Therefore, the newly acquired information has formed some dissociability strength with the preexisting knowledge, thus achieving the same stability as the original knowledge. The less the dissociability, the better the stability. With better stability and less dissociability, the more likely it is to find out the relevant or required information in the future retrieval, and the longer the meaning retention.

In contrast, retention of material learned by rote may suffer from less efficiency in the future retrieval and more confusion with similar ideas. As the relationship between the newly learned and the preexisting ideas is arbitrary and verbatim, the newly learned, in fact, is not incorporated into the learners' cognitive structure. Since new information is not incorporated into the learners' cognitive structure, it makes the retrieval process arbitrary and unsystematic, thus almost nothing available for future reproduction or problem-solving. As the newly learned is unrelated to the preexisting knowledge structure, the new material encountered will remain in the learners' working memory and cannot be transferred into the long-term memory for future use. What is more, as working memory capability is rather limited, newly encountered material may either be quickly forgotten or disturbed by the previously learned, concurrently experienced, and subsequently encountered similar ideas. The ones mentioned above fully show the superiority of meaningful learning in helping learners acquire and retain knowledge in more effective, efficient, and systematic ways.

Of course, behaviorism learning theory does play an obvious role in training certain skills, homework practice and behavior correction, and has a great impact on the development of early educational technology. But it only emphasizes external stimuli of learning materials, denies consciousness, for example, the relevant concept in learner's cognitive structure, and does not explain how learning materials produce meaning through interaction and after the assimilation of meaning of old and new knowledge. It unilaterally emphasizes the role of environment and education, and ignores the subjective dynamic role of learners' cognitive process. Therefore, it has great limitations to only rely on the framework of behaviorism learning theory to design teaching activities or set learning tasks.

3.4 Forgetting Viewed from Meaningful Learning

Ausubel et al.(1978) distinguished three phases in meaningful reception learning and retention. The first phase is meaning acquisition learning. Potentially meaningful ideas and information are linked to the relevant ideational systems in cognitive structure, thereby giving rise to idiosyncratic meanings, with both similarities and significant differences, with a given degree of dissociability strength.

The second phase is retention of the meaning acquired (the maintenance phase of the availability of the new knowledge meaning) or bad memory of meaning acquisition learning stage due to the gradual loss of dissociability strength of propositions. For one thing, bad memory may be affected by the nature of the concept itself that plays a fixed role in learners' cognitive structure and learners' personality characteristics. If the prior concept itself is unstable and unclear, it will not be distinguishable, thereby giving rise to bad meaning retention. It is possible that learners' cognitive structure simply does not have appropriate anchoring concepts to assimilate new knowledge, thus giving rise to ambiguity, confusion, and wrong meaning from the beginning of learning. In meaning retention stage, new and old knowledge continue to interact, and cognitive structural variables such as usability, distinguishability, stability and clarity will continue to work. For another thing, learners' personal preferences or stereotypes can cause different learners to selectively emphasize, ignore or distort the same material, thus resulting in memory errors. For another thing, the retention of acquired knowledge meaning may be affected by whether there is practice or revision, that is, the consolidation of the previously learned material.

In short, the factors affecting forgetting include the degree of dissociability between old and new knowledge, learners' motivation, procedures, and situations at the time. The maintenance of new knowledge meaning plays a special and important role in strengthening the basic concepts and principles of the initial formation. In the classroom learning, the meaning of the new knowledge can be effectively consolidated and maintained through carefully organized exercises, and deeply internalized into the cognitive structure.

The third phase is the reproduction of the retained material, a process of extracting new knowledge meaning from the cognitive structure and applying it to practice or subsequent learning. For one thing, it depends on the residual degree of availability in relation to the threshold of availability. Below the available threshold of the degree of dissociability between old and new knowledge, the acquired material is difficult to use, that is, it cannot be reproduced or recognized, the former of which requires high threshold, and the latter of which requires low threshold. For another thing, it depends on cognitive and motivational factors influencing both this threshold and the actual process of restructuring of reformulating the retained material into a verbal statement such as emotions, attitudes, motivation, competition, etc. Up and down fluctuations in the threshold of availability due to various factors can affect the recall performance. In this sense, the threshold of availability is regarded as the available breadth and depth of the sensitivity of individual feelings, as well as its thinking breadth. If the threshold of availability increases, the accuracy rate increases, and the recall rate decreases; spontaneous activation of nihilism even in seconds can stimulate metacognition with the burst activation of the brain. For example, the presentation of multi-point information can reduce anxiety. Stage fright can cause difficulties in memory due to competitive situations, excessive motivation, non-calm attitude, and nervous emotions. The elimination of these internal and external factors can recall the content that could not be reproduced at the time, thereby improving the recall effect. Balancing work and rest, and achieving the integrity of body and mind can promote physical and mental health, therefore, improve the cognitive effect. Furthermore, pragmatic ability and affective factors influence the actual process of restructuring of reformulating the retained material into a verbal statement. Restructuring is a process of using language appropriately and expressing correctly by mobilizing cultural context, knowledge, and experience according to a certain situation and context. Similarly, emotional factors affect the ability to use the retained material, the ability to make written words or expression by restating the retained material. Anxiety is the main psychological factor affecting written expression, and the fear of restating wrong is the cause of students' high anxiety level. Students must be encouraged to restate boldly and develop the habit of actively conducting written expression or actively making a statement. Teachers should create teaching situations and use a variety of means so that students are willing to do so. When students gain confidence and enthusiasm, a virtuous circle will be formed.

During each phase, many factors may contribute to the forgetting of meaning such as the unavailability of the relevant anchoring ideas in cognitive structure, the instability of these anchoring ideas and the lack of discriminability between learning materials and anchoring ideas. In the learning phase, ambiguity, confusion, and wrong meanings may emerge from the very beginning of learning process. Such unfavorable outcomes are particularly likely if the learner's need for acquiring adequate meaning and self-critical attitude about it is deficient.

Another reason for the difference between presented and remembered content that is contributable to the first phase reflects personal preferences or stereotypes of different learners who selectively emphasize, ignore, or distort the same material, thereby resulting in the selective emphasis, omissions and distortions that take place as a result of the initial interpretation of the presented material, and finally the memory errors. Each learner is different in possessing a series of established and relevant anchoring ideas (including biases) in his cognitive structure to assimilate the new material, and the resulting meaning in each case is the result of assimilation, and the selective distortion, discounting, dismissal and the reversal of the intended meanings that are induced by the learners' particular set of biases. In all cases, the relative weight of idiosyncratic cognitive structure in determining the meaning content of the presented material is greater than that of learning material itself.

In the retention phase, newly learned meanings tend to be reduced to the established ideas in cognitive structure that assimilates them. That is, they tend to become more unqualified and more similar in import to the anchoring ideas. The same cognitive structure, practice and task variables affect the original dissociability strength and the materiality and authenticity of the emerging meaning, which determines its subsequent separation pressure.

This phase is more suitable for systematic learning and review. At this phase, teachers should strengthen the logic and systematization of teaching to help students to establish a good cognitive structure by thoroughly understanding the materials, and attentively connecting knowledge. Whether the teacher's teaching is logical and systematic mainly depends on whether the teacher has formed a framework of knowledge in his mind. Therefore, teachers should constantly accumulate their own experience in the long-term teaching process, and gradually form their own knowledge framework. Students should study systematically by carrying out a series of analysis and thinking of fragmentary knowledge, and in-depth understanding and memory. Also, they should review systematically by stringing up the learned knowledge, or sorting it out, and integrating the knowledge, or forming a knowledge base.

In the reproduction phase, if factors affecting the threshold of availability are used to raise the threshold of availability, then the recall performance of orderly available measures will increase. Or in the very process of being reconstructed in accordance with the requirements of current reproductive status, the available meanings may be altered. This phase is important for teachers to train students to learn and practice reproduction activities to demonstrate students' retention by reconstructing their knowledge, for example, using the learned grammar knowledge to identify the key elements of a complex sentence for key idea, using the learned genre types for discourse analysis to identify author's point of view, to recognize author's purpose, to determine author's attitude and tone, etc., and using essay tests in a cultural environment rather than recognizing the correct alternatives among multiple choices.

3.5 Implications for Reading Pedagogy

Ausubel's meaningful learning theory has strong implications for teaching and learning. There are some aspects of his theory that teachers have found to be useful and applicable in practical teaching.

3.5.1 The Advance Organizer

This term endures and continues to survive. It refers to a guiding material presented to learners before learning the new material. That is, teachers should epitomize an idea before trying to teach the details. Students need to understand the "big picture" before they can make sense of the details. It is higher in the generalization and inclusion level than the new learning material, but is stated in a language familiar to the learner. Because it has a clear connection between the original cognitive structure of the relevant ideas and the new learning materials, so it can provide a conceptual support for the new learning, or can improve the degree of discrimination between the old ideas and the new ones. The advance organizer could be thought of as Ausubel's notion of how to provide the "big picture" in a systematic and efficient manner.

"These organizers are introduced in advance of learning itself, and are presented at a higher level of abstraction, generality, and inclusiveness; and since the substantive content of a given organizer or series of organizers is selected on the basis of its suitability for explaining, integrating, and interrelating the material they precede, this strategy simultaneously satisfies the substantive as well as the programming criteria for enhancing the organization strength of cognitive structure"(Ausubel, 1963, p.81).

In meaningful learning, whether learners have existing knowledge and experience to digest and absorb new knowledge is very important. Teachers should analyze whether students have the previous knowledge needed to learn the content. When students lack this knowledge, teachers can provide "advance organizers" for students. Otherwise, rote learning and mechanical learning are boring and meaningless in school, as are teaching activities.

According to Ausubel, advance organizers might promote meaningful learning by encouraging students to think about previous superordinate concepts that already exist in their cognitive structure, usually general meanings, and by providing a context of general concepts so that students can integrate progressively differentiated details into it. Ausubel claims that by presenting a global representation of the knowledge to be learned, advance organizers might promote integrative reconciliation of the sub-domains of knowledge. For example, there are many classifications of fruit. One of them is classified into the acidic, sub-acidic and sweet, which are the sub-domains of fruits. That is to say, advance organizers can foster the understanding of interconnections among the basic concepts in the domain, and the common characteristics of different fruits constitute the interconnection between the basic concepts of fruits.

3.5.2 The Comparative Organizer

How do we remember concepts and not forget them? Ausubel put forward the concept of the comparative organizer to improve the ability to distinguish between old and new knowledge so as to ensure that students acquire accurate knowledge. When students are neither completely familiar with nor clear about the new learning content, which is easy to cause confusion between new and old knowledge, students can use it as a learning strategy to compare the similarities and differences between the new concept and the original concept of cognitive structure so as to enhance the discriminability of ideas. In other words, a comparative organizer allows students to easily see the similarities and differences in a set of related ideas so as to discriminate a concept from other closely related ones. In this way, students can remember concepts, and keep concepts from fading, or get them into higher-level ideas.

The comparative organizer acts as a reminder, for example, through comparison and contrast, activates or stimulates the existing schema, and brings relevant content into the working memory that students may not be aware of. By acting as a reminder, the organizer explicitly points out the "non-specific or

specific” relevance between the already established anchoring ideas and the learning materials (Ausubel & Robinson, 1969, p.146) . Therefore, the comparative organizer is used to compare new materials with similar materials in cognitive structure so as to enhance the discrimination between new and old knowledge. The comparative organizer can be used both to integrate as well as to discriminate. It not only integrates new concepts and basically similar concepts in cognitive structure, but also increases the distinguishability between new and old concepts that are essentially different but seemingly the same.

An example of a comparative organizer is the lesson I taught about challenges and opportunities in college life. The content of this unit is related to college life. However, the emphasis and expression of each article are obviously different. In order to enable students to strengthen their understanding of the differences in each article, I used the comparative opening introduction. In teaching *The Myth of the Successful College Dropout*, I first pointed out that the outlier status of exceptional dropout entrepreneurs and innovators is different from that of young people without access to important resources, and that the conclusions of these two articles are the same, both of which are about the importance of going to college. This statement acts as a comparative organizer. In teaching *Some thoughts from a Professor*, I started with the structure of problem-suggestion-conclusion of the article, explained the challenges and opportunities of the university, and pointed out the purpose of the text is to make parents and students recognize the importance of going to university.

3.5.3 Progressive Differentiation

Progressive differentiation is a principle of learning organization on the basis of assimilation theory put forward by Ausubel. It is mainly aimed at subordinate learning, which is a process of attributing new concepts or propositions with a low degree of generalization or inclusion to appropriate concepts or propositions with a higher degree of generalization or inclusion that already exist in the cognitive structure so as to acquire the meaning of new concepts or propositions. This principle believes that when learners are exposed to a completely unfamiliar area of knowledge, or a strange part of the knowledge system, they are easier to grasp the details of differentiation from the known and more general knowledge than to summarize the overall from the detailed known knowledge. In other words, deductive acquisition is more time-saving and labor-saving than inductive acquisition, and is conducive to meaning retention. Therefore, teachers should first teach the most general and inclusive concepts, and then gradually differentiate them according to the specific details so as to provide an ideal fixed point for the teaching of each knowledge unit.

According to Ausubel, the purpose of progressive differentiation is to increase the stability and clarity or discriminability of cognitive structure. When students face new learning tasks, if they already have the appropriate concept of assimilating new knowledge in their cognitive structure, but the original concept is not clear or not consolidated making it difficult for them to apply, or making it impossible for them to distinguish the relationship between new and old knowledge, teachers can design an “advance organizer” to compare the similarities and differences between new and old knowledge. Ausubel puts particular emphasis on the design of "advance organizer" before new learning, which aims to provide a conceptual fixed point for new learning, increase the distinguishability between old and new knowledge, and build a bridge between new learning tasks and students' original cognitive structure so as to promote knowledge learning.

Look at the previous example. If the teacher teaches two related topics together: *Some Thoughts from a Professor* and *The Myth of the Successful College Dropout*, but not teaches all of *Some Thoughts from a Professor*, then goes on to *The Myth of the Successful College Dropout*, she takes a spiral approach to teaching. That is, she first taught some "big" things in these two topics. For example, the general statement in one article is that the outlier status of exceptional dropout entrepreneurs and innovators is different from that of young people without access to important resources, and the general statement in another article is that a professor has a few suggestions for parents and students heading off to college, and the conclusion of two articles is that it is important to go to college. Then she taught some details of the article one after another. In the process, she pointed out the same principles of the two topics and the aspects that differentiate them.

3.5.4 Integrative Reconciliation

Ausubel believes that the organization of curriculum content should consider the social and individual issues that students need to explore at all stages of development, a relatively independent content topic, the horizontal connection of knowledge, and the similarities and differences of students' cognitive structure, rather than blindly considering the logical sequence of knowledge. If the originally related concepts are separated from new knowledge, there will be conflicts when the old and new knowledge are connected, which will lead to students' cognitive confusion and rote learning. He believes that the

arrangement of the teaching materials should conform to the students' cognitive rules rather than the logical rules of the text itself. In this way, students can identify the relationship between each idea and other parallel ideas, eliminate contradictions and confusion between them, have a clearer understanding of knowledge, and consolidate knowledge.

The accuracy, richness, and organization of students' knowledge in cognitive structure knowledge affect their learning of new knowledge. Ausubel believes that all new, meaningful learning arises on the basis of the original learning, and learning that is not influenced by the original cognitive structure does not exist. Therefore, students' cognitive structure is always the most critical factor in meaningful learning. Ausubel pointed out that even with one exercise alone, the effect reflects the impact of the student's original cognitive structure. The new information gained in one exercise, in turn, modifies and distinguishes the original cognitive structure, thereby changing the cognitive structure and influencing the next learning. A good cognitive structure depends on a comprehensive understanding and absorption of previous knowledge. The more consolidated the original learning structure is, the more helpful it is to the learning transfer, that is, using new knowledge and skills to solve problems. Therefore, teachers should present the best knowledge structure of the learning content to the students in the best way so that they can form a good cognitive structure, and eventually optimize it for various abilities. Only after constant consolidation and a full understanding of previously learned concepts can cognitive structures play an effective facilitative role in the learning of new information.

3.6 A Review of Previous Studies at Home and Abroad

Meaningful Learning Theory was founded by D. P. Ausubel, an American cognitive psychologist, in the 1960s. From the 1960s to 1980s, it underwent ups and downs, which can be proved by reviewing the previous literature. After meaningful learning theory was put forward, scholars immediately launched a fierce discussion, and some people confirmed the validity of Ausubel's theory. In the late 1970s, it was attacked by some scholars who disapproved of it, so it lost its fashion. But since the beginning of the 21st century, with the rise of sociocultural theory, meaningful learning has been reexamined and repopularized.

After the theory was put forward, foreign researchers studied the important role of meaningful learning in improving students' ability in various fields from different perspectives. Theoretically, Blanton (1973) introduced meaningful verbal learning theory and provided some implications for reading research; Novak (1978) and Ruberu (1982) regarded meaningful learning theory as alternatives to both Piagetian psychology for science and mathematics education, and Bruner(1996)'s discovery learning in mathematics instruction. Ruberu thought of meaningful learning theory as the psychological basis for learning mathematics.

Empirically, meaningful learning theory was illustrated as effective by its application in many fields, for example, in adult English reading. Schumacher, Gary M. et al. (1974) explored the use of advance organizers among undergraduate college students in the retention of prose material. The results indicated that the main effect for paragraph organization was significant with undergraduate college students performing better under the whole condition than under the part condition.

West and Kellet (1981) applied Ausubel's subsumption theory to the domain of learning intellectual skills and examined the possibility of providing information on the dimension in the learning of intellectual skills. The result is concerned with the learning outcome—that is, the meaningful learning of intellectual skills.

Thompson, Dennis N. (1985) explored the use of advance organizers to improve reading comprehension in older adults. Findings suggested that advanced organizers may help adults of all ages in recognition memory. Analysis showed that the elderly may have been able to generate their own advance organizers to some extent.

The first part of the article of Williams, Thomas R. & Butterfield, Earl C. (1992) reviews previous research on advance organizers, introductory text adjuncts intended to provide the reader of expository text with a meaningful context within which to process unfamiliar, difficult, new information. Research conducted over the past thirty years has well demonstrated the fact that advance organizers do inspire significant increases in comprehension among readers whose prior knowledge is inadequate to provide a necessary assimilative context. The second part of the article presents the results of two empirical studies, resolving the methodological problems in previous advance organizer studies, and specifically addressing the question of whether advance organizers facilitate the acquisition of subordinate information from text. In the first study, a significant organizer by text or no text interaction and absence of a significant main effect for the organizer indicated that the organizer influenced text processing rather than priming

relevant prior knowledge, which was a previously undocumented requirement of the advance organizer. In the second study, they observed a significant main effect for importance and a significant four-way interaction involving structure, importance, background, and organizer. The more relevant knowledge the reader had, the less dependence he had on text structure, and an advance organizer compensated for the lack of relevant prior knowledge (which means he had more reliance on text processing).

As can be seen, some theoretical and empirical studies have shown the effectiveness of meaningful learning theory although there are cases where advance organizers are not obvious in effects or they are helpful only under a particular condition or they have nothing in effects. The variables that may affect this effectiveness include genre, learners' different reading ability, cognitive factors in readers' psychology, information presentation manner, test questions, given reading materials, etc. It's worth arguing about it here. For example, advance organizers have no positive effect when information is presented in a logical manner (Mayer, Richard E., 1978). When information is presented in a logical manner, advance organizers have no positive effect maybe because they are not necessary for undergraduates who need less help than younger kids. Besides, the test questions in the study reflect the organization of the presentation just right demonstrating the role of advance organizers. The problem is that some authors are likely to present materials in an awkward, unfamiliar or complicated manner, for example, combining the different text writing patterns or paragraph development patterns in one essay or presenting in strange ways. No positive effect and being unnecessary does not mean that advance organizers are ineffective. Singularity maybe arises just because the variables exist. Basically, they could be effective.

Although some theoretical and empirical studies showed the effectiveness of meaningful learning theory, some other scholars criticized Ausubel for his theory. "The most persuasively voiced criticism of advance organizers is that their definition and construction are vague and, therefore, that different researchers have varying concepts of what an organizer is and can only rely on intuition in constructing one—since nowhere, claim the critics, is it specified what their criteria are and how they can be constructed" (Ausubel, 1978, p. 251).

In a response to the critics, Ausubel defends advance organizers by saying that there is not one specific example in constructing advance organizers as they "always depends on the nature of the learning material, the age of the learner, and their degree of prior familiarity with the learning passage" (Ausubel, 1978, p. 251).

The results of the research on the effectiveness of advance organizers in the past 20 years show that there is little empirical support for their use. One of the main reasons for the lack of strong support is that the organizers adopted are not really objectively described and defined, and their derivation and construction are concomitantly poorly controlled. Since the popularization and availability of systems aimed at objectifying the description of linguistic information, this defect has become particularly serious in the past decade. In view of these problems in the past research, it is not surprising that there is the lack of substantive and statistical results.

In addition to the criticism, some scholars have compared meaningful learning theory with other theories and showed some doubts about the theory. For example, Albert (1979) argued that Ausubel didn't offer a theory that could be an alternative to Piaget's developmental psychology.

With much criticism and doubt, meaningful learning theory experienced a period of decline. But, since the 21st century, meaningful learning theory has been revived and has become more widely used in many different fields.

Distle (2015) regarded meaningful learning theory as beneficial to the psychology educational professional practice. That is, considering the formation of individual cognitive structure, the physician must pay attention when intervening.

The results of the research on effects of advance organizers in advisory reports on selective reading, recall, and perception show that graphic advance organizers facilitate selective reading, and that verbal advance organizers introducing a problem enhance recall, and they moderate the effects on both selective reading and recall (Lagerwerf, Luuk, et al., 2008).

After the re-appearing of meaningful learning theory, people can see the theoretical development and its wider application. According to research in educational psychology, advance organizers lead to better learning and recall of information (Lagerwerf, Luuk, et al., 2008).

In China, the research about meaningful learning theory is mainly theoretical introduction or application in different fields of learning. An earlier introduction to meaningful learning theory can be reflected in Chen's work. Chen Changcen (1985, 1986 and 1987) gave a detailed review of meaningful learning

theory from the theory itself and its significance and application in curriculum design.

Since the early 21st century, more and more new research has been done by Chinese scholars. Lin, Huifen & Chen, Tsuiping (2006) studied the effect of question and descriptive advance organizers in facilitating EFL learners' comprehension of an animation-based content lesson. The results showed that the question advance organizer is the most effective cognitive strategy to enhance EFL learners' comprehension of the content-based lesson, and no significant difference was found between animation alone and animation embedded with descriptive advance organizers with regard to students' achievement. And the causal variables have been analyzed above in this section.

Chen Hong (2009) illustrated the application of meaningful learning theory in EFL learning and teaching, and emphasized the importance of learners' active construction of meaning.

Wang Huilai (2011) adopted a meaningful learning theory and analyzed the necessity of cultivating students to play a positive role in learning, thus providing inspiration for curriculum and teaching reform.

Fan Lihui (2012) demonstrated the possible and feasible application of meaningful learning theory in the teaching practice of college students in the new era.

Liu Yanmei (2017) studied the effects of background knowledge and language proficiency in meaning acquisition and meaning retention based on meaningful learning theory and schema theory. The study showed that the provision of relevant knowledge will improve meaning acquisition and meaning retention, and there is an interaction between the presence of background knowledge and learners' language proficiency.

To summarize, meaningful learning theory have been demonstrated as effective both theoretically and empirically by most of the studies.

3.7 A Short Critique on Meaningful Learning Theory

Meaningful learning theory has been tested effective by many studies. Its advantages are obvious. The existence of prior anchoring cognitive structure does provide possibilities for learners to better comprehend and retain information. The resulting meaning from the meaningful learning is easy to understand and retain. Advance organizers are effective in providing conceptual support for new learning, improving the discrimination between old and new concepts, and promoting learning and transfer by organizing and presenting teaching materials.

But there are disadvantages for this theory. It does not explain the learning process from the learners' internal psychology, the learning psychological structure of the learning process, and pays insufficient attention to the non-intellectual factors of the psychological conditions in the learning process. In other words, this theory places heavy emphasis on the cognitive structure of learners itself although the existence of prior anchoring cognitive structure does work on comprehending and retaining information. But this theory doesn't address the question of how learners activate and make use of this cognitive structure. Schema theory makes a good remedy for this. Besides, the most persuasively voiced criticism of advance organizers is that their definition and construction are vague. Anderson et al.(1978) put forward schemata as scaffolding for the representation of information in connected discourse to make up for some vagueness of the concept of advance organizers. Their experiment evaluated the hypothesis that information that is significant in the light of the conceptual framework, within which a text is interpreted, ought to be better learned and recalled than less significant information.

Reading plays a very important role in English learning. For English learners, especially foreign language learners, reading comprehension ability is one of the most basic skills in the learning process because a large amount of reading is the fundamental guarantee for the improvement of the practical application of foreign language ability. People are constantly looking for new reading patterns to improve the effect of reading comprehension. Schema theory is a kind of influential reading theory, which provides new enlightenment for the explanation of reading comprehension process, during which the activation and use of schema knowledge has its unique and huge advantages, which is of great significance to reading practice and teaching activities.

4. Schema Theory and its Application in English Reading Teaching

Meaningful learning theory was criticized for laying too heavy emphasis on the cognitive structure of learners itself. As comprehension, schema theory was introduced to pay due attention to the active role of learners.

4.1 Schema Theory

4.1.1 Philosophical and Psychological Rationale

In English, schema comes from Greek and Plato's theory of ideas. He expounded human cognitive activities from the perspective of psychology emphasizing that people recognize the world through ideas. From the perspective of psychology, schema theory belongs to gestalt psychology theory. Schema is the brain's reflection and active organization of experience. The reconstruction and transformation of the acquired material is a positive influence of learners' previous knowledge or experience. From the perspective of philosophy, schema is believed to be the link between concepts and perceived objects in the brain.

Immanuel Kant (1781), a German philosopher, first proposed the philosophical concept of schema as long ago as in 1781 in his *Critique of Pure Reason*. According to Kant, new information, new concepts, new ideas can have meaning to an individual only when they are related to what the individual already knows. From this view, it is clear that Kant had realized at that time that meaning didn't exist independently of readers, and readers' prior knowledge played an important role in the process of extracting meaning from graphics and words in printed things. More recently, the research results of Anderson et al. (1977) showed high-level schemata provide the interpretative framework for comprehending discourse. They believe that "Every act of comprehension involves one's knowledge of the world" (p.369). With advances in cognitive psychology and cognitive linguistics, Pearson & Johnson (1978) defined comprehension as "building bridges between the new and the known"(p.24). When the reader knows something, the reader connects the new things and integrates them into the reader's cognitive sphere, and comprehension takes place.

In such an early age, schema theory emphasized the importance of the known, but it was never adopted to explain the reading process. In the 20th century, Gestalt psychology appeared and provided a psychological rationale for schema theory. Gestalt psychology, as Anderson and Pearson (1984) said, is the study of the brain's reflection and active organization of experience. It advocates the study of direct experience (i.e. consciousness) and behavior, emphasizes the integrity of experience and behavior, believes that the whole is not equal to and greater than the sum of parts, and advocates the study of psychological phenomena with the dynamic structure of the whole.

4.1.2 Schema Theory

Kant initially defined the concept of schema as some natural structures that enable us to comprehend nature. In essence, it refers to a formal structure of cognition. Piaget (1980), a Swiss philosopher and psychologist, follows Kant's concept of schema and believes that schema is the starting point and core of cognitive structure. In fact, schema will continue to develop and construct, and schema will gradually develop in the acquired cognitive activities.

In Piaget (1980)'s *The Psychology of the Child*, he gave a definition of schema: Schema is the structure or organization of actions, which induce migration or generalization due to repetition in the same or similar environment. Schema theory was originally put forward in cognitive psychology, which is thought to be first touched upon and introduced by Bartlett, a British psychologist, in his *Remembering: A Study in Experimental and Social Psychology*. In this book, Bartlett (1932) put forth that schema is an active organization or initiative organization of previous reactions or experience, which must always be supposed to be organic response in any well-adapted organic response. Namely, schema is referred to as the past background information stored in peoples' memory, which can be activated. Afterwards, scholars made a further study on schema theory and many definitions were given to schema in psycholinguistic field.

Modern schema theory came into being in the mid 1970s. Widdowson (1983), a famous British applied linguist, defined schema as the cognitive framework stored in the brain's long-term memory, which is responsible for managing information. When the information enters the brain and activates the relevant schema, schemata will provide background knowledge to explain the information, and people will make predictions and reasoning beyond the given information. So, background knowledge is also called schema. In 1980, Rumelhart, an American human intelligence expert, developed the concept of schema

into a complete theory after a series of studies, making contribution to the improvement of schema theory. He added that the knowledge in our minds is packed into units, or schemata. He also believes that the schema has the stereotyped structure and containing elements. Namely, schema represents an interactive knowledge structure. According to Carrell and Eisterhold (1983), only when new information and knowledge build the relationship with the previously acquired knowledge experience, can they have the meaning in comprehension. These acquired knowledge and experience are called schemata. Thomas G. Devine (1987) defined schema as follows: Schema theory is the theory of knowledge, and all knowledge is constructed in the form of knowledge as a unit (schema), that is, the schema of knowledge. Schema refers to the advanced, complex, cumulative structure that reflects the typical scenes in the brain (Cook, 1989).

In short, schema refers to the use of previous knowledge or experience related to the topic to guess things related to the topic, which is called schema. To be complicated, schema is the storage mode of the surface characteristics of a series of knowledge or experience organized around a theme, and is the interrelated knowledge, views and concepts stored by the brain; schema is the storage of knowledge units that interact and correlate at different levels in memory. Therefore, schema is a kind of knowledge stored in memory as the content that individuals already know. The existing schema knowledge or ability in the mind will affect new vocabulary or new ideas. Learners absorb new knowledge, and then build schemas to form cognitive process. In foreign language teaching and learning, schema refers to the cognitive structure and cognitive characteristics of English knowledge or experience.

The so-called cognitive structure is the knowledge structure in the learner's mind. The cognitive structure of an individual is composed of the accumulated knowledge that is constantly expanded and improved through assimilation in the learning process. Once the cognitive structure of a learner is established, it becomes a very important energy or factor for the learner to learn new knowledge. The amount of knowledge stored in students' brains directly determines the learning effect. Therefore, we should use schema theory to guide students to learn English.

Cognitive structure is transformed from knowledge structure. Teachers actively create conditions and situations for students to participate in the teaching process, and set teaching activities and tasks. Students transform knowledge structure into cognitive structure in the process of learning. With the continuous accumulation of knowledge content, the original knowledge structure of the brain is broken and the cognitive structure is reconstructed in the new learning process and in the process of recognizing new knowledge. In the establishment process, errors should be treated correctly.

4.1.3 The Development of Schema Theory

(1) Kant's Concept of Schema

The term schema was first coined by Kant in 1781. In modern psychological research, gestalt psychology was the first psychology to attach great importance to schema theoretically. Gestalt psychology is one of the main schools of western modern psychology. It emphasizes holistic attributes rather than isolated perception. Gestalt psychologists believe that the attributes of the whole experience cannot be inferred from its parts. For instance, you cannot get the full impact of the Mona Lisa by looking at first one arm and then another, then the nose, then the mouth and then trying to put all these experiences together. What is shown in the reading process is that comprehension will take on an organized whole by interacting surface stimulus (visible graphic words in the print) with the deep and invisible psychological process.

In 1781, Kant put forward the concept of schema in the principle analysis of his *Critique of Pure Reason*. Schema theory is an important theory of Kant's transcendental epistemology. The theory proposes that the combination of sensibility and intellectuality, individual and general, intuition and concept is through an intermediary, that is, through a structure and approach to achieve the unity of subject and object. Perceptual experience, individual knowledge and intuitive phenomenon are subordinate to concept or intellectuality or general knowledge. Kant believes that the connection of human cognition of different qualities and different kinds is through the intermediary of schema, and the unity of subject and object is placed in an inevitable connection with internal structure and internal mechanism, which is manifested as a dynamic and creative process and way of subject to object construction, a dynamic leap in the process of cognition and the way of realizing subject value.

His transcendental schema theory found a new way to achieve the unity of subject and object, that is, schema. In the history of western philosophy, it only relies on the same kind of knowledge to solve the unity of subject and object; schema is the form of realizing cognitive leap. Schema theory emphasizes the construction of subject to object, through which universal and inevitable scientific knowledge is formed.

The essence of cognition is the active and creative reflection of the subject to the object through practice. Practice is the basis and source of knowledge, and knowledge is obtained by actively transforming the object through the practical activities of the subject. Cognition is the reflection or imitation of the object, that is, cognition takes the object as the prototype, and cognition must contain the content of reflecting or copying the object. The reflection of cognition on the object is characterized by initiative and creativity including certain selectivity and reconstruction rather than simple and direct imitation.

In order to realize the leap in schema cognition, teachers need to make use of the initiative and creativity of the subject in the construction of the object, actively transform the object through the subject, take the object as the prototype, reflect, or imitate the object, and obtain universal and inevitable scientific knowledge.

He believes that the concept itself has no meaning, and only when it is connected with the known in the memory of people's minds, can it have meaning. Concepts are not memorized in people's brains in isolation, but are interrelated to each other, forming a cognitive structure schema that reflects the interconnected things.

Schema acts as a bridge between objective things (sensibility) and transcendental knowledge (concepts or categories). Kant believes that knowledge is not only perceptual experience, but also the result of transcendental knowledge acting on perceptual materials. In order to form knowledge, a priori schema (previously acquired knowledge structure) acts as an intermediary between priori knowledge and perceptual materials. According to the transcendental schema theory, understanding language materials is an interactive process between the reader's background knowledge and language materials. Effective understanding requires linking the original materials with the learner's own knowledge. Schema theory describes the reading process in which the reader connects the existing background knowledge with the information in a text in order to understand the text. Background knowledge refers to the social environment and living environment in which the author writes, as well as the thoughts and emotions that the author wants to express, that is, the background knowledge and previous experience of the learner's brain, the content related to the theme of the article and its related social and cultural knowledge.

English is a foreign language in China. Teachers need to consider that readers are not native language learners, and background knowledge should not only be limited to the content related to the theme of the article. In addition to learning language points, difficult sentences, and the translation of sentences or paragraphs, college students need to learn other knowledge, establish other knowledge structures and cognitive structures, and acquire the ability to read English. A person's learning speed and ability depend on what he learned in the past time, how much knowledge he accumulated in the past time, and the knowledge accumulated and stored in the brain can become background knowledge.

Because the information itself is presented by leaps and bounds, if the reader's background knowledge is insufficient, his understanding ability will not be in place, and he will feel abstruse and difficult to understand. In the long run, readers will lose the ability to read and think, and can only read inspirational stories or pseudoscientific articles because understanding these contents only requires basic life experience, not other background knowledge. When background knowledge is needed to understand the article, the lack of background knowledge of readers will be exposed. If the reader has relevant background knowledge, it is easy to classify the new knowledge they understand into memory and experience and accumulate and preserve the individual experience in his mind. Only when the learner understands, can he remember. Memorizing isolated knowledge points by rote is easy to forget. Therefore, background knowledge determines the level of learning efficiency. Only by reading more can the learner gain background knowledge, enhance his understanding ability and make him smart. When readers accumulate enough background knowledge, their memory and expression ability will be improved.

Therefore, readers should go beyond traditional learning methods, expand knowledge in the brain, match and connect with information in language materials, correctly read and understand language materials, construct knowledge structures or cognitive structures, increase background knowledge or relevant knowledge in the brain, and improve their reading and understanding abilities.

(2) Piaget's Schema Theory

The famous Swiss psychologist and educator Piaget also attaches great importance to the concept of schema. In the 1960s, Piaget followed Kant's schema concept and founded the genetic epistemology. In his genetic epistemology, he transformed it into the starting point and the core of cognitive structure, and used schema construction to explain the development of psychological structure. In other words, any behavior is based on schema, and schema should continue to develop and construct. Schema theory is the core of this theory. It can be said that genetic epistemology is essentially his schema theory. Piaget (1980) believed that schema is a repeatable and organized thinking mode, which can also be called

cognitive structure, image representation, internal mode, etc. Schema is not a specific action, but the structure or organization of actions. These actions cause migration or generalization due to repetition in the same or similar environment. The structure and organization of actions is the content of generalization and differentiation, which is called action schema. In other words, schema is the common content formed by the same activity after its being repeated and used for many times, and it is a relatively stable cognitive structure for people to a certain kind of activity. Schema is a bridge from experience to concept.

Another important concept of Piaget's schema theory is construction. Piaget believes that schema, once formed, will be produced in the interaction between subject and object, and continue to develop in this process. In the process of interaction with the object (new stimulus), learners gradually enrich and improve their cognitive structure. Through continuous differentiation and generalization, new schemata are constantly formed from simple to complex, from low-level to high-level, from scattered to overall, and new schemas continue to form. With the increase and complexity of schemata, the development level of schemata continues to improve. Multiple schemata begin to cooperate, and then schemata develop from low-level to high-level. Therefore, teachers' reading teaching has gradually shifted from literal comprehension or word identification to text or discourse analysis.

Piaget pointed out that children's actions cause migration or generalization to form a schema due to repetition in the same or similar environment. The pathway includes assimilation and accommodation. The process of schema construction is completed in assimilation and accommodation. Assimilation is the integration of external elements into a structure that is being formed or has been fully formed. It causes the development of schema quantity. Piaget believes that, for children, accommodation refers to the cognitive process in which the subject adapts to the new stimulus by changing the existing schema (or forming a new schema) when the original schema can no longer assimilate the new stimulus. Reading needs to activate the existing fully formed cognitive structure schema and construct a new cognitive structure schema; when the original schema can no longer assimilate new stimuli, readers need to modify or establish new schemas to adapt to the changing environment. Accommodation causes changes in schema quality to better adapt to the environment. Cognitive development is carried out through the balance of assimilation and accommodation. Piaget's genetic epistemology psychologically uses cognitive assimilation theory to explain the development of children's intelligence.

The schema knowledge that readers have is the basis of understanding the article. If readers use the wrong schema or cannot find the current schema, their comprehension will be biased. Therefore, in reading teaching, teachers should promote students to master basic schema knowledge through various teaching means and ways.

In China, teachers' traditional classroom teaching method often pays attention to the explanation and indoctrination of language points, and the translation of difficult sentences and paragraphs in the text. Students lose interest and enthusiasm in learning, resulting in low reading efficiency. Under the traditional teaching method, students usually read the text one by one, and the language material is a single text. One way is to turn the teaching upside down starting from the overall text explanation and overall content understanding using the learned language knowledge to browse and capture important language clues, to have a general impression of the article, and to find out the main idea and the important information in sections so as to have a deep understanding of the article including understanding the function and the structure of the text, and cultivating students' discourse ability, and ending with the explanation of language points or the translation of difficult sentences and paragraphs. Another way is to let teachers systematically tell some knowledge beyond language points from single simple language materials to materials that can cultivate students' reading ability. Through the output of materials, they can match and combine with the existing schemata or the examples in their minds, construct new strategic schemata or ability schemata, and successfully complete the accommodation process; after learning vocabulary, sentences, grammar and other language knowledge, readers should achieve a leap in reading, or reach a higher reading level. Learning the concepts, strategies, skills, and methods of reading and relevant schema knowledge will help them successfully complete the process of assimilation and accommodation in the construction process.

(3) Bartlett's Schema Study

Bartlett focused on the traditional problems of human experimental psychology in his early years. His most important and influential book is "*Remembering: A Study in Experimental and Social Psychology*" (1932). His research reveals the influence of social factors on human memory in the experimental situation, and states that individuals do not simply copy materials in memory, but reconstruct materials according to existing experience. The concept of schema was put forward when he explained the experimental results. In his view, every new experience is always accumulated through this pre-existing

model. His schema theory plays an important role in modern cognitive psychology. In another important book, "*Thinking: A Study in Experimental and Social Psychology*" (1958), he compared thinking to high-level skills because both are systems organized hierarchically by some fundamental processes.

Now let me talk about Bartlett's main academic views and achievements. (1) He emphasizes the active role of memory process, highlights the integrity of psychological function. He believes that memory is not only a reproduction, and a passive search of existing fixed memory, but also an architectural process, that is, an active memory process, a memory process conceived through repeated deliberation. (2) He compares thinking to a game of skills, and thinks that thinking is an integrated activity with certain directivity, rhythm, and continuity, among which the directivity of thinking activity is the cornerstone of his structural theory. The directivity of thinking activities means that he thinks that schema is a reflection or an active organization of experience; rhythm refers to the generalization and the organization of new characteristics in the form of repetition to form a coherent and orderly whole (i.e., rhythm), which is conducive to scientific memory; the continuity of memory means that people's memory is regular and methodical, and it forms a whole according to a whole series one by one. (3) He puts forward schema theory. Bartlett believes that schema refers to the active organization or the positive influence or the combination of past reactions or experience. It not only makes individual components work one by one, but also forms a unified whole according to a complete series. This theory is very important for cognitive psychology.

Bartlett's theory emphasizes learners' initiative and language acquisition rather than blind learning. Readers should take the initiative in learning vocabulary. Instead of memorizing vocabulary by rote, they should actively analyze word formation, recognize the meaning of new words according to the context, deliberate on vocabulary repeatedly, form vocabulary conception, and solve the problems of new words encountered in reading; when memorizing, learners regularly memorize words, and continuously learn words in series according to the law of repetition and circulation. Learning in series is to divide words into series according to pronunciation, attributes, affixes, parts of speech, synonyms, and antonyms. If they belong to the same series, whether teachers teach new words or review the learned words, they should expand appropriately so that students can learn a word and master a string, remember a word, and think of a string. For example, readers should not memorize words by rote, but use the images in their minds to connect these words and integrate them into the scene so that readers can remember the corresponding words after seeing the scene in their minds. In this way, the persistence of memory increases; learners should pay attention to the methods of learning vocabulary when reading. They should recognize words in the context of the text. Reading is a basic ability, but learning a language requires more complex processes and skills than reciting the text and imitating. Learners' memory is not to simply recite materials, but to reconstruct materials according to existing knowledge and experience. Therefore, in addition to conventional knowledge, we should learn and accumulate conceptual knowledge and normal information knowledge within a topic.

(4) Rumelhart's Schema Theory

Artificial intelligence is an interdisciplinary subject between computer science and cognitive psychology or cognitive science. It not only simulates human intelligence, but also studies the learning, memory and thinking process of human brain. After information science and computer science went deep into the field of psychology, with the efforts of American AI expert Rumelhart, modern schema theory was further improved or developed in the late 1970s. It had a profound impact on the research of human psychological cognition.

Rumelhart (1980) believes that schema theory studies how human knowledge is represented and how the representation of knowledge is conducive to the application of knowledge in a unique way. According to this theory, all the knowledge stored in the human brain can be divided into units, blocks, and systems after processing. These units, blocks and systems are schemata. Rumelhart believes that schema is the architectural component of cognition. Human cognition relies on the existing schema in memory, and distinguishes various objects from thousands of different individuals in the world through past cognitive experience.

Schema is an interactive knowledge structure stored in people's long-term memory in the form of hierarchy (Rumelhart & Ortony, 1977). In other words, schema refers to people's existing knowledge, but people's existing knowledge is organized orderly in a hierarchical order or hierarchy of system structure or function, which is not isolated and disordered. Each system or subsystem is interconnected and restricted to form a knowledge network.

Schema is the cornerstone of human cognition. When dealing with external information, people need to use the schema in the brain to interpret, predict, organize, and absorb external information according to

the relevant schema. In other words, when people receive new information, they always associate it with known information. The understanding of new information is often dominated by the existing schema in the mind, and the schema stimulated must be related to the new information input. Therefore, it is necessary to activate the corresponding schema in order to recognize the new information. Carrell (1983) proposed that in the process of reading, every input information should be tested by the reader's existing schema, and the reader's understanding of the article must conform to the existing schema, otherwise the schema will be modified to conform to the new information, or the information of the article may be misunderstood. In reading teaching, college English teachers should actively use schema theory to help students establish new schemata, activate, and modify existing schemata so as to help students improve good reading methods, increase their interest in reading and improve their reading effects.

Schema is a temporary system entity based on memory network, which is a generalization of past experience. However, schema is not unchanging. It is an open system. Schema structure is a dynamic, flexible, and elastic structure. It is constantly changing, adjusting, and responding to the existing cognitive experience, and constantly being strengthened, stored, and reconstructed. Therefore, modern schema theory describes how knowledge acquired by people is stored in the brain and how it constitutes a complete and interrelated information system. Teachers should adapt to the characteristics of students' cognitive development and the continuous development of things, and provide help for students' schema development through all teaching activities or tasks.

In addition to knowledge itself, schema includes information about how knowledge is used. Rumelhart (1977) argued that information from syntactic, semantic, lexical and orthographic sources simultaneously provides language input, and a mechanism also called the information message center in the reader's mind is needed to accept, hold and redirect the information. The message center keeps a running list of hypotheses about the nature of the input string. Each knowledge source constantly scans the message center for appearance of hypotheses relevant to its own sphere of knowledge. As a result of its analysis, the hypothesis may be confirmed, disconfirmed, and removed from the message center, or a new hypothesis can be added to the message center. This procedure repeats till an overt decision could be made. At that point, the most probable hypothesis is determined to be the right one. By way of the knowledge sources and a message center which permits these sources to communicate and interact with others, the higher-order stage can influence the processing of lower-order stages (p.47). Therefore, reading is thought to be a kind of conversation between the reader and the text.

Thus, schema is an important factor in reading comprehension. The activation of readers' background knowledge will greatly affect the reading effect. Therefore, many schools encourage interdisciplinary learning and dabbling in encyclopedic knowledge at ordinary times. Therefore, readers should first find their own initiative. Many people go to explore knowledge because the problem has come to them, so they go to find methods and solutions. Due to time constraints, the knowledge obtained may temporarily solve the current problem, but it is not the optimal solution, and there is no guarantee that it will continue to happen in the future. Therefore, readers should take the initiative to seek knowledge, make use of the existing knowledge base, actively observe, and adapt to the existing situation, and put forward better attempts to encourage themselves to absorb relevant knowledge and expand their knowledge, which will be more macroscopic and predictable than the passive way of seeking knowledge everywhere.

Reading theory has been developing continuously. It goes from bottom-up model to top-down model, and then enters interactive reading model. D. E. Rumelhart (1977), the American expert in artificial intelligence, proposed that the reading process includes the bottom-up reading model depending on text knowledge and the top-down reading model depending on the background knowledge (p.47). The interactive model refers to the interaction between different levels of language knowledge and various cognitive activities. It shows the nature of reading more obviously because it holds the perspectives from both bottom-up model and the top-down model at the same time. The reading model of bottom-up word or sentence decoding has shortcomings.

First, reading is not only a single process of extracting meaning from the article, but also the reader's own knowledge and memory play a positive role in reading. Second, reading teaching should go beyond literal understanding and word recognition, and understand the deep meaning of the article. Third, reading is a means of acquiring meaning and communication, not decoding language, but understanding the overall meaning. Fourth, real readers should not only pursue the amount of reading, but also cultivate the ability to explore reading. The decoding process of words or sentences is too slow, which not only affects the reading speed, but also affects the amount of reading, and ultimately affects the reading ability. Therefore, reading is no longer regarded as a simple process of decoding words or sentences, nor is it a psychological language guessing game.

The interactive model was proposed by Rumelhart in the 1970s. He believes that as part of the reading process, low-level word processing and high-level information processing interact mutually. Rumelhart proposed that linear models (bottom-up and top-down) only transmit information in one direction, and it is not allowed to obtain information at a higher stage. The interactive model allows the information contained in the higher processing stage to affect the analysis that occurs in the lower processing stage. It can explain many problems in reading. Therefore, the deeper interactive reading model seems to achieve a better balance in various reading sub-processes.

Widdowson (1979) explained the reading process as follows: The reading process is not just to extract information from the text, but also in this process, reading stimulates a series of knowledge in the reader's mind, which in turn may be refined and expanded by the new information provided by the text. Thus, it is clear that reading is a process of interaction between readers and texts. Reading activates the knowledge in the reader's brain, and modifies and expands it through the new information provided by the external text. The reading process is the mutual supplement of the information provided in the text and the information known in the reader's brain. The interactive process emphasizes the bidirectional, interactive, and initiative in the reading process. The interactive model is more comprehensive, rigorous, and coherent.

4.1.4 Functions of Schema

As the structure of storing knowledge in the human brain, schema's main function is, of course, to explain people's understanding of objective things and help people form expectations in the cognitive process. Its basic functions mainly include the following aspects.

The first is the function of construction. Goodman, an American cognitive psychologist, believes that learning is a process of constructing internal psychological representations. Learners do not transfer knowledge from the outside to memory, but build a new understanding through interactions with the outside world based on existing knowledge and experience. In other words, people's understanding of objective things is to use schemas to extract their characteristics, essence, or basic things from objective things, and build the relationship between them.

The second is the search function. Schemata represent simplified and abstract knowledge structures. People use the existing schemata in their minds to form goal orientation, or make predictions to actively look for more useful information. For example, when people read, they will form various knowledge sources, and form effective cognitive structures, image representations, internal models, etc. When people face problems, they will search for knowledge sources related to problem solving in the existing cognitive model to analyze, compare and synthesize, achieve the communication and the application of knowledge, and ultimately solve the problem.

The third is the integration function. Instead of passively accepting information, schema actively connects new information with the old knowledge represented by schema, puts the new input information into the framework of the schema and connects it with the corresponding variables to make the variables concrete and integrated. In this process, schema filters and reorganizes external information. Filtering refers to schema selection, deletion, and filtering of the new information input. A unique cognitive schema is formed in each head, and the differences in cognitive schema in turn continues to affect the subsequent understanding of new knowledge and information. For the same information, different people may conduct different screening and filtering, resulting in different understanding of the same information by different people. Whether new information is selected by schema also depends on whether this part of information is consistent with the variables that already exist in the mind. If consistent, this information will be filled into the existing cognitive schema framework, otherwise it will be excluded. After the selection, the new information is abstracted. This means that the schema does not accept new information and knowledge, but changes this information into something that the schema can accept through editing and abstraction. Reorganization refers to the sorting, classification, and organization of abstract information, which is somewhat similar to Piaget's assimilation, that is, integrating the external information into the existing schema, so that the schema continues to expand.

That function is also called transfer. When students encounter new information in the process of reading, when new information enters the brain, it will activate the schema originally stored in the brain, and carry out search, selection, analysis, inference, etc. The relevant schemas in the brain will transfer, feed back to the new information, and finally understand, absorb, and accept new information and knowledge. Transfer plays an important role in the acquisition of knowledge, but it depends on a good schema established in the mind. When the knowledge structure of the system establishes a good schema in the mind, new knowledge can be obtained.

The fourth is the function of prediction and inference. In the 1970s, Rumelhart argued that schema played

a role of prediction and inference in the process of knowledge acquisition. When new information activates a schema in the mind, the schema must interpret the information, and the process of interpretation must include prediction and inference. In the 1970s, Marvin Minsky, an artificial intelligence researcher, also thought that schema had the function of prediction and inference.

4.1.5 Classification of Schema

In recent decades, schemata have been applied in various disciplines and fields. Due to different research perspectives, there are also great differences in the classification of schemata.

(1) Rumelhart's Classification

In the 1970s, Rumelhart, an American artificial intelligence expert, divided schema into content schema and formal schema. Content schema refers to the background knowledge about the content scope of the article; formal schema is the reader's knowledge of the text structure, rhetoric etc. The theory holds that the text itself is not the carrier of meaning, and the process of understanding a text is the process of the interaction between the reader's background knowledge and the text. As mentioned above, readers' schema knowledge is the basis for understanding the article. If the reader uses the wrong schema or cannot find the existing schema, there will be understanding deviation. Therefore, in the process of reading teaching, teachers should make students master the necessary schema knowledge through various ways and means, and take measures to activate the relevant schemata in students' minds so that students can actively read and improve their reading ability.

(2) Carrel's Classification.

In the 1980s, Carrel, an American linguist, published a paper on the influence of schema on reading comprehension. At first, he divided schema into two categories: content schema and formal schema. Finally, he divided schema into language schema, content schema and formal schema. Carrel's classification of schema is one of the three schemata involved in foreign language teaching in China. According to his classification, schemata are mainly embodied in the aspects of pronunciation, vocabulary, grammar and sentence patterns, which belongs to the category of language knowledge; Carrel & Eisterhold defined the content schema as the knowledge related to the background knowledge and social culture of the theme (Carrel, 1983). Now researchers generally believe that content schema refers to the knowledge related to the content and the theme of a text. For example, semantic coherence, knowledge related to subject matter, views, attitudes, emotions about things, etc.; formal schema, also known as rhetorical schema, refers to knowledge about genre, organizational structure, rhetorical structure, etc.

Any problem of students' English output and input can be explained by these three schemata. For example, the lack of vocabulary and grammatical knowledge stems from the lack of language schema; the lack of understanding of the topic affects the speed and efficiency of reading, which is due to the lack of content schema; the reason why we don't understand the western way of thinking and the development patterns of materials is the lack of formal schema because the existing schema, that is, previous knowledge, has a great impact on learning new information, and even plays a dominant role. In other words, learners' understanding of all this is based on the existing language schema, content schema and formal schema.

Carrel believes that the three schemata will interact in the process of understanding, coordinate, and interact with the language, the content, and the form of expression of the article, and finally realize the understanding of the text. In the process of reading, if you don't have solid language skills, even if you encounter an unfamiliar low-frequency word in the reading sentence, it will greatly limit the reader's understanding of the following sentence; to some extent, content schemata can make up for the lack of language schemata, help learners predict, verify, eliminate ambiguity, and deepen readers' understanding of the article. Readers should enhance their cultural awareness, establish, and enrich their own cultural content schema; it is very important to introduce formal schema into second language teaching. When reading, the reader forms a formal schema in his mind, and is familiar with various types of article genres and the social purposes, the structures, the language characteristics of different styles, which will deepen his understanding of the material and effectively improve his reading speed. Teachers can increase the infusion of formal schema knowledge, speed up the formation and storage of formal schema in students' brains, and enhance students' understanding and memory of materials.

In addition, the content schema contains conceptual knowledge or normal information within a topic, and how the information is related to each other to form a coherent whole such as transitional sentences connecting the preceding and the following, the semantic coherence, the unity of the topic, the use of transitional words and systematic methods suitable for the topic, etc.

Therefore, teachers should expand not only the scope of content schemata in addition to cultural content

schemata and topic-related background knowledge, but also conceptual knowledge, normal information knowledge within the topic, and construct content schemata of broad significance.

(3) Classification of Chang Zonglin and Its Application in EFL Reading

Chang Zonglin (2002) classified schemata based on comprehensive schemata in language learning, especially in reading. Native language schemata can be regarded as subschemata of comprehensive schemata. Native language schema is an important subsystem of reading native language texts. The subsystems coexisting with native language schema include native cultural schema and British cultural schema. English language schema is a sub-system in which non-native readers need to develop their comprehensive schemata.

Comprehensive schema refers to the relatively fixed things formed in the reader's mind, which are usually composed of people's knowledge, experience, feelings, emotions, and various abilities; native language schema refers to the native language schema of the place where one lives. Native language schema is the ladder leading to language understanding; English language schema refers to the native language schema that non-native English readers need to master. In most cases, English schemata of people who have a firm grasp of native language schemata tend to develop much faster than those who do not have a good grasp of the native language (Steinfatt, 1989). Native cultural schemata and British cultural schemata refer to the cultural knowledge required for English reading comprehension. Roy Andrade believes that cultural schemata not only broadly describe the visible material world, but also describe the more abstract fields such as social communication, discourse, and even lexical meaning (Kern, 2000).

As far as EFL readers are concerned, only when they grasp the British cultural schema when reading English texts can they deeply understand the texts with British culture as the background; the way foreign language learners receive education will inevitably affect their language and cultural learning of foreign languages. Teachers' explicit and detailed teaching, comparison and summary of text organization patterns will inevitably help students activate the quantity and quality of schematic knowledge when reading texts of such patterns; teachers should construct a comprehensive schema including knowledge, experience, emotion, and various abilities, constantly absorb new knowledge, acquire new skills, integrate into the new environment as soon as possible, improve new horizons, and comprehensively improve teaching ability and level. For many learners, learning English is a passive and inevitable behavior, which is too purposeful and instrumental. In the process of constructing comprehensive schemata, in addition to knowledge and experience, teachers should help students establish appropriate English reading modes from the perspective of schema theory, cultivate students' interest in English reading, transform passivity into inner love, unconsciously and automatically contact with English with interest just like learning their mother tongue, and normalize English learning. In addition, in the process of reading teaching, teachers should explain the western way of thinking, values and cultural background knowledge, reduce the difficulties brought by cultural differences to students in the reading process, stimulate their interest in learning English, correct their learning motivation, promote them to constantly improve their English level, master reading skills, and build and strengthen cultural awareness.

New word learning has always been an obstacle for English learners. Under the guidance of schema theory, English learners use some signal words to infer the meaning of new words, reduce their worries about new word learning, eliminate obstacles to new word learning, provide convenience for new word learning, improve the effect of new word learning, and build a great wall of happy learning.

4.2 Research Status of Schema Theory in China

4.2.1 Problems in Chinese College Students' English Learning

College English course has always been the largest public course for non-English majors in Chinese colleges and universities, and it is also one of the basic courses that college students attach most importance to. College English course, as a basic course for non-English majors in colleges and universities, has been established for decades. College English education has been highly valued by teachers and students and education authorities at all levels. Over the past few decades, great changes have taken place in all aspects of China. There are more and more foreign trade and cultural exchanges. With the popularization of English education, the demand for English is changing year by year. Therefore, the requirements of college English teaching are constantly updated with the times according to the actual requirements.

In the *Requirements* formulated by the Ministry of Education of China in 2020, according to the current situation of higher education and social development in China, the teaching objectives of college English courses are divided into three levels: foundation, improvement, and development. The teaching

requirements of the basic goals are mainly aimed at the basic requirements that most undergraduate students should meet when they graduate while the teaching requirements of improving goals and development goals are mainly aimed at the requirements of the majors that require higher students' English application ability. Reading teaching is a very important part of college English teaching. These requirements clearly point out three goals for reading comprehension.

The basic goals of reading comprehension are as follows: Be able to basically understand the subject matter, be familiar with English newspaper articles and other English materials with intermediate language difficulty, understand the main idea, analyze language characteristics, and understand cultural connotation; be able to read English textbooks of their majors and materials of common practical writing in life with the help of dictionaries, master the main ideas, and understand the main facts and the relevant details; be able to read argumentative materials with complex language structures such as social current reviews, book reviews, etc., and distinguish different views; be able to adjust the reading speed and method appropriately according to different reading purposes and the difficulty of reading materials; be able to use basic reading skills.

The goals of improving reading comprehension are as follow: Be able to basically read articles in English newspapers and periodicals and accurately retrieve target information; be able to read the overview literature related to their majors, or the instructions, operation manuals and other materials related to their future work, and understand the main idea, the key information and the text structure; be able to read literary works and other materials in complex languages, grasp important information, infer the author's emotional attitude and implied meaning, and make simple evaluations of language and content; be able to use fast reading skills to read materials with long length and intermediate difficulty; be able to use common reading skills well.

The development goals of reading comprehension ability are as follows: Be able to read articles with certain difficulties and understand the main idea and the details; be able to read articles in English newspapers and periodicals as well as English literature and materials related to their majors such as scientific and technological articles, social commentaries, etc., integrate relevant content, analyze the author's views and positions, and better understand the logical structure and the implied meaning; be able to comprehensively analyze the content of literary works in complex languages, critically analyze different cultural phenomena, and form their own understanding; be able to use reading skills properly.

The Requirements puts forward the goals of three stages for college students' reading comprehension, and obviously puts forward the requirements for the reading ability of three stages. Its three levels point to the goals of using reading skills to varying degrees. As a yardstick to check the implementation of the requirements, the reading test must reflect the requirements. In CET-4 and CET-6 conducted nationwide in China, reading accounts for almost half of the whole examination, that is, students' reading scores directly affect the test results.

According to the reading teaching objectives and requirements in *The Requirements*, teachers should achieve the basic, improvement or development goals of reading according to students' English level, and reach the standard in reading ability. In this book there are some English reading, writing and vocabulary strategies, skills, methods, and related information knowledge to help learners cultivate their learning ideas, use various skills, improve their foreign language learning ability, and achieve the ultimate goals of foreign language learning.

However, students have problems in English learning. From the perspective of learning attitude, students' attitude and motivation for learning English are insufficient. According to Gardner and Lamber (1972)'s motivation theory, people's learning motivation is mainly divided into two kinds: integrative motivation and instrumental motivation. In the study of English learning, integrative motivation refers to the intrinsic learning motivation of English learners such as the English learning motivation generated by students' own thirst for knowledge, and their own interest in English, and English culture can also be said to be the internal motivation of English learning. For example, if students are interested in movies, teachers can warm up before class and add movie clips to the background introduction to stimulate students' interest. Instrumental motivation refers to the fact that English learners are not interested in English itself, and learning English is only for a certain purpose. For example, some learn English in order to pass the final exams, CET-4 and CET-6, get scholarships, find jobs, etc. In order to pass CET-4 and CET-6, students only answer the test questions blindly, and are not willing to concentrate on reading Chinese or English books of English culture or studying learning methods.

Foreign language learning strategies refer to specific behaviors, steps, and skills that learners take in order to achieve better results in foreign language learning. The intrinsic motivation of language learning largely affects the choice of learning strategies to a great extent. Many teachers find that classroom

atmosphere affects students' motivation to learn, which in turn affects students' use of learning strategies. In class, students with high involvement in reading tasks tend to use more learning strategies than students with low involvement in reading tasks such as summary, elaboration, and combination, etc. Gardner and Lambert (1959) put forward the classic model of foreign language learning motivation based on many studies on attitudes and motivation, and believed that foreign language learning motivation is one of the most dynamic factors affecting second language acquisition. The motivation for learning affects the choice of learning strategies to a great extent.

Pintrich (2000) found that students with goal orientation tend to use deep-seated learning strategies such as detailed elaboration, organization, summary, etc., rather than low-level learning strategies such as repeated practice, recitation and imitation, etc. Hua Huifang (1998) studied English learning motivation and strategies, and found that 80% of college students belong to pure "certificate motivation", and they learn English to pass CET-4 and CET-6. Therefore, Hua Huifang suggested that students' interest should be used to stimulate their internal motivation for foreign language learning.

The analysis of research data by Wen Honglan and Zeng Zhihong (2013) showed that integrative motivation and intrinsic motivation are the main predictors of English learning strategies. But they are two different concepts that have different predictive effects on learning strategies. When learning English, students with integrated motivation are more inclined to use some specific learning strategies than those with intrinsic motivation.

Although many scholars believe that learning strategies are mediating variables between motivation concepts and the achievement scores, some researchers aim to explore the relationship between various cognitive and metacognitive learning strategies and learning achievements. For example, Pintrich & DeGroot (1990) found that in various learning environments, students' autonomous learning strategies (reading comprehension monitoring ability, goal setting, planning and arrangement, self-control) were the best parameters for learning performance through the research on the relationship between autonomous learning strategies and learning performance of junior middle school students in English classroom.

Based on the above findings, I suggest that college English teaching should strengthen the intensity of motivation, and improve the frequency of strategy use. From the perspective of cognitive psychology, teachers should use the activate schema-establish schema-use schema framework of schema theory to stimulate students' interest by designing various reading activities or tasks, thus affecting the use of reading strategies. Teachers should analyze students' reading process from the perspective of psychology, stimulate students' interest, strengthen their motivation of learning English reading, and open up a new perspective for improving the use of their strategies. In addition to stimulating interest, teachers should stimulate motivation and remind students to establish learning goals. Students should understand that they need to pass the exam at the end of the semester, their job recruitment depends on their grades in CET-4 and CET-6, and they need to take IELTS or TOEFL when going abroad, etc.

4.2.2 Research Status of Schema Theory in China

The first scholar to put forward the philosophical concept of schema was the German philosopher Kant. Kant (1781) believes that the essence of the concept of schema is a formal structure of cognition. Piaget (1980), a Swiss philosopher and psychologist, believes that schema is the structure or the organization of actions. Bartlett, a British psychologist (1932), further developed the schema, and gave it a new concept. He believes that schema is an active organization of previous reactions or experience. Rumelhart (1980), an American AI expert, developed the concept of schema into a complete theory after a series of studies, which contributes to the improvement of schema theory. He pointed out that schema represents an interactive knowledge structure. In short, these scholars generally believe that schema is a structure.

The concept of schema currently used in English teaching research in China is generally derived from Bartlett's classic book *Remembering: A Study in Experimental and Social Psychology* (1932). In his work, schema is defined as a reflection of the past and the organization of experience. His concept of schema has influenced the research of English teaching in China. Bartlett argued that schema, as a unified whole, plays a role in any activity that is the same to or like previous experience. The repeated reactions to the past will form a schema. Once some schema is formed, it affects the subsequent reactions, summarizes the repeated situations, establishes cognitive structures, stores them in memory, and the block diagram formed in the brain is a schema. For the same stimulus, different people have different concerns and filter points, which is the result of the existing schema influence in everyone's mind. There are many types of schemas such as language schema, content schema, and formal schema. Schema cognition helps people to process information quickly and generate reasonable expectations.

Language schema refers to the knowledge of vocabulary, grammar and so on that already exists in the

learner's brain. Language schema is the basis for learners to learn English, correctly recognize vocabulary, understand sentences and articles, be familiar with English learning methods and cultivate English ability. The correct language schemata help students mobilize corresponding content schemata and formal schemata when inputting new information, obtaining new information, and constructing new schemata; content schema refers to the previous background knowledge and experience related to the topic in the learner's brain or the content related to the topic of the article. This is a great challenge for English learners. Human energy is limited. Interdisciplinary and cross-disciplinary learning, and dabbling in world encyclopedia knowledge will occupy learners' professional learning time, but will certainly enrich the content schema. For example, in English reading, the understanding of the topic content of an article first depends on the already stored content schema related to the topic; formal schema refers to the knowledge that learners have in their minds about writing style and text organization such as discourse knowledge like wording and genre structure, knowledge of sentence coherence, knowledge of article structure's coherence, integrity, and logic.

The significance of using schema theory to guide English teaching lies in that schema theory allows teachers to really consider teaching from the perspective of students' receiving and absorbing information. The three kinds of schemata involved in foreign language teaching in China are based on Carrel's classification of schemata. According to Carrel's classification, schemas include linguistic schema, content schema and formal schema. Linguistic schema is mainly embodied in pronunciation, vocabulary, sentence pattern and grammar, which belongs to the category of language knowledge; the content schema is mainly embodied in the background knowledge of relevant topics and social and cultural knowledge. The cognitive structure of these aspects forms the storage of knowledge and ability; formal schema refers to the storage of knowledge and ability formed by cognitive structures such as writing style and organization of materials. These three schemas can be used to explain students' problems in English output and input. Learners' understanding of vocabulary and grammatical knowledge, the western way of thinking, paragraph development patterns and learners' structural thought diagram, strategies and methods when learning to acquire and apply knowledge is based on the existing language schema, content schema and formal schema.

Since the 1980s, many scholars in Chinese foreign language have begun to pay attention to schema theory and introduced schema theory in detail. The research of schema theory mainly focuses on foreign language teaching in reading, listening, vocabulary, writing and translation. Research shows that language acquisition is certainly not a simple input and output process, but a process in which learners actively choose information, extract, process, modify and reconstruct information or meaning based on existing knowledge. Learners rely on schema knowledge stored in the brain or accumulated experience to affect the final learning effect. The process of learners' language learning is the process of schema construction. Therefore, schema theory plays a guiding role in learners' learning English.

Since the 1990s, the study of schema has entered an active period in China, and scholars have studied the practical application of schema theory. People realize that schema theory can play a guiding role in teaching. The application of schema theory to English teaching at all levels in China is endless, which plays an important role in providing English teaching efficiency and students' English level at all levels. Since 2001, scholars have applied schema to all aspects of foreign language teaching from the initial reading comprehension to vocabulary acquisition, writing and corpus linguistics.

From 1991 to 2000, the study of schema theory in China has developed into a stage where theory and practical application coexist. During this period, more and more people recognized and understood schema theory, and realized the importance of schema theory in teaching practice, and tried to apply schema theory to psychology, cognitive science and foreign language teaching, especially English reading. Since 2001, the research of schema theory in China has developed to the stage of theoretical and practical application. During this period, the research mainly applies schema to all aspects of foreign language teaching. The application of schema theory in foreign language teaching starts from reading comprehension and gradually expands to language acquisition, corpus linguistics and other fields.

Since the 1990s, Chinese researchers have begun to study cognitive structures, and applied schema theory to explain language acquisition processes closely related to cognition, such as cognitive strategies and approaches of reading, translation and listening, cognitive models and cognitive representations. Among them, most researches focus on the process of reading comprehension, mainly on the process of transforming human knowledge structure into learners' cognitive structure in the learning process, solving the problem of reading teaching methods, and improving the reading teaching effect. For example, Li Li (1994) analyzed the influence of three types of schemas on reading and the activation process of schema in the process of reading. Li Ping (1997) studied the establishment and improvement of readers' cognitive structure schema in the process of reading.

Since the 21st century, schema theory has been especially applied to cultural linguistics, cognitive anthropology, and cognitive linguistics. In the field of psychology, the research on schema is based on Bartlett's definition of schema. For example, Tang Xuefeng (2004) and others proposed that the psychological characteristics of conceptual schema is the best representation form to solve problems.

Since then, schema theory has been widely used in foreign language teaching research, especially in reading. Foreign language reading teaching and research is the first direction of schema theory applied to foreign language teaching and research. Reading theory has developed to a new stage: It not only promotes readers' understanding of discourse, but also improves the effect of reading comprehension. Based on schema theory, He Yongjun (2020) conducted an experimental comparative study on the effectiveness of reading teaching methods under the guidance of schema theory. Through SPSS independent sample test, the reading performance of the experimental class was significantly higher than that of the control class, indicating that the reading teaching method under the guidance of the schema theory could effectively improve students' reading level. The development of schema theory not only promotes readers' understanding of discourse, but also improves the efficiency of learners' reading comprehension.

There is no doubt that schema theory plays a guiding role in students' learning English. Schema theory makes teachers pay more attention to the internalization process of students' knowledge. If teachers can effectively help students activate and construct language schema, content schema and formal schema in their minds, it will help students effectively absorb and accept new language knowledge and improve students' language ability; reading, writing and vocabulary ideas, strategies, skills, and methods as well as genre knowledge can help students optimize, improve, establish, perfect, stabilize the knowledge structure, and finally consolidate and expand the schema. By increasing the schema knowledge, they can effectively improve the reading efficiency and obtain good test results.

4.3 Schema Theory and English Reading Teaching

4.3.1 Problems in Students' English Reading

The teaching process of college English courses for Non-English Majors focuses on language phenomena, grammatical points, language ability, accurate understanding, etc. while ignoring information acquisition, text structure, reading ability, reading speed, etc. From the development goal of *the Requirements* to reading comprehension, the ability to use reading skills, the ability to read independently, and the ability to analyze and criticize are the ultimate goals of cultivating non-English majors.

The author has been teaching English for decades. Based on years of practical teaching experience, it is found that college students mainly have the following seven problems in English reading.

(1) Lack of English Reading Skills

Over the years of teaching, I found that students usually read, analyze and understand the text word by word and sentence by sentence from beginning to end. When encountering new words, they basically rely on looking up the dictionary, and relying too much on looking up the dictionary affects the understanding of the overall idea of the text. Under the traditional teaching method, students' understanding of the article only stays at the level of vocabulary and sentences. They are used to learning by dismembering the language. They seem to have learned vocabulary or understood sentences, but they don't quite know the main idea of the whole article. "When asked whether students adopted some reading strategies or skills according to the different requirements of the article in English reading, 80% of the students answered 'no'" (Song Yuping et al., 2019, p.56). When reading English, students only pay attention to language knowledge points and lack high-level reading comprehension of the text such as semantic coherence, logical relationship of the context, the main idea and the conclusion of the article, the author's writing intention, points of view, attitudes, tone, etc. Students have too few schemata in their minds to judge the main idea of the article and cannot apply these skills to reading, which affects their reading ability.

There are many levels of reading comprehension. The level of reading comprehension can be roughly divided into four levels: literal, inferential, evaluative, and appreciative. In college English reading teaching, teachers often focus on literal understanding, which is accompanied by the teaching and practice of reasoning skills. However, college students have reached a certain level of English. Teachers should gradually guide students to evaluate and appreciate the article and the author's basic ideas. If the teaching of reading only stays at the level of literal understanding, readers can only understand the surface meaning of the article, but cannot achieve the understanding of the theme of the text, the author's writing purpose, ideological views, and the overall idea of the article. It is inevitable that teachers cannot

effectively cultivate and improve students' deep reading comprehension ability.

In short, English reading should not only understand the literal meaning or surface meaning, but also the deep meaning. Only by being good at analysis, judgment, induction, and summary can we achieve real understanding. However, the lack of English reading skills of students has affected the cultivation of their reading ability because they are not familiar with the western way of thinking, genre, writing style and so on, and cannot accurately interact with the overall idea of the article, and cannot achieve deep meaning and high-level reading comprehension. Therefore, it is necessary for students to learn reading skills.

Students will inevitably encounter some reading difficulties in the process of reading. Students need to learn and master the skills to solve learning problems in reading practice. However, teachers should not only be satisfied with the teaching of low-level reading comprehension, but also design teaching activities or tasks according to some theories to cultivate students' ability to explain, analyze, summarize, criticize, and appreciate.

(2) Lack of Interest in English Reading

About the fun of English reading, “70% of the students said that they read English articles simply to cope with the reading comprehension problems in CET-4 and CET-6, which is something they have to do, and they rarely have fun from it” (Song Yuping et al., 2019, p.50). The study, examination and academic research have brought students difficulties in English learning. Students cannot feel the fun of English reading in the process of English reading. Due to the pressure of English grading test, most students only regard English reading as a task to be completed, and passively enter the reading process. For them, reading activities are passive, mechanical, boring, and jobs they must do. They read and immerse themselves in the exam practice or exercises, and don't devote themselves to reading English books to improve their English level. For many readers, English reading is just a tool, or for some specific purpose. Learning English is a passive behavior of necessity, and the purpose and instrumentality of learning are too strong. Those who are not firm in perseverance give up learning English. Most of the learners who have not given up learning English study for exams, going abroad, and writing papers. Learning English is purposeful and uninteresting, and the result is not worth the loss.

Students like to look up new words in dictionaries when reading. Looking up a dictionary will greatly affect the pleasure of reading. If students have certain reading ability, they can try to guess the meaning of new words according to the context. After several times, they will naturally understand the meaning of the word and understand it more thoroughly. They not only understand words, but also use the vocabulary themselves. In this way, the reading effect will get twice the result with half the effort, and the reading interest will also increase.

Teachers can provide help for students' exam-taking problems. Reading teaching activities or tasks can improve their exam taking ability and reading level. For the problem of reading English books, students can start slowly from extracurricular reading. Original novels or political highlights of current affairs can be the first choice for students. Everyone can choose a book that he thinks is readable according to his own interests and hobbies, which not only cultivates his interests, but also forms his good habits, and ultimately improves his reading ability.

In English teaching, teachers should eliminate the difficulties of language cognition, mobilize students' enthusiasm for learning, stimulate students' interest in learning, and promote the formation of their learning system.

Interest is the best teacher. Learning English must be fun, and striving to develop this interest is necessary. Everyone has his own interests. Combining his interests with English learning is a critical condition for success in English learning. For example, if they are very interested in novels, they can read many short English novels by Charles Dickens. In the 19th century, the life, thoughts, and feelings of the British people were vividly displayed in Dickens' novels. After reading his story, they can enter the world of English and enjoy the pleasure in the world of Dickens. Unwittingly, they can learn a lot of language, and things other than language: They can not only master a lot of vocabulary, all kinds of grammar rules, but also have a deep understanding of English life, culture, and customs. If they are fascinated and read every day, they will learn English unconsciously. And while reading, they do not feel they are learning English at all, but feel they are just trying to read for understanding English life, culture, and customs.

They can watch a lot of British and American movies. If they are crazy about movies, they will not think they are learning English when they watch movies because they are driven by interest to do this. Therefore, they are particularly committed, their brains work actively, and unconsciously their memories work best.

The key to English learning is to find a breakthrough. They like reading, they might as well start with

simple reading; they like songs, they might as well start with English songs; they like newspapers, they might as well start by reading China Daily; they like movies, they might as well watch English movies. We should remember that interest is the most important in doing anything.

I remember a famous Chinese scientist who did not know English when he went to study in the United States. He started with basketball, which he was interested in, solved the problem of English, and became a scientist successfully. Therefore, when they do not realize that they are learning, that is when they learn the most, but only if they are getting the most out of it.

Students' lack of interest in English learning is due to the lack of language learning environment because English is a foreign language in China. Chinese foreign language teachers try their best to create situations and conditions for students' language acquisition, but English learning at the university stage has reached a certain level, and language materials are often complex and abstract articles or examination papers. Except for oral class, the teaching of reading class is unlikely to explain abstract article topics or a phenomenon through pictures or videos according to teaching methods suitable for children.

Of course, there are also many English lovers. They have established a good teacher-student relationship when learning English. A good teacher-student relationship can stimulate students' interest in learning a course. In the process of teaching, teachers should have a deep understanding of students' cognitive activities from the perspective of psychology, and solve the challenging problems encountered in the process of English teaching.

(3) Not Solid Basic Knowledge of English

Learning new words has always been an obstacle for English learners. Undoubtedly, the biggest obstacle to English reading is insufficient vocabulary. Due to insufficient vocabulary or limited vocabulary, students feel that there are too many new words in reading, and they cannot understand the key sentences for the meanings, the article for the main idea, and the accuracy of answering questions is not high. Foreign language learners do not master enough vocabulary as native speakers do. Therefore, students complain that there are too many new words to understand. First of all, this is because the scope of vocabulary mastered by students is relatively narrow, and the mastery of words is only a word and a meaning. In fact, English words are often polysemous, so when a word is polysemous in reading materials, students will make mistakes in understanding. Secondly, when students encounter new words in reading, they will look up the dictionary without thinking, form the habit of not thinking with their brains, and rely too much on the dictionary, which will affect the reading effect. Therefore, during the exam, students can't look up the dictionary and can't read on when encountering new words.

With regard to basic grammar knowledge, "one of the difficulties that college students often encounter in reading is that there are too many complex long sentences and difficult sentences. Students are insensitive to the identification of some pronouns related to the context, and adverbs and conjunctions that represent turning points and causal relationships, and they cannot accurately analyze sentence structures and discriminate sentence patterns, which leads to difficulties in understanding" (Song Yuping et al., 2019, p.52). Students lack grammatical knowledge or have poor ability to use grammatical knowledge. When they encounter complex sentences in reading, they are often unable to analyze the sentence structure, judge the sentence types and understand the meaning of the sentence. For these complex long sentences and difficult sentences, students are often at a loss and don't know how to start. However, college students often encounter many complex sentences in English reading. They are insensitive to the recognition of some contextual signal words, adverbs and conjunctions that express causality, comparison, and contrast, turning and other relationships leading to difficulties in understanding.

Objectively speaking, this is mainly due to the differences between the two languages and their way of thinking. Chinese sentences are implicit connections while English sentences are explicit connections. Many conjunctions, adverbs, prepositions, subordinate conjunctions, and conjunctive pronouns form embedded sentences with complex structures. Such English syntax makes it difficult for Chinese students to understand the sentence meaning.

Subjectively, students learn grammar knowledge, but they don't grasp it well. They have no clear understanding of the use of grammar knowledge, and can't correctly use the grammar knowledge they have learned to analyze various sentences, especially the structure of complex sentences, or judge the sentence type. When they encounter multiple repeated sentence patterns, they will have psychological conflict, and it is difficult for them to adapt to reading some flexible and diverse forms of some English sentences, and it is difficult for them to understand the meaning of some English sentences.

The lack of vocabulary is due to college students' insufficient reading. They usually study textbooks and

do exercises after class. In addition to the college English reading and writing course or the corresponding development course materials, there is only one extensive reading booklet as a supplementary reading material after class. College students have been admitted to university, so they don't study as hard as high school students. They lack sufficient language input of enough required language materials. From the perspective of schema theory, it is not conducive to the consolidation and development of language schemas.

From the perspective of schema theory, the lack of vocabulary and grammatical foundation reflects that students' language schemas are not qualified, and there is no English language schema with a complete system in their minds, which will naturally affect the speed and effect of students' reading comprehension. In addition, students usually learn one or two meanings when learning a word, but English is polysemy, and students cannot determine the specific meaning in the article, which leads to the wrong judgment of the word meaning and the inability to judge the main idea of the article.

While accumulating vocabulary, students should analyze the components of the word, the context around the word, the sentence context, even the context of the whole article, some key words and repetitive words related to the theme, and obtain the meaning of the word from the perspective of cognitive vocabulary.

(4) A Psychological Fear of Difficulties in English Reading

Students usually like to read stories or inspirational articles, and they read them with ease and pleasure, but when they encounter some unfamiliar styles such as popular science articles, argumentative essays, interdisciplinary and cross-disciplinary articles, they generally have psychological fear of difficulties, and even have conflicting reactions. When reading, they will encounter problems of many new words, long and difficult sentences, and greater length and larger space of a piece of writing leading to psychological anxiety. They usually lack patience and can't go on reading. Normally, they finish reading hastily, and sometimes simply abandon reading.

From the perspective of psycholinguistics, reading is first of all a process of psychological, in which the readers and the author enter the process of interaction and produce positive thinking in the process of intellectual activities. In other words, the process of reading is not only the process of acquiring knowledge, but also the process of forming good reading psychology. In this process, if readers overcome impatience, anxiety, fear of difficulties and other bad emotions, and form positive thinking, it will naturally improve reading effect and reading ability.

There are some reasons for students' psychological barriers to reading. Some students read less, and their knowledge is not broad enough. Most students are not interdisciplinary or cross-disciplinary learning. They are prone to have preconceived fear of difficulties for unfamiliar topics, and psychological activities will interfere with normal thinking activities, which will naturally affect students' normal activities in reading. Students usually do not form the habit of facing difficulties, and they do not form a strong psychology of facing difficulties. They are used to growing up in warm water, and dare not surpass.

People's fear of difficulties comes from the fear of the amount of reading. Take, the English exam, for an example. The article in the exam is too long, and students are worried that they can't complete the exam. They are nervous, inattentive, and confused. When they are nervous, they don't know what the article is about, and they can't go on reading. It is quite clear that the bad psychological state will cause great psychological pressure and burden to students, which will inevitably lead to the unsatisfactory examination results of students.

Students should overcome this fear. Students should read more books to improve their reading ability. When students' reading ability is improved, only increasing the amount of reading on this basis can increase the power for the continuous improvement of reading ability. When the students' reading ability is improved, they can only get results by cramming for their English tests efficiently. Those who keep efficient answers to a large number of questions have found efficient learning methods and improved their comprehensive reading ability. With the improvement of reading ability, fear will naturally collapse by itself.

(5) Bad English Reading Habits

When reading, students develop the habit of understanding each word or sentence and relieving the confusion about individual words or sentences rather than the habit of understanding the whole article. Some students learn words by pointing to the words one by one. As we all know, the hand movement speed must be much slower than the visual speed. In addition to the movements of the hand, there are other movements. For example, some students consciously and unconsciously shake their heads with the movement of their eyes, or turn their fingers with a writing pen. The redundant movements distract the

attention during reading, which is bound to affect the reading effect and speed; some students like to read words silently or read with their mouths when reading, which not only hinders the reading speed, but also ignores the meaning due to excessive reliance on pronunciation, affecting the breadth and depth of reading comprehension.

In addition, students lack the habit of macro reading. Learning reading methods, genre knowledge, paragraph development patterns, etc. can help improve their reading ability; when students read English, in addition to reading at the level of language knowledge, they read at the level of discourse such as understanding the logical relationship of the context at the macro level. The words that express reading at the discourse level include semantic coherence, the development of the author's writing ideas, the summary, the main idea and the conclusion of the article, the author's point of view, the attitude, the writing purpose, etc. While reserving the knowledge of language schemata, students should master the knowledge of content schemata or formal schemata, which will affect the improvement of reading ability.

Due to poor reading ability, some students can't get rid of the influence of Chinese on foreign language reading. They have the habit of translating word for word while reading. If they don't translate the article into their mother tongue, they could not read or understand the main idea of the article. It can be seen that when reading English, students should rely on the help of their mother tongue to learn English. The mother tongue plays a positive and negative role in English learning. A certain degree of translation is conducive to reading learning, but too much dependence not only affects the speed and efficiency of reading, but also affects the grasp of the overall meaning.

The differences between the two languages are mainly reflected in the vocabulary or symbols, the vocabulary arrangement, and the combination of ideas. The differences are due to the different ways of thinking seen between the two cultures. The thinking way of English is different from that of Chinese. When reading English, the reader applies English sentences with Chinese thinking. It is difficult to consider the overall idea of the article in translating. After reading the article, the reader's mind is disordered without a clear understanding, and he can't remember or recover the main information and the important details of the article, let alone make an organic connection with each other. After the translation, the reader seems to know the meaning of Chinese on the surface, and seems to understand the article. In fact, the reader has not understood the main content of the article at all, and has not grasped the theme of the article as a whole. Only when readers understand the similarities and differences between the two languages can they translate the article as a whole.

Therefore, it is necessary for readers to understand the different ways of thinking of the two languages, and to lay the foundation for translation and reading comprehension such as mastering the paragraph development patterns, the structure of the whole article and getting familiar with the common inter-sentence relations.

When reading English, some readers will look up new words in the dictionary. This habit is not conducive to the development of reading fun. College students have a certain degree of reading ability. They should not look up new words in the dictionary when they meet them. They can try to infer the meaning of new words through some means of vocabulary cognition such as word formation, context analysis, getting the meaning of vocabulary by searching for keywords related to the topic, inferring the main idea of the text, deriving the meaning according to structural thought diagram, etc. When readers encounter a new word several times, they naturally understand the meaning of a word and understand it more thoroughly. They will not only understand it, but also use it. In this way, the learning effect will get twice the result with half the effort, and the interest in reading will increase.

(6) Poor English Cultural Background Knowledge

When learning English, students often read English articles directly, rarely read English or Chinese books related to English culture extensively, and rarely collect the background knowledge of English idioms, culture, geography, etc. Therefore, sometimes when they encounter a cultural phenomenon or related idioms in their reading comprehension, they simply cannot understand the meaning at all.

Culture is related to the history, geography, local practices, traditional customs, ways of life, literature and art, codes of conduct, ways of thinking, values, etc. of a country or nation. Different nations produce different languages. Language and culture interact with each other. Language is the carrier of culture. It carries cultural information and is an important part. Culture is the soil where language takes root, and language is the mirror of culture.

In addition to the improvement and development of language ability itself, university reading learning should broaden college students' horizons, expand their knowledge, expand cultural resources, deepen their understanding of the world, improve their core English literacy, cultivate cultural character and

improve the quality of thinking while improving their language ability and learning ability.

From the perspective of schemata, in addition to the cultural content schemata, the background knowledge related to English-speaking countries is an integral part of the content schemata. The background knowledge related to the topic of the article is the basis of students' prediction or guessing and inferring, and it is a necessary part of reading-assisted comprehension. The improvement of content schema will greatly enhance the in-depth understanding of English texts, and can be helpful in improving English reading comprehension.

(7) Monitoring and Evaluation of Reading Process

Students seldom consciously reflect on their reading process. For example, students like to learn vocabulary by rote, or look up in a dictionary without trying other methods. When students encounter incomprehension during reading, they are unwilling to face difficulties and solve problems. They either lose confidence, stop reading and give up learning, or choose to repeat basic learning at a low level and mechanically. Another example is that when students infer the meaning of new words in reading comprehension, they do not understand the internal structure of the text and the context of meaning. They lack the ability to monitor the cognitive strategies for vocabulary meaning. In addition to the monitoring ability to infer the meaning of new words, they need to have the monitoring ability of reading comprehension at the sentence level, the paragraph level, and the passage level.

Students seldom conduct self-test or evaluate their own reading process. Without an effective evaluation, they will not know their weaknesses and problems, and there will be no corresponding solutions, which will affect the improvement of reading ability. They don't have the initiative and enthusiasm for independent learning. They don't have a plan to read, and seldom take the initiative to find materials to read after class, and they don't know how to improve their reading level.

The strategies used by good readers are not only based on understanding, but also on the supervision process of reading comprehension. Its characteristics are as follows: 1) form the awareness of solving problems in the reading process, and improve the awareness of participating in reading activities or tasks when reading, 2) consciously use one or more strategies to solve the problems or difficulties encountered in the reading comprehension process.

If readers are satisfied with the reading materials when reading, they will read them calmly and easily; when readers have problems with reading comprehension, they will stop to think about the problems or reread the materials to solve the problems; when readers are unable to understand the material, they will use other fix-up strategies to deal with and solve problems.

In the process of reading, readers often find that after reading for several minutes, they don't know the meanings of the words. Some unknown words are crucial to the understanding of the materials. Readers need to deal with and solve the problem of understanding new words.

When reading English, monitoring ability is necessary to achieve the best effect of comprehension. As the ability to monitor reading comprehension improves, readers will use the ability to monitor reading to detect the exact incomprehensible places, and take measures to solve the problems of reading comprehension.

These are seven problems that students have during their reading process. From the perspective of schema theory, these problems can be summarized as follows: Students' knowledge of language schema is not solid enough: Vocabulary learning mainly focuses on translation and rote learning, and there are no other vocabulary cognitive skills; the content schema is not rich enough including perceptual observation ability, memory ability, reading ability, problem-solving ability, etc.; the quality of thinking needs to be improved; they lack formal schema, and lack learning English way of thinking, genre and other knowledge. The lack of schema knowledge can make students unable to mobilize the existing schemata in their minds to solve the problems encountered in the process of reading. Therefore, teachers should start from the construction and expansion of schemata in students' minds, and carry out reading teaching such as designing teaching activities and tasks to improve students' English reading ability.

4.3.2 Text or Discourse Teaching

In the traditional reading teaching, teachers follow traditional lecture teaching model. In each lesson, the language points in the reading article are explained and inculcated, and the difficult sentences and paragraphs in the text are translated. It is more about the teaching of knowledge, but the teaching of knowledge ignores the guidance of reading ideas, the cultivation of reading ability, the design of teaching activities and tasks, etc., which cannot arouse students' interest and enthusiasm for learning. The teacher's model of explaining the text is old and only requires students to complete "WH" or vocabulary questions set according to the text, which is not new and appealing. Compared with story articles, there are

expository texts, argumentative articles, or some texts with complex structures that cannot be solved with "WH" questions.

In the traditional English reading teaching, teachers pay attention to the analysis of vocabulary, grammar, and sentences in the article. With the help of paragraph-by-paragraph analysis of vocabulary, grammar and sentences, teachers can help students to master the knowledge of English, but this educational means does not consider the integrity of English articles, which is easy to reduce students' ability to understand the whole article, and has a negative impact on students' comprehensive understanding of the main idea and the content of the article. In the long run, students' English reading level cannot be effectively improved.

In fact, English reading teaching should gradually shift from grammar and word meaning explanation to high-level discourse teaching. Text or discourse teaching is embodied in the macro and micro analysis of background knowledge, text knowledge, word and sentence knowledge and discourse reasoning or inferences. When teaching a text, the teacher first teaches the background knowledge and the genre framework of the text from a macro perspective. The teacher combines the text, introduces the style and the text pattern in combination with the text, guides the students to analyze the structure of the text, and makes the students familiar with various writing genres and writing methods. When teaching reading courses, teachers should introduce students to different genres and genre frameworks. Introducing the genre framework is a very important teaching segment. Only when students understand the main framework of the text can they have a clear idea of understanding the whole text.

In explaining the text, the teacher first analyzes the whole article or paragraph, for example, asking students questions to activate their brains for the background knowledge related to the topic, and predict or judge the article. Then, through skimming and scanning the text, students can understand the writing organization, the writing style and the genre of the article, find the topic sentence of each paragraph, analyze the cohesion between sentences and paragraphs, sum up the outline, and the main idea and the conclusion, and at the end the teacher conducts micro teaching and training on words and sentences, logical connections, paragraphs and levels, and reasoning in the text. In short, it is discourse analysis, which starts from understanding the whole content, analyzing the relationship between sentences and paragraphs, then finds out the main idea and the important information, and finally puts some long and difficult sentences in a certain language environment for grammatical analysis. The teaching model of discourse analysis combines the form and the content of the text from the inside to the outside, from the deep to the shallow, from the macro to the micro, so as to make the teaching achieve the effect of deepening the teaching layer by layer. Experiments have shown that reading at the level of discourse is much more effective compared with reading at the level of words and sentences (Barnett, 1988a) because it avoids the phenomenon of "failing to see the wood for the trees" and therefrom some distortion of the meanings of isolated words, phrases or sentences.

The teaching of discourse does not exclude the micro analysis of the discourse. The micro analysis of a text helps students understand the language points in the text, analyze the cohesion between sentences and paragraphs, understand the main ideas of paragraphs and levels so that students can understand the role of vocabulary, sentences, and paragraphs in expressing the overall idea of the text, and deepen their comprehensive understanding of the text.

Text interpretation is a very complex process. Because the reader is different from the author in experience, thought, knowledge, emotion and so on, the meaning of the reader's understanding of the article may always be different from the meaning injected into the author's writing; readers' reading purposes and objects are different, and they can interpret the text at different levels. Therefore, text interpretation does not refer to the direct internalization of the article in the reader's mind because it is not a one-way process, but a dynamic process of the interaction between the article and the reader, language and thinking, language and emotion. In this process, in addition to language knowledge and professional knowledge, the accumulated knowledge and experience affect the effect of text interpretation and restrict the meaning of text interpretation.

In short, in terms of the relationship between schema and text interpretation, schema is a cognitive structure that makes the information orderly in the reader's memory and helps the reader to retrieve a specific meaning during interpretation. Many linguists have put forward unique views on the relationship between schema and text interpretation. They believe that schema is the pre-existing knowledge or background knowledge in the mind, which can give full play to the cognitive ability of readers, enable readers to actively participate in thinking in their reading comprehension, and make the understanding more accurate and comprehensive. Or schema refers to the knowledge structure of the known or information stored in the mind, which can not only help readers distinguish various things and

experiences, but also help readers read articles describing different things and experiences. This knowledge structure plays a unique role in reading enabling readers to overcome one language barrier after another and become excellent readers.

4.3.3 Three Reading Models in the Field of English Research

D.E. Rumelhart (1977), an American expert in artificial intelligence, proposed that the reading process includes both the bottom-up reading model that depends on the text knowledge and the top-down reading model that depends on the background knowledge (p.47). Different from the traditional reading teaching model is the interactive reading model. The interactive reading model used to be Goodman's top-down reading model and Gough's bottom-up reading model. The interactive reading model indicates the nature of reading more obviously because it holds the perspectives from both bottom-up model and the top-down reading model at the same time.

The bottom-up model emphasizes the reading process from letters, words, phrases, sentences, paragraphs to texts depending on the text knowledge. Its limitation is that scholars believe that reading is not only a single process of extracting meaning from an article, but also a positive role that readers play in their knowledge and memory in reading. The top-down model emphasizes the high-level reading process from text to vocabulary depending on the background knowledge. The top-down model is the study of mother language reading, but it has inspired other researchers. They have developed this model, and the most prominent development is that it emphasizes the importance of social background knowledge and content schema according to the characteristics of foreign language reading.

The limitation of the bottom-up model is that the human brain cannot process information in a single direction. For readers who have reached a certain level of language proficiency, top-down reading can be said to be an effective and appropriate learning means, and this model of reading is a high-level of reading, but this model sacrificed the low-level learning method of rapid and accurate decoding, that is, it only pays attention to the cognitive process of learning and ignores the decoding and perception stage of this cognitive process. This is not agreed with low-level readers, but top-down reading is a useful and appropriate learning model for high-level readers.

Reading theory has been developing ceaselessly. Reading model has changed from bottom-up and top-down models to interactive reading model. Reading has been no longer considered as the simple process of decoding words or sentences, nor is it a psycholinguistic guessing game. The representative interactive reading model of interactive reading theory is Rumelhart's model. According to Rumelhart's theory, information from syntactic, semantic, lexical and orthographic sources provides the language input simultaneously and a mechanism also called the message center in the reader's mind is needed to accept, hold and redirect the information (Rumelhart, 1977, p.47). The mechanism must be provided that can accept these sources of information, save information, and redirect information as needed. The mechanism that can accomplish these tasks is the message center. When each knowledge source inputs information about the text that is being processed, the message center stores this information in temporary memory. Since each knowledge source inputs the information about the processed text, the message center stores this information in a temporary storage. Each source of knowledge can use the information provided by one or more other sources. For example, the vocabulary knowledge can search for information about spelling patterns, or the syntactic sources can check information about the grammar. Rumelhart (1977) believes as follows: "The message center keeps a running list of hypotheses about the nature of the input string. Each knowledge source is constantly scanning the message center for appearance of hypotheses relevant to its own sphere of knowledge. By analysis, the hypothesis may be confirmed, disconfirmed and removed from the message center, or a new hypothesis can be added to the message center. This procedure repeats till an overt decision could be reached. At this point, the most probable hypothesis is determined to be the right one. By way of the independent knowledge sources and the message center, these sources are allowed to communicate and interact with others, and high stage processing can affect low stage processing" (pp.589-590). Therefore, Rumelhart's model can accommodate to those known things, and simultaneously, it is read from the model that the linear models are difficult to accommodate to them.

The interactive model proposed by Rumelhart in 1977 makes up for the shortcomings of the bottom-up and top-down reading models. According to Rumelhart, lower-level and higher-level processes work together interactively as part of the reading process. A successful reading process is inseparable from the bottom-up processing process and the top-down processing process. These two processes interact at the level of letters and words, syntax, semantics, and interpretation. Information is not transmitted from the low-level stage to the high-level stage, but the interaction between bottom-up word processing and top-down information processing. Both bottom-up word processing and top-down information processing

can exist in the process of reading. Visual information and cognitive information interact in some part of the brain, and this interaction occurs at all levels in the reading process ranging from low-level letters to high-level sentences with constantly and extensively alternating interactions during the reading process. Reading comprehension is a process of interaction between visual information and existing knowledge of readers. The information obtained through the interaction plays an important role in reconstructing the meaning of the text. Therefore, reading is not a simple bottom-up and top-down process, but the interaction of the two processing processes. Therefore, the interactive process emphasizes the bidirectional and interactive nature of reading processing.

But linear models (bottom-up and top-down) only pass information in one direction and do not permit the information obtained in a higher stage. The interactive model permits the information contained in a higher stage of processing to influence the analysis, which occurs at a lower stage of processing. Therefore, the more insightful interactive reading model seems to arrive at a better balance among the various sub-processes of reading.

Rumelhart's schema theory comprehensively considers the interaction between the bottom-up and top-down processing processes, and effectively solves a large number of reading problems. The interactive reading theory requires teachers to emphasize, activate and broaden students' background knowledge; cultivate students' interactive use of bottom-up and top-down reading models in the process of reading; the interactive reading theory also requires that the teaching process be divided into three stages: pre-reading stage, reading stage and post-reading stage to improve students' reading ability and reading effect such as warm-up, background knowledge, and advance organizers, etc. before reading, summarizing the main idea, the conclusion and the writing purpose of the article during reading, and writing summary and taking practice after reading.

4.3.4 Research on Background Knowledge

Readers' understanding of an article depends largely on how much they know about the subject before they start reading. This background information is called prior knowledge of a topic. Good readers use prior knowledge to connect with new content. The prior knowledge is essential for understanding and acquiring new information and meaning. This can be explained as reading is a highly personalized and selective process (Barlett, 1932). Every reader will respond and construct his own text meaning because of his own experience, thought, culture and language. Students who have more comprehensive prior knowledge and are good at reading comprehension may read efficiently and obtain the maximum information in the materials with the least misunderstanding. Therefore, "children of others" (students) seem to be able to read faster, understand materials more easily, and spend less time reviewing exams.

4.3.5 Research Status Based on Schema Theory at Home and Abroad

Since the 1960s, foreign researchers have studied the important role of schemata in improving students' reading comprehension from different perspectives. Johnson (1981) studied the influence of cultural background knowledge on reading. If the cultural background knowledge of the article is based on the readers' own cultural background knowledge, then the implicit cultural content in the article is easy to understand, especially for the understanding of syntax and rhetoric that is difficult to some extent. The research shows that the implicit cultural content of articles based on readers' own cultural background knowledge is easy to understand, which is more helpful in understanding syntactic and rhetoric with certain difficulties. The research shows the importance of background knowledge and socio-cultural knowledge about the subject. Therefore, when readers are familiar with the content schema of the article and interact with their own knowledge and experience, they will have the cognition of language schema.

Carrell (1984) studied the effect of mastering the schema of different story genres on reading. The study found that in the process of reading comprehension, the familiarity with the story schema structure has a significant effect on reading the text content, which is conducive to the long-term memory of the story content. From his research, we can see that genre knowledge has an obvious and beneficial effect on the readers' understanding of the ideological content and the memory of the article content. The author usually adopts a specific text structure model. If readers can master the characteristics of these text structures, it will be very helpful for readers to understand the article, grasp the theme and answer questions easily.

Neil (2004) studied the effect of classroom activities such as pre-reading discussion, semantic map, activation and prediction of text schema on English reading comprehension. The research shows that the three schemata have a great impact on English reading comprehension. Therefore, in the process of reading, the three schemata in the reader's brain interact with the language, the content and form of the article, and the result determines the reader's understanding of the article.

Since the 1990s, Chinese scholars have begun to study the practical application of schema theory. People are aware of the guiding role of schema theory in teaching. Applying schema theory to English teaching in China plays an important role in improving English teaching efficiency and students' English proficiency. Since 2001, scholars' research on the application of schema theory in foreign language teaching has gradually expanded from the initial reading comprehension to the fields of vocabulary acquisition, corpus linguistics and writing. Hu Shujuan (2003) studied the role of teachers in college English classes by adopting some strategies to help students activate and establish background knowledge. She pointed out that a lot of extracurricular reading can expand the reader's background culture. Wang Na (2011) conducted a research on the application of schema theory in English reading for non-English majors. The results show that the trained students have greatly improved their reading performance of CET-4 and CET-6. In Dang Hongxia's (2021) review of Song Yuping's research on college English teaching under the guidance of schema theory, she mentioned that schema needs to be newly built and activated before reading; in reading, teachers need to guide students to control and classify the structure of the article as a whole according to the structural characteristics of different types of texts formed in students' brains, so as to improve the efficiency of reading comprehension. From this, we can see the importance of activating schema and constructing schema.

Some researchers have combined schema theory with corpus linguistics and foreign language teaching in recent years. Aston (1995) believes that the construction of schema requires many repeated contacts with the corpus in the natural context, and continuous analysis and synthesis. For example, when learners describe an event in English, they need not only specific and detailed descriptive schema knowledge, such as words and collocations matching the event knowledge, but also procedural knowledge to organize and arrange the cause, the consequence, the development and change of the event. The selected corpus comes from the real text or discourse, which is conducive to the construction of natural and real contexts. Corpus indexing tools can present many high-frequency index lines, which is conducive to learners' repeated exposure to similar contexts, analysis, and induction. Gavioli, L. & Aston, G. reported in 2001 on the extent to which English syllables and materials should be "corpus driven" to better reflect the reality of language. The argument about the debate often ignores the potential of corpus as a tool in the hands of learners, which can provide learners with a wide range of opportunities to observe and participate in real discourse. Therefore, the resources, the tools and the retrieval software of the corpus can provide convenient and effective help for the construction and reconstruction of various schemas in the process of learning. The reading, writing and vocabulary ideas, strategies, techniques and methods and the related information knowledge in this book are the knowledge and experience derived from the analysis and induction of the natural real contexts, which can help activate, construct or reconstruct schemas, provide assistance for effective learning, and promote the renewal of English learning ideas and the change of learning models.

Rumelhart and other researchers have proposed that schema has the following six basic characteristics. The first is the variability of schema variables. Each schema is a node in the schema network. In the process of information processing, these nodes play a role in organizing and matching the information output from language materials. Each schema itself contains several variables. Different variables mean that the values of many attributes in the schema can be changed, which can be realized in a certain situation through various external environmental factors. Schemata allow the variability of many attributes, and the changing attributes are stored in people's brains. Therefore, schema is a cognitive model. Readers' understanding and interpretation of the article depends on the existing schemata in their minds. The output information from language materials matches with these schemata to produce meaning. The second is the hierarchy and nesting of schemata. This refers to the method of adding more networks or structures to the existing knowledge network or hierarchy, or embedding one schema into another when there is a close coordination between the two schemas. Therefore, schemas are hierarchical, structural, and nested. A low-level schema can be included in another high-level schema. The schema in their eyes has structural characteristics, which means that the knowledge points in the schema form a hierarchical structure or knowledge network according to certain connections, and this network can exist in a nested form, and one schema can be included in another schema.

The third is the abstraction of schema. This means that the knowledge represented by the schema is the concept, intellectual experience, common sense or general knowledge, abstract knowledge, common features, etc. at the abstract level. It does not refer to specific knowledge or individual phenomena, but refers to the common thing extracted from it. Common things have universal guiding significance such as generic structures, paragraph development patterns, etc.

The fourth is the knowledge of schema. This means that schema is the representation and storage of knowledge organized around a topic. What schema represents is knowledge rather than definition, but

knowledge is not stored in the human brain disorderly, but stored in a certain knowledge unit related to a subject, that is, all knowledge represented by schema is stored in different units by categories, or forms representation form and organizational structure in the brain. The knowledge represented can be as small as the meaning of a word and as large as the cultural background embodied by the word. Knowledge representation is shown as follows: concept, proposition, proposition network, representation, schema and production. This representation of knowledge is conducive to the application of knowledge.

The fifth is the initiative of schema. This means that schema activity is an active activity, and the changes of schema reflect the dynamic process. For example, readers use the existing knowledge base to actively observe, absorb relevant knowledge, expand the scope of knowledge, and improve macroscopicity and predictability.

The sixth is the cognition of schema. Schema processing is a positive cognitive process. When the input information is perceived, the schema must first be retrieved to best match the learning materials from memory. When schema variables are activated, they will help to identify input information and search for specific information from cognition materials according to the nature of the schema and certain expectations. At the same time, individuals will constantly evaluate whether the activated schema is suitable for the new information. If the retrieved schema does not adapt to the new information, the new information cannot be understood. In this case, the schema is retrieved again and expectations are corrected. The cycle will continue until new information is identified. If there is no appropriate schema to recognize the new information in the mind, a new schema will be formed. When this new schema is stored in long-term memory, it will affect the subsequent learning and understanding process. Schema is a cognitive means that can be used to evaluate the matching degree of the processed materials.

To sum up, schema theory emphasizes the influence of original knowledge and its structure on current cognitive activities. Schema provides a storage structure for learning new materials and maintaining new materials. Interaction between new materials and schema, on the one hand, makes new materials gain meaning and adapt to the original schema, on the other hand, may change and adjust the original schema. In addition, when some new materials themselves lack some necessary information, the original schema can play a role in making the new materials easy for learners to understand. It can be seen that schema theory clearly explains how new knowledge can be understood and how new cognitive structures are constantly changing. In the teaching process, teachers should reasonably arrange the teaching procedures, use the schemata in students' brains, help them understand the main idea of the article, master reading, wiring, and vocabulary skills, and improve their reading comprehension ability, writing level and vocabulary learning and acquisition ability; at the same time, teachers can help students consolidate and expand schema and improve in these aspects by designing teaching activities or tasks.

Rumelhart and Norman put forward three main learning types based on the previous research on schema.

The first is accretion, which refers to the new foreign information accumulated within the original schema framework. The existing schema in the brain can be used to process new information, so the original schema does not need to be changed. This proliferative learning type is the most common in traditional Chinese teaching.

The second is tuning. This means that when new information is received, the original cognitive schema will be supplemented, refreshed, and reorganized, and the new information will be adjusted according to the existing schema, and the relevant schema will not have an overall essential change. For example, textbooks should keep pace with the times. Nowadays, people use e-mail, messages, and other electronic communication methods, and naturally use digital images to express emotions such as emojis or smiling faces.

The third is reconstruction. This means that when the original schema in the head is not enough to explain new information, when people cannot apply the original knowledge to understand new knowledge, they need to create new schemas. In this case, the previous schema has become an example, a basis for recognizing new things, a framework for thinking, and a basis for people to observe, think and understand new things. Students already have Chinese reading methods and Chinese text organization patterns in their minds. On the one hand, students will use Chinese reading methods and the Chinese text organization patterns or generic structures as schemata to understand the new English reading methods and western thinking ways. By comparison, people will construct or create brand-new language cognitive schemata completely different from the previous ones based on the original schemata. On the other hand, when students lack original schemata in their minds and need to create new schemata, teachers can take some means and ways to help students create new schemata and improve their cognitive ability of reading comprehension.

In addition, students have made significant progress in reading texts one by one over a period of time

when learning English, but over time, they will encounter the bottleneck of reading, and their reading level has not improved significantly. By comparing with the past reading methods, they have new thoughts on reading methods in their minds. Through the perception of the reading of the past texts, they have new ideas on reading learning in their minds. Reading is not only the learning of language knowledge, but also the learning of other aspects of knowledge and the improvement of ability such as organizational style, discourse analysis, merging main ideas of paragraphs, etc.

According to these three types, we can conclude that the learning process is a process of cognitive development. In the process of knowledge learning and ability improvement, learners give play to their subjectivity and initiative, and actively use the original schema in the brain to process new information, which provides a boost for the generation of cognitive process. In addition, learners can only really read it if they know how to read it. Only when learners have a clear reading purpose when reading and know what to read and how to read can they read well; learners have reflective consciousness and action about their reading, and care about how well they read. If they read well, they will continue to read, and if they don't read well, they will adjust in time to avoid inefficient reading.

Modern schema theory plays a positive role in guiding reading comprehension. According to the modern schema theory system, reading comprehension is the process of the interaction between the existing knowledge structure system in the reader's mind and the information provided by text materials. When readers link and match the existing schema in their brain with the information of text materials, they can understand the content of language materials. In this process, the information output from the text activates or invokes the existing schema in the reader's brain, and the reader will read successfully and efficiently. On the contrary, when the existing knowledge framework in the reader's brain cannot interact with the information output from the text, that is, if the pre-stored knowledge and experience in the reader's brain cannot predict, verify, decode, extract, and remember the information output from the text, or the information output from the text cannot activate and compensate for the existing knowledge structure and experience network in the brain, reading comprehension will be blocked or will go wrong.

From this point of view, students' schema knowledge is the basis for understanding articles, and the pre-existing knowledge and past experience are important schema forms. Students should accumulate pre-existing knowledge and past experience so that they can rely on existing schemata when reading. If students use the wrong schema or cannot find the existing schema, there will be deviation in understanding. Therefore, in the process of reading teaching, teachers should strive to make students have the necessary schema knowledge, activate the existing schema in the brain, help them to actively predict the author's thoughts, general ideas, and possible points, and read effectively.

In addition to background knowledge, the role of language skills cannot be ignored. In terms of content schema, the relationship between various cognitive abilities and specific forms of knowledge is complex. In addition to language knowledge, relevant background knowledge and social and cultural knowledge, students need to learn conceptual knowledge and absorb normal information knowledge within a topic such as the identification of topic sentences, semantic coherence, unity of a paragraph, etc. In this way, students can have a comprehensive understanding of the article from multiple perspectives, and improve their reading effect and understanding level.

4.3.6 Schema Theory and Reading Teaching

Schema theory, as an important theory in reading psychology, has attracted much attention in the field of English teaching in China. It can be said that it is the main guiding theory of English reading teaching in recent years. Reading is the embodiment of comprehensive language level. Students should construct three schemata: language schema, content schema and formal schema. When reading, they should activate the existing schemata in their minds, speed up information extraction, and efficiently obtain new information.

(1) Create and Activate Schema before Reading

Establishment and Activation of Language Schema

According to the bottom-up reading model, reading is a process of identification and perception from letters to words and then to sentences from small to large, from bottom to top. Language schema is very important. Having a certain amount of language schema is the basis and premise of invoking content schema and formal schema. Language schema is the necessary knowledge of information decoding in the process of reading, and it is the basis of bottom-up reading. Therefore, it is necessary to enrich language schemata. The study of vocabulary and grammar is the basis of constructing language schemata. In reading teaching, teachers can activate the past language schemata in students' minds through some

methods, and establish some language schemata that they have never touched. Common methods include context analysis, word formation, identifying key elements of a sentence for the key idea, and analyzing complex sentences. In the process of reading, when encountering unknown words or incomprehensible phrases, good readers will use contextual information to infer the meaning of new information and establish new language schemas. Readers use the existing schema, that is, their own knowledge and experience to infer the meaning, to activate a schema and other sub-schemas related to this schema in turn, thus forming a systematic knowledge accumulation.

Construction and Activation of Content Schema

In order to enable students to better carry out reading, teachers should activate the content schema of the topic in students' minds so that students can find the key vocabulary and repetitive vocabulary in the article according to the topic so as to achieve the purpose of recognizing the meaning of vocabulary and understanding the main idea of the article. For example, before reading, students orally report and introduce the relevant cultural background knowledge of the article, fully mobilize the existing schemata in their minds, and sort out and integrate the existing schemata. One of the prerequisites for successful reading is whether students can mobilize the existing schemata in their minds. In addition to the background knowledge about the subject, students can read Chinese or English books about the social and cultural knowledge of English-speaking countries, and establish cultural content schemas. When reading, they can call the cultural content schemas, match, and combine with the information output from language materials, construct new schemas, and successfully complete the process of assimilation and accommodation. Content schema is the necessary knowledge and ability in the process of reading. Therefore, on the basis of the construction of knowledge schema, students should form a storage of knowledge and abilities for reading ideas, activities or tasks in addition to background knowledge and socio-cultural knowledge because the content schema contains conceptual knowledge or normal information in a topic, and how information is interrelated to form a coherent whole. In addition, reading skills come from the effective reading experience of scientific truth found in teaching practice, which is worth learning from.

Construction and Activation of Formal Schema

In addition to language schema and content schema, learners need to establish the consciousness of constructing formal schema. Teachers should guide students to recognize the formal schema of the reading text before formal reading, help students recall the characteristics of different styles, and use these characteristics to activate and construct structural schema to improve reading efficiency.

Teachers should cultivate students to consciously construct formal schemata because knowledge about text structure, genre, style and so on can guide readers to predict the text information organization. Therefore, teachers can cultivate students to be familiar with the characteristics of various text genres in teaching. Different text genres have their own characteristics. Students can predict the content, the structure, and the location of important information through the genre. Teachers can teach in these aspects, help students reserve these knowledge and abilities, match and combine with the existing schemata or examples of the brain, and increase formal schemata. In short, formal schema is the framework for understanding and analyzing texts.

Take narrative as an example. The primary purpose of the narrative is to entertain. Narratives generally begin with some sort of orientation where the main characters and other supporting characters are introduced to the reader (The function of the orientation is to point the reader in a certain direction.). The story is pushed along by a series of events. Eventually, the events lead to a resolution of the problem. We might find stages such as evaluation (Where the narrator comments on certain events emphasizing their significance to the developing story.). Therefore, the narrative is centered on character(s) or events, and the structure is based on the orientation、 a series of events (At some point in the story, there occurs a complication or complications.) and a resolution of the problem, sometimes plus the evaluation. When reading a narrative, readers should pay attention to place, characters, and other information points, find out what the central character(s) and the narrative clues are, and clarify the relationship between paragraphs according to the orientation, the events, and a resolution (sometimes plus the evaluation).

Take argumentation as another example. Argumentation is a rational article. It generally consists of thesis statement/position (sometimes with background information—contextualize the issue)、 arguments (with points and elaboration/evidence) and conclusion (reiteration/recommendation/plea). In argumentative essays, the author puts forward the subject matter, the viewpoints, carries on elaboration or provides sufficient evidence, and uses certain logical methods to prove opinions or draw conclusions. The subject of an argument must be the disputed—that is, reasonable people would disagree over it and be able to support their position with evidence or elaboration. The thesis statement is the main idea of an

argumentative text. In an argument the thesis statement makes the claim that the writer wants the reader to accept or act on. Broadly speaking, the writer's purpose in an argument is to engage readers to convince them of the writer's position or persuade them to act on. A writer of argument seeks to provide evidence for the claims and provides clear reasoning about the relationship between evidence and claims. So, in reading an argumentation, readers should find what the subject is, what the main idea of the text is, what the purpose of the argument is, what the evidence for the claims is, how the texts are developed. Argument texts belong to a genre group called exposition. There are several different expository genres. The expository compositions are developed by examples, comparison and contrast, cause and effect, definition and logical division, or classification.

(2) Using Schemata and Strategies in Reading

Teachers should adopt some strategies, means or set up some teaching activities to activate, contact and apply the relevant schemata in students' minds, so as to promote students to understand the article, acquire new knowledge, experience and ability, construct or expand new schemata, and improve their ability to receive, understand and process information.

In reading, on the one hand, teachers should guide students to decode the basic information of the text through the language schema, on the other hand, they should guide students to apply the activated schema to the text, predict and infer, look for clues from the text, verify or correct the predictions so as to achieve the purpose of comprehensive understanding. Reading is a cognitive activity which is constructed step by step through interaction. Therefore, the difficulty gradient and level of reading activities should be clear in the design. The sequence of reading activities should be from easy to difficult, from shallow to deep, from general idea to structure and then to details. In the design of reading tasks and questions, teachers should consider the purpose of reading activities, what students can learn, master, and obtain, whether students can accept tasks, complete tasks and solve problems, and the difficulty gradient and level design of reading activities should be based on the purpose of reading activities.

First, readers can grasp the general idea of the article by skimming. In the process of skimming, readers do not need to understand every word and sentence, but need to master the main idea, the structure, and the genre of the article. Readers can predict the content of the article by reading the title, the guides and the illustrations. They can verify the content of the article by reading the opening and closing paragraphs to find the topic or main idea of the text. They can summarize the main idea of the article, the main idea of the paragraph, and the relationship between the paragraphs by reading the first sentence of each paragraph of the body of the article, and finding keywords and repetitive words. Sometimes it is necessary to read the second sentence or more sentences of each paragraph of the body of the article. There are some exceptions of reading body paragraphs of a text in skimming, which will be discussed under the heading of *Some Exceptions of Reading Body Paragraphs* in this section. Finally, the reader constructs a brief content framework and structural framework in his mind to prepare for the subsequent intensive reading.

Secondly, readers can learn the details of the article through browsing. The purpose of scanning an article is to cultivate readers' ability to quickly find the details of the article, and to fill and revise the previously formed content and genre framework by reading the details, so as to build and expand the schema. Teachers can arrange some teaching activities and tasks, or set questions and steps to help students find the details of the article.

In addition, when reading articles, readers should read in depth. The purpose of deep reading is to clarify the deep meaning of the article, to understand the author's writing purpose, tone, writing style, etc. In deep reading, teachers can guide students to construct formal schemata, guide students to think about the author's writing purpose and tone, pay attention to what language the author uses to express his purpose and tone, further enrich formal schema, and prepare for the future reading activities.

Finally, teachers can use schema theory to guide students to conduct reading activities in English. One is to help students to digest and absorb the content of the article to contact the new knowledge with their own original knowledge. The stronger the connection, the easier it is to remember and use it. The second is to help students to infer, draw conclusions based on the facts in the form of language on the basis of the original information reorganization. The third is to help students to adjust their attention to the processing of important information such as looking for key words or repetitive words about the topic. The fourth is to help students to systematically store information in long-term memory such as chain method (that is, things that need to be remembered are converted into familiar things, and then these unrelated things are connected one by one by association)、meaningful memory method (that is, using relevant knowledge and experience based on the understanding of things and the internal connection of things)、word formation and context analysis. The fifth is to help students summarize information such

as getting the central thought of a passage by adding the main idea of each paragraph related to the theme, summarizing time, place, characters, events (including orientation, processes, a resolution) and other elements of the story, summarizing the theme in a certain order or logic, summarizing the general idea through skimming, etc. The sixth is to help students understand the article comprehensively such as using the structural thought diagram to understand the overall idea of the article and the ideas or facts at different levels.

In addition, for foreign language learners, due to the limitations of language schemata, content schemata and structural schemata, as well as the limitations of readers' or authors' cognitive resources, the readers' or the authors' brains mainly focus on activating and creating new schemata, while ignoring the application of schema theory in reading, writing and vocabulary teaching. In this chapter, there is a description of the application of schema theory in English reading, vocabulary and writing teaching. The reading, writing and vocabulary activities and tasks in the book and the normal information knowledge in a certain topic can improve students' reading, writing and vocabulary skills and abilities, and can help students construct and activate the three schemata.

For reading long articles, one is to improve reading ability, and the other is to improve reading skills and methods. The so-called improvement of reading ability should be more specifically expressed as improving one's ability to skim, scan, predict, summarize, conclude, infer the meaning of the word, analyze long and difficult sentences, etc. The common feeling of students in China is that they can read Chinese at a glance, but not English. Therefore, students should read a lot of English extracurricular reading materials in the process of exercising their reading. They should try not to look up words when reading. They should start from their own preferences. Some people like to browse online articles, internet catchphrases, and read some shallow books, but they should gradually turn to high-end reading. In addition, to improve their reading ability, they must be conscientious people, be good at learning from others' successful reading experience, combine it with their own reality, and realize integration in practice.

Reading and vocabulary skills and methods are the means or ways to understand the content of reading materials and receive information from them. The so-called improvement of reading and vocabulary skills and methods should be more specifically expressed as intensive reading, skimming, speed reading, etc.; interpretation of words and syntax, analysis of text structure, induction of text main idea, etc.; in terms of thinking methods, there are analysis, synthesis, comparison, generalization, induction and deduction reading methods; summary after reading; prose reading method, novel reading method and science and technology reading method, etc.

In the teaching of reading and vocabulary, teachers should pay attention to cultivating students' reading and vocabulary skills and abilities, constantly explore and research in the teaching process, give full play to students' subjective initiative, cultivate students' autonomous learning ability, and make students happy and good at reading and vocabulary learning.

(3) Some Exceptions of Reading Body Paragraphs

As mentioned above, readers can read the opening and closing paragraphs of the article, as well as the first sentence of each paragraph in the body of the article, find keywords and repetitive words to browse the text to understand the content of the article and refine the main idea of the article. Sometimes it is necessary to read the second or more sentences in each paragraph of the body of the article. Some exceptions to reading body paragraphs of a text in skimming are discussed below.

Exception 1: with a turn during events such as words like: instead, however, but, otherwise, nevertheless, yet, still, instead, etc.

Listen more than you talk. Questioning can sound like interrogation. Instead, adopt an attitude of curiosity rather than control. Ask questions like “How so? What do you think now? Were you surprised? What will you do now? What’s your plan? Is this something you want help with?” If your object is only to listen, you should be careful not to be preparing your response while your teen is still talking. You will hear better that way, and they will be encouraged to talk more.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 1)*. Foreign Language Teaching and Research Press)

Analysis: Example 1 is a paragraph of the body of an article. Readers need to read the second sentence of the paragraph, with a turn during events “Instead” (Instead, adopt an attitude of curiosity rather than control.), as the idea behind “Instead” is the main idea of this paragraph. As can be seen, “instead” indicates a turn during events.

Exception 2: The first sentence is a question, and the second sentence is an answer.

But what happens to young people without access to these important resources? For them, skipping college to pursue business success is like investing their savings in lottery tickets in the hope that they will be a multimillion-dollar winner, or failing to pursue an education because they expect to be an NBA superstar. The reality is that the next college dropout will not be LeBron James Cameron, or Mark Zuckerberg. He will likely belong to the millions of college dropouts you don't hear the press singing about. These are the 34 million Americans over 25 with some college credits but no diploma.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 2)*. Foreign Language Teaching and Research Press)

Analysis: Example 2 is a paragraph of the body of an article. The first sentence raises the question (what happens to young people without access to these important resources?). The second sentence (For them, skipping college to pursue business success is like investing their savings in lottery tickets ...) is a direct answer. In addition to reading the first sentence of the paragraph, which is a question, readers need to read the second sentence of the paragraph, which is the answer to the question when skimming the paragraph. Sometimes, if a paragraph is complicated, there are exceptions in that there is no immediate answer after the question. Instead of answering in time, the author introduces the background of the question and then gives the answer of the question. Readers need to skip the background of a few sentences of the paragraph, and then look for the answer to the question. Here are some examples.

Exception 3: Complex question and answer

When the weather is hot, you go to a lake or an ocean. When you are near a lake or an ocean, you feel cool. Why? The sun makes the earth hot; but it cannot make the water very hot. Although the air over the earth becomes hot, the air over the water keeps cool. The hot air over the earth goes up. Then the cool air over the water moves in and takes the place of the hot air. When you are near a lake or an ocean, you feel the cool air when it moves in. You feel the wind. And the wind makes you cool.

Analysis: Example 3 is a paragraph of the body of an article. The first and second sentences describe the phenomena introducing the background (When the weather is hot, you go to a lake or an ocean. When you are near a lake or an ocean, you feel cool.). The third sentence is the question (Why), and the answers are in the fourth sentence (The sun makes the earth hot; but it cannot make the water very hot.). When skimming the paragraph, readers may skip the background or phenomena of the first two sentences and read the third and fourth sentences of the paragraph directly, as they are sentences of question and answer expressing the main idea of the paragraph.

There is one thing to note in this paragraph: in the sentence of answering (The sun makes the earth hot; but it cannot make the water very hot.), the word with the turn during events "but" appears indicating that the author values more on the idea behind the word "but" (but it cannot make the water very hot.). What is behind the word "but" is the main idea of this paragraph.

Exception 4: Even more complex type of question and answer

If our proper relation to nature is not opposition, then what is it? This question becomes complicated and difficult for us because none of us, as I have said, wants to live in "pure" primeval forest or in a "pure" primeval prairie; we don't want to be eaten by grizzly bears; if we are gardeners, we have a legitimate quarrel with weeds; if, in Kentucky, we are trying to improve our pastures, we are likely to be enemies of the nodding thistle. But, do what we will, we remain under the spell of the primeval forests and prairies that we have cut down and broken; we turn repeatedly and with love to the thought of them and to their surviving remnants. We find ourselves attracted to the grizzly bears, too, and know that they and other great, dangerous animals remain alive in our imaginations, as they have been all through human time. Though we cut down the nodding thistles, we acknowledge their beauty and are glad to think that there must be someplace where they belong

(Source: Wang Tongshun (1999). *Graduate English Series: Intensive Multidimensional Course (Approaching Proficiency)*. Beijing, China: Higher Education Press)

Analysis: Example 4 is a paragraph of the body of an article. The first sentence is a question (If our proper relation to nature is not opposition, then what is it?). The second sentence (This question ...) is a description of the background of the question. After background is the answer. When skimming the paragraph, a reader may skip the long description of the background to find the answered sentence (But, do what we will, ...), which is the main idea of this paragraph.

Exception 5: Implicit type of question and answer

But for linguists around the world, the announcement wasn't about whether Oxford Dictionaries had lost it. It hadn't—most linguists agree a word is a discrete unit that is meaningful; emojis fit that definition.

Rather, it was recognition of the enormous effect that yellow smiley faces and other colorful emojis representing food, animals and hand gestures have had on the way people talk online.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 1)*. Foreign Language Teaching and Research Press).

Analysis: Example 5 is one paragraph of an article. In the first sentence (But for linguists around the world, the announcement wasn't about whether Oxford Dictionaries had lost it.), there is a word "whether", which indicates that the sentence involves an implied question. The second sentence (It hadn't.) is the answer to the implied question (whether Oxford Dictionaries had lost it.). When skimming the paragraph, readers need to read the answer of the second sentence in addition to reading the question of the first sentence, which is the main idea of this paragraph.

Exception 6: The first sentence of a paragraph is too simple.

Look at it this way, Evans said. There are estimates that as much as 70 percent of the meaning we derive from a face-to-face encounter with someone comes from non-verbal cues: facial expressions, intonation, body language and pitch. This means words account for only around 30 percent of what we communicate. As an example, he noted the huge difference in meaning between saying "I love you." as a statement with a falling intonation and saying "I love you?" as a question with a rising intonation.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 2)*. Foreign Language Teaching and Research Press)

Analysis: Example 6 is a paragraph of the body of an article. The first sentence is too simple and expresses an action, but does not express the outcome of the action, and readers need to read the second sentence (There are estimates that as much as 70% of the meaning comes from non-verbal cues: facial expressions, intonation, body language and pitch.) with the result of the action, so that readers can capture the main idea of this paragraph.

Exception 7: Sometimes, the first sentence of a paragraph is too general, abstract, or there are new or unknown words in it so that the reader cannot understand the meaning of the sentence.

In Germany, in contrast with France, friendship is much more distinctly a matter of feeling. Adolescents, boys and girls, form deeply sentimental attachments, walk and talk together not so much to polish their wits as to share their hopes and fears and dreams, to form a common front against the world of school and family and to join in a kind of mutual discovery of each other's and their own inner life

English friendships follow a still different pattern. Their basis is shared activity. Activities at different stages of life may be of very different kinds—Discovering a common interest in school, serving together in the armed forces, taking part in a foreign mission, staying in the same country house during a crisis ...

(Source: Ying Huilan (2000). *New university English Book 3*. Foreign Language Teaching and Research Press)

Analysis: In example 7, there are two paragraphs of the body of an article. When skimming the second paragraph, the second sentence needs to be read by readers (Their basis is shared activity) because the first sentence (English friendships follow a still different pattern.) is too general. It is impossible for readers to know how British friendship is different from others from the first sentence, so skimming the second paragraph, readers need to read the second sentence of the paragraph in order to know that British friendship is based on common interests, hobbies, or activities, to understand how British friendship is different from others. So, when skimming the second paragraph, readers need to read the second sentence to truly understand the main idea of the second paragraph.

Exception 8: A connecting sentence/a sentence from the previous paragraph

The word "should" indicates that you aren't doing what you would benefit from, and you are not entirely resolute in your choice, either. Enter regret. Cue the reinforcement of existing negative messages you already hold about yourself. "This is why I am still fat," "this is why I don't have the body I want," "I am not good enough." Now you feel bad about yourself for not going to the gym, so you pour a glass of drink, have a comforting snack and turn on the TV to take your mind off feeling bad about yourself. And tomorrow you will do it again if not about going to gym, about something else. Possibly many things.

'Should' goes hand in hand with self-reproach. The problem with guilt is that it is largely worthless in terms of getting you to do anything. You may have been raised in a house where guilt and shame were used to get you to do all kinds of everyday things, like be nice to your sister, clean your room and go to church on Sundays. Guilt may feel familiar to you, and humans seek what we know, even if it is bad. But guilt doesn't get you to do the big things like find a job that makes you happy, leave a relationship that sucks the life out of you, or manifest your dreams in love, life and the pursuit of happiness.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 2)*. Foreign Language Teaching and Research Press)

Analysis: In example 8, there are two paragraphs of the body of an article. When skimming the second paragraph, readers need to read the second sentence of the second paragraph (The problem with guilt is that it is largely worthless in terms of getting you to do anything.) because the first sentence of paragraph 2 (“Should” goes hand in hand with self-reproach.) is a connecting sentence/a sentence from the previous paragraph that summarizes the main idea of the previous first paragraph. The second sentence of the second paragraph is the main idea of the second paragraph. Therefore, when skimming the second paragraph, readers need to read the second sentence of the second paragraph in order to really understand the main idea of the second paragraph.

Exception 9: Quotation

Para 1. The variety of things put up for sale is really wonderful—dishes, books, used clothing, tools, tires, empty bottles, bicycles, furniture

Para 2. “You wouldn’t believe the stuff people will buy,” says Mrs. Jerry McNeely of Houston, Texas, who has held two garage sales with friends, “On the other hand, you wouldn’t believe some of the things (people will put out to sell).”

Para 3. Why would Americans want to shop by searching among someone else’ cast-offs?

Para 4. Rising living costs are considered by almost everyone as a reason both for holding sales and for attending them ...

(Source: Gao Yuan (1998). *College English Self-Study Tutorial (Previous Book)*, Higher Education Press)

Analysis: In example 9, there are four paragraphs of the body of an article. After reading the first sentence of the first paragraph (The variety of things put up for sale is really wonderful—dishes, books, used clothing, tools, tires, empty bottles, bicycles, furniture ...), readers just glance at the second paragraph to only find the second paragraph is a quotation quoting Mrs. Jerry McNeely, which is used just to explain the main idea of the first paragraph. In this case, after reading the first sentence of the first paragraph, which is a topic sentence of the first paragraph, readers can skip the whole paragraph of the second paragraph and jump to read the first sentences of paragraphs 3 and 4 directly in that the second paragraph is a quotation, which just explains the main idea of the first paragraph.

In conclusion, by paying attentively to the exceptions presented above when skimming the body of a text, readers can successfully get the main idea of a text, summarize the outline of a text, and finally arrive at the conclusion of a text. The skimming strategy helps students generalize and summarize articles by activating, connecting, and applying relevant schemas in their minds, acquire experience and abilities, and improve their reading quality. The training of analysis and summary ability helps them to read by summarizing their experience.

4.4 *The Predictive Role of Schema theory in English Reading Teaching*

4.4.1 Previewing

The function of prediction and inference provides a positive state of preparation for people to understand things. People should give full play to the previewing and predicting function of schema before reading. In order to read the information, previewing can be used to browse the article in advance. Previewing is to ask candidates to browse the title and the paragraph structure before answering the questions, leave a general impression, know what the article or the content is related to, and then preview the topic, circle out the key information of the question stem, and return to the original text with the questions and keywords back to the original positioning.

Readers preview the article, predict the content of the article according to the clues and information provided by the article, so that readers can understand what the article may be about. The reader's prediction may be correct, or it may be rejected after further reading. Anyway, previewing narrows the idea of the article to a reasonable range.

In the past, the reading system was based on the premise that what was done before and after reading was as important as the actual reading behavior. Many researchers recommend that readers take a few minutes to browse the text before the formal reading.

There are two steps to previewing. The first step is prereading a text. Prereading a text is to determine what content will be presented as well as to gain an overall idea of the author' s organization of ideas

within the text, sufficient for readers to make some predictions about the information they may find in it so that readers can better read the material, understand the material, and recognize the purpose of writing.

The second step is clarification. After getting familiar with the content and organization of the text, readers' task is to connect the content they are going to read with the content of the topics discussed in the text they already know. This is an important step in obtaining new information. Previous knowledge or experience can detect the difficulty of the text and determine the reader's reading speed. A good reader reads the information in advance, sets the expectations or makes the predictions about the text, and compares them with the actual reading content. In fact, prediction is to link previous knowledge or experience with new or emerging information. The effective readers are those who acquire pre-reading information and set expectations (or make predictions) for the text. They can compare to what they read in text. In fact, prediction makes connection between prior knowledge and the new information coming in.

Next, the reader is required to clarify the predicted content so that the reader can confirm the reading purpose. Although most of them unconsciously use strategies when designing tasks and confirming purposes, skilled readers will set their own reading purposes —whether it is discovery, learning or appreciation. Then, readers will choose appropriate reading strategies according to their own reading purposes. Reading for learning or studying for tests demands closer attention to the details and text organization of the article. However, in order to understand hot issues, read newspapers or read stories for entertainment, readers only need to race through the materials for the main ideas or the general meaning.

After previewing the text from beginning to end, readers review the content of the prediction and check the accuracy of the prediction. Generally speaking, it only takes a few minutes to preview, but it is worth doing so because readers may be busy with other things before reading formally. Previewing helps readers to smoothly transition from other things to the text at hand. Previewing helps activate thinking about the topic in terms of what is known and what needs to be learned. Most importantly, previewing helps readers understand the text structure, laying the foundation for the formal reading and further understanding of the text. In summary, previewing helps readers read effectively.

Previewing involves the act of skimming and scanning the text, looking at the title, introduction, illustrations, picture captions, headings, subheadings, maps, and summary, etc. very quickly. Readers view the title because it tells the reader what it will be read. The title is likely to provide the main idea of the text. After viewing the title, readers can confirm their reading purpose. Readers look at the beginning part because it usually tells the reader the subject matter of the article. Readers should look at the beginning part at a normal speed, then stop to think about it, and then continue to read.

According to the specific content of the text, teachers can use these resources related to the text to introduce background knowledge to students, introduce the theme of the text, activate the students' existing background knowledge related to the text, make the background knowledge in students' minds and the content of the text interrelated, and stimulate students' interest in reading.

Take the title: Aging America: The cities that are graying the fastest as an example. In the title, aging and graying mean growing old. Seeing the title, learners can predict the content of the title intentionally or unintentionally, and predict the information they may find: e.g., America is growing old; there are some cities that are growing old fastest in America; a lot of people in America are growing old. Perhaps there are more predictions. Readers read on and check which prediction is correct.

Teachers can guide students to analyze the title of the article, and make a preliminary guess about the content of the article to stimulate students' reading desire. Take the title *The Myth of the Successful College Dropouts* as another example. Myth means a story from ancient times, or something that many people believe but does not exist or is false. Dropouts mean persons who leave school or college before they have finished their studies. When reading this title, learners predict the content of this title consciously or unconsciously, and make predictions about the information they may find in the text: e.g., some persons who leave school or college before completing their studies are successful, and some stories are true but some are not. There may be more predictions. Readers can read on and check which prediction is correct.

Teachers need to guide students to be familiar with the characteristics of various articles and construct relevant schemata, which is conducive to students' guessing about the content and structure of the article and in-depth understanding of the information provided by the reading materials. These pre-reading predictive activities can help students elicit the background knowledge related to the text and prepare for the next reading activity.

4.4.2 Predicting

Readers can predict the writer's ideas. Predictions are positive guesses or speculations about the author's next point. Although the reader may not be able to predict every detail, the reader can predict the general direction of the author's writing, helping the reader to speculate on what is about to come or what is going to happen. Take for example, the title of an article: Advice to my younger self: The road to success is a long one, don't give up. Seeing the title, readers can feel the title looks like a piece of advice. Readers will be mentally full of curiosity about this topic. This is actually predicting.

Next, read the article on this topic. The article on this topic actually tells the following things: The author has experienced problems and challenges both as an employer and an employee, and gives the advice to her young self: never, ever—— however tough things are right now—— give up.

Predicting is guessing stories. Before reading, readers guess and imagine according to the topic, pictures and other information. By activating the schema of the brain, readers guess the known things related to the subject. Predicting is thinking about what is already known about the subject matter, for example, previous knowledge or experience, which is called schema. Readers use the known things to predict the theme, so as to lay a foundation for further understanding the article.

There are many ways to predict, which can be predicted according to the title and the beginning part. Readers can use keywords and key sentences to predict the subject matter, the writing direction and the main idea of the article. Key words often exist in the title or the beginning part, which is a summary of the main content of the article; the key sentence, also known as the general sentence, is often located in the first sentence in the first paragraph or each paragraph, which plays the role of leading to the following or changing the topic. For example, the title of an article, *Marriage across Nations*, reminds people of Beining Sa and Lisa, Rupert Murdoch and Wendi Deng, Liu Ye and Anaistamo Martane. Readers can also guess according to the subtitle, or guess according to the pictures. For example, in a picture, there are two people, one being old and the other being young. Readers can speculate that they are grandparents and grandchildren. Another example is a picture in which two little kids fly hand in hand. This picture looks fantastic. The last example is a picture of a sun and a little boy lying on the ground. It is speculated that the sun has hurt the little boy. Through these pictures, readers can guess the relationship between them, and guess that the two pictures are stories about flight dreams and accidents.

One thing needs to be reminded that predicting is just guessing stories, not necessarily accurate or correct. Only after reading it, readers can know what the story is. Predicting is to predict the story line and to predict the possibility、 occurrence factors and development trend of an accident. After the prediction, the reader expects to read all the inside of the story, so as to obtain happiness; readers either decide to continue reading or give up reading. Deciding to continue reading can get the happiness of the story and know the truth of the accident.

This skill encourages readers to complete the whole story reading, swim in the story, understand the wonderful world in the story, actively feel everything in the story, and enjoy the fun of the story. Readers also fall in love with reading, like reading, pay attention to reading, and read carefully. This skill encourages readers to complete the whole report reading, actively search for the truth, and get to know the cause of the accident and its outcome and its solutions.

To master this skill, readers need a lot of practice. Readers can read a large number of newspapers, look for different types of topics, subtitles, pictures, symbols, names, and make bold guesses and imaginations. After a bold guess and imagination, they decide to formally read the text or give up reading the text. After formal reading, they take a look at what they guessed and what the content of the article was. Of course, the last link is not important, but a conditioned reflex of the brain, usually unconscious.

5. The Eclectic Methodology of SLA Teaching Method

The teaching methods that have a great influence on foreign language in China are: the Grammar-Translation Method, the Direct Method, the Audio-lingual Method, and the Communicative Approach. Various teaching methods are gradually introduced and promoted in China, and the introduction and promotion of various teaching methods are not combined with the national conditions. When one teaching method is popular, other teaching methods are extremely rejected. Thus, when the Chinese people learn a foreign language, teachers will feel a headache. In my opinion, to some extent, all theories, methods, and teaching techniques of the SLA are relatively effective. However, all are incomplete and insufficient. I have been thinking whether English teachers in China can combine all theories and methods in an integrated way; thus, we are possibly approaching to eclecticism. The key point to eclecticism is not to go to extremes, draw the benefits of established methods, and flexibly adopt various methods according to the specific situations to cultivate listening, speaking, reading, and writing skills. The application of an eclectic approach is suitable for Chinese learners. It would be helpful to Chinese learners. It is not contradictory to theory. On the contrary, we need seek cooperation with theorists to work out a theoretical and practical approach.

5.1 My Past Ways of Learning Foreign Languages and My Initial Beliefs About SLA

I was mainly taught by the teachers using the situation method and the audio-lingual method based on behaviorism (behaviorists as an overall theory of learning view imitation and mechanical practice as the primary processes in SLA). It was these methods that greatly influenced me and eventually, shaped my initial beliefs: Foreign language learning mainly relies on mechanical imitation of sentences. As a student of English, my teachers, except for a few native English teachers, taught me in such a way that they had been taught by their teachers using the same situation method and audiolingual method.

I spent a lot of time in doing pattern practice and memorizing rules and vocabulary based on decontextualized exercises. As a result, I ended up with knowing a hundred of rules and vocabulary, but once in real-life communication, I either felt confused or found it difficult to express myself. Such outcome of learning bored me as well as good students and demotivated us. "Is it true that learning English is only to recite drills and texts, to mimic, besides passing exams in school?" I asked myself. "Why is behaviorism so effective and powerful in training certain skills?" "Will I be able to speak English fluently?" I doubted and then I asked one of my teachers. "Those who can tolerate boredom and tedious routine for years can possibly become professional teachers," said my teacher. Such reply seemed to tell me a truth—the keys toward self-autonomy are mechanical training and learning grammar. Our teachers use the situation method for the belief that if you know the rules of grammar, you will know the language. They use the audiolingual method for the view that teaching is a process of habit formation.

Under such circumstances, I could not remember English words, could not understand the reading materials, and could not do the comprehension test correctly. The point is that I did not like reading English or listening to English or watching videos. To my dismay, I forgot half of it when I took one English class. The big worry was I did not do test well which drove me crazy. My teacher gave me a warning criticism and I had no confidence in English. Also, I could not follow the speed of listening by native speakers which was too fast in the exam. I could not understand the meaning of many words.

Thus, teachers have their own teaching methods, and students can only learn from them. So, teachers need to be careful about the use of teaching methods. Obviously, the teaching methods used by my teacher are only several representative teaching methods, which are all products of history. On the one hand, they reflect the needs of the times for foreign language teaching. On the other hand, they also reflect the time's understanding of the answers to foreign language teaching problems. As a foreign language teacher, one should fully understand the pros and cons of each approach, draw the benefits of established methods, and flexibly adopt various methods according to the specific situations to cultivate listening, speaking, reading, and writing skills. I have been thinking whether we can combine all theories and methods in an integrated way; thus, we are possibly approaching to eclecticism.

Although the experience of the teaching methods above based on behaviorism is not ideal, the traditional teaching methods are not worthless. There is no denying that behaviorism is effective in training certain skills. Certain skills are helpful to the development of oral communication ability. Oral expression cannot be separated from the language knowledge acquired from certain skills. If the learners' vocabulary and grammar are average, even if they are still trying hard to practice oral English, even if for a long time, they feel it is difficult to speak English fluently, and can't do anything. The ability of listening and reading is often despised in oral language learning. We should follow the rules of the brain to learn the language,

and input the basic knowledge of the language so that oral expression will come naturally. If there is not enough accumulation, the brain will only be “You can’t make something out of nothing”. The CET 4 oral test involves reading aloud, and question and answer. Certain skills are the source of cultivating foreign language communicative competence.

Like many older teachers in China, I was mainly taught by the teachers using situation method and audio method based on behaviorism. At present, I am a professional college teacher with sound English, enough patience, and English culture, which shows well that behaviorism learning methods are ultimately effective and not completely undesirable. With solid basic knowledge, good learning results will eventually be achieved, but it requires patience and hard work. Only by consolidating the foundation can we have a strong interest in knowledge, a strong curiosity about knowledge and a strong memory of knowledge points. Only with solid basic knowledge can we solve more valuable and challenging problems. Only with solid foundation can we master knowledge, better apply knowledge, and solve practical problems. Behavioral approach to learning is helpful in laying a solid foundation in language. Deeply understanding, mastering and applying knowledge as well as reciting and practicing complement each other.

Besides me, the teachers around me agree that the traditional methodology is the way they teach reading comprehension. As has been shown from examination results in the past, there have been successes through the use of the traditional methodology. However, I am concerned with those students for whom the traditional method has not appeared to have work, it is worthwhile to propose an alternative.

5.2 Literature Review: Theories Which Influence and Change My Beliefs

To bring about the theoretical bases in my practice, I shall draw on some of the theories of learning and language acquisition, which, in the current spirit of education, are complementary.

Behaviorists believe that learning is the connection between stimulus and response. The basic assumption is that behavior is the response of learners to environmental stimuli. They regard the environment as a stimulus and the accompanying organic behavior as a response, and all behaviors are learned. The application of behaviorism learning theory in school education practice requires teachers to master the methods of shaping and correcting students' behaviors, create an environment for students, and strengthen students' appropriate behaviors and eliminate inappropriate behaviors to the greatest extent.

Cognitivists' view denies the positive aspects of behaviorism, like Anderson (1980), by claiming that learning a language employs more complicated process and skills than reciting texts and mimicking. Cognitive research regards foreign language acquisition as the acquisition of complex cognitive skills.

The cognitive view as an overall theory of learning takes the learner to be an active processor of information and briefly, regards learning as a process in which the learner actively tries to make sense of data. According to cognitivists, what learning means is that we learn by thinking about and trying to make sense of what we see, feel, and hear. Cognitive view strongly stresses that learning will only take place when the matter to be learnt is meaningful to learners in terms of problem-solving task and the process actively involves the learner in applying the sensory register, short-term memory, long-term memory, schema, and experience of learning. In the process of learning, learners will be able to use their strategies and skills in dealing with tasks, solving problems, and getting information across.

Apparently, nativists' view claimed itself as cognitivism focusing mainly on the acquisition of the first language. They try to explain that the human mind can cope with infinite possibilities, whereas thinking must be governed by the rules: The finite and small set of rules enable the mind to deal with the potentially infinite range of experiences it may experience. Nativists conclude that learning is not by forming habits, but by acquiring rules—a process of individual experiences being tested and modified by subsequent experience. The mind as a rule-seeker is more than just responding to stimuli. Instead, it tries to find the underlying pattern or system by using the individual stimuli. The learner is again treated as a thinking being and is put firmly at the center of the learning process.

Interactionist views and Krashen's five hypotheses about SLA (1982) greatly influence me and widen my beliefs in LA. In the early 1980s, interactionists and Krashen share certain common feature—a crucial element in the language acquisition process which centers on how to promote comprehensive input, how to upgrade it to I+1, and how to plan task-based activities by involving learners in incidental learning rather than intentional learning. In interactions, learners may reduce anxiety as they are motivated by curiosity, over-control of the task, and meaning negotiation. However, interactionists, like Long (1985), propose that task-based interactions should be well-planned, deliberately controlled, well-guided, and incorporated with certain features of grammar for students to notice and internalize. However,

interactionists are more concerned with international modifications made in conversations between native speakers and non-native speakers as the necessary mechanism for this to occur.

The interactionists' view of second language acquisition, which builds from Krashen's input hypothesis (1982), emphasizes that interactions between learners and their peers promote language acquisition through meaning negotiation. Successful language learning occurs when the learners successfully negotiate meaning with each other. The learners seeking clarification from one another through questions can facilitate the process of meaning negotiation, requesting for information to be repeated, and so on.

King (1990) found in her study that higher order thinking questions encourage more output, that is, more elaborate and profound thought through the answers from the learners. In teaching, having to offer explanations to higher order thinking questions asked is thought to enhance learning too because the learner will have to find ways to negotiate meaning to make the explanation understandable. These may include some strategies such as finding new relationships, new examples, concepts or ideas on the group members' schema.

Learning situations of this inquiring nature must be facilitated by the teacher. Teacher talk must be reduced so that the traditional, unproductive interaction pattern is avoided, which consists of the questions raised by the teacher, then followed by student responses and then revalued by the teacher. So, teacher facilitated, but student directed. A discussion initiated by students presents opportunities for more interaction, which, in turn, helps to make the input comprehensible and encourage more of this interaction as well as output, bringing about something that might be similar to a multiplier effect.

Somewhat similar to the interactionists' perspective is Vygotsky (1978)'s theories of social construction of knowledge. According to this perspective, peer interaction facilitates learning through a process whereby learners gain new knowledge or adapt old knowledge in relation to new information as a result of having different perceptions from their peers (Vygotsky, 1962). Having to resolve contradictions of viewpoints in interactive classroom is considered to have cognitive benefits for learners. From this theoretical perspective, prompting students' question in the classroom will create more opportunities for such beneficial cognitive conflicts to take place. The process of questioning and responding to questions sharpens higher order thinking skills as the students must address inconsistencies, synthesize information, evaluate ideas, and clarify issues. It is worthwhile to note that this theoretical view focuses on learning from two or more contrasting or opposite or different views. A learning activity like this certainly prepares them for the real-world environment where they survive because they are actively seeking meaning from both themselves and their peers as they would need to do this independently outside of the classroom. Similarly, resolving differences of opinion to develop social competence is an important social survival skill for social beings like us.

5.3 Discussion of Similarities and Differences Between My Beliefs and Theorists' Beliefs

5.3.1 My Current Beliefs About SLA

In the past 30 years, I had the experiences when I learned two foreign languages, English and German. In my opinion, to some extent, all theories, methods, and teaching techniques of SLA are relatively effective; however, all are incomplete and insufficient. I have been thinking whether we can combine all theories and methods in an integrated way; thus, we are possibly approaching to eclecticism. The more integrative, the better. I would select from the whole range of theories relevant and practical to my teaching. Hence, they are the eclectic theories and methods. I strongly insist that the eclectic method is an integration of all established methods, taking advantages of their strengths. So, I am strongly in favor of this definition of eclecticism: "an approach that makes use of the best of all other approaches and methods to SLA" (Lavrova, 2019, pp.571-579). Under this holistic approach to teaching a foreign language, I'll be able to reach my students with diversified learning styles and intelligence. By adopting a different variety of methods, students can improve learning and learn better.

5.3.2 Similarities and Differences Between My Beliefs and Theorists' Beliefs

There is no denying that all theories have two common characteristics: a universal applicability and idiosyncratic. Thus, their perception of language and language learning is clearly from their own perspectives. In addition, all theories assume top-down model as opposed to the nominally more official bottom-up model of learning and teaching. Common to certain theories is a set of established principles on what teachers and learners should do in the classroom; meanwhile teachers' role is to make their teaching style as well as the learners' learning style match theories. Consequently, theories are believed to deny the effectiveness of teachers and the uniqueness of learners in teaching and learning.

In fact, on a micro level, my beliefs toward those theories are mainly based on the practical

considerations in terms of learner variables. On a macro level, my faith in teaching is affected by pedagogical, social, and political backgrounds, for example, language policy, philosophy in education, public attitudes towards English language and cultural values.

It is apparent that my concern is different from that of theorists. I wonder how I can teach the English language most effectively, or help my students learn the language and even acquire it. I cannot expect a theory to cover all the variables involved in all language learning situations, not to mention all the variables of all language teaching situations in which teachers are in. By saying this, I do not mean that theories have nothing to do with the teacher. But since theories are partial and exclusive, teachers of English are unlikely to restrain themselves to accept one theory. To conclude, I am not thinking of denying the universal values and applicability of any theories, but as the theoretical frameworks, all theories about LA provide us with pedagogical guides for teaching and learning and do broaden my vision toward more integrated and comprehensive approach and multidimensional role of learners.

5.3.3 Chinese Views on EFL

In the past 30 years, China has been a sharp increase in the demand for English, and social, economic, and political forces are important factors in the large-scale expansion of English teaching. There are now more teachers and learners of EFL in China than in any other countries. On a personnel level, many students have high motivation to learn English. Good English proficiency will help greatly: to enter and graduate from university; to obtain better jobs, especially those in companies or business corporations which have international connections; to read technical materials for instrumental purposes; and to study abroad for integrative purposes. Many students including adult learners see English as a useful world language.

5.4 *Implication of My Beliefs in Teaching*

5.4.1 Teaching Grammar

Chinese teachers and learners of English are known as "grammarians". In a sense, the term implies a criticism of the failure to build up their communicative competence. The criticism, I think, is reasonable. I think language learning involves both grammatical knowledge and communication competence. When Wilkins (1976) proposed the notional syllabus, he did not set it in opposition to the teaching of grammar. Wilkins argued that the grammar is the means to ultimately achieve language creativity and an adequate knowledge of the grammar would severely limit communicative capacity. For most people, learning grammar is the first step in learning a foreign language. It is helpful for your ability of language expression, discussion and communication because it is the foundation. But there is a huge gap between learning grammar and fluent expression and barrier-free communication. But the purpose of language learning is to use language for communication. For Chinese English speakers whose native language does not have the complicated formal changes English has, it is much easier to grasp the forms of English when going through them gradually. But learning should not stop at the mastery of grammar. On the contrary, our teacher should help students to base on our grammatical knowledge to further develop the learners' communicative competence.

5.4.2 Pattern Drills

I agree that structuralists were wrong in concentrating on the form of language and in treating language use a stimulus rather than a creative activity. But we must communicate both accurately and fluently. Take, conversational formulas, for example. To say "You are welcome", when being thanked, seems to be the simplest and easiest thing for a native speaker of English. But it is not the case for non-native speakers.

In order to give the appropriate response, he must not only have the habit of saying it automatically but also know the right thing to say. This example shows that both drilling and interaction are needed to enable our students to communicate accurately and fluently. So, we should start with the relative mechanical, but meaningful and contextualized drills and move towards more and more students' participation in real communication.

We should learn words by rote within the context; we should first take notes and recite the ready-made sentences that are used most frequently; we should learn anytime, anywhere. For example, we should learn the words and sentences on billboards, posters, and occasional words and phrases related to life such as COVID-19 pneumonia, COVID-19 coronavirus, and nucleic acid testing, etc. We can silently translate everything that can be translated, which is often a rest for the tired mind.

5.4.3 The Development of Communicative Competence

Sociologists put forward the communicative theory. They have made a significant contribution by drawing the attention of teachers and learners to the communicative properties of language. The advent of communicative theory has widened our vision. We now must use language correctly, at the same time, appropriately in a certain, given social situation. After all, the purpose of language learning is to be able to use it effectively in society and these are the factors ensuring the effectiveness of language use. Therefore, the communicative approach has been popular among theorists and teachers. But we must adapt a notional-functional syllabus to develop communicative competence. Although some people think that communicative approach is the best method because it takes the communicative facts of language into account from the beginning without losing sight of grammatical and situational factor, we find it difficult to perceive grammatical factors from the materials based on this approach. In addition, it cannot be easily managed by the classroom teachers, especially a non-native-speaker teacher.

I think we can develop communicative competence on the belief that we do not have to arrange the language materials into units of notions and functions. But in order to achieve our aim, we should keep in mind the communicative use of language when we teach usage. We should focus on the discourse rather than isolated sentences. To ensure that unconscious language learning takes place in school, we need to create situations where students communicate in real life. "Simulation is used in the classroom as an effective way of connecting students to real life scenarios and task" (Perez, 2019, pp.725-753). We should help our students with both the surface meaning and implied meaning of sentences. Take the English sentence "I'm hungry" as an example. The superficial understanding is that I want to eat. The implied meaning may need to be combined with the context or the current situation.

5.4.4 Development Skills

In China, much emphasis has been given to the teaching of reading. It is necessary to instruct reading skills for our students in our English classrooms. In reading, what is important is the capacity or ability to read.

We must equip our students with the reading skills. Teaching students to become independent readers through training them is synonymous with the ancient wisdom of "Teaching a man how to fish and he eats for lifetime."

For Chinese English teachers, the usual way is to teach the students one text after another. They have been doing so ever since they begin to learn and teach English. The reading comprehension class is often teacher-dominated and merely requires the students to complete several 'WH' or vocabulary questions set on the text. They feel bored, demotivated, and inefficient.

In fact, reading instruction should move beyond literal comprehension, or excessive word recognition. We need to consciously reorientate themselves in the teaching of reading skills; we should look at teaching reading skills or strategies.

We need train our students in their reading skills on the belief and desire of teaching effective reading strategy to equip them with the skills to become autonomous learners and thereby to extend beyond the classroom. Learner autonomy should be included as an objective in the lesson plan. For example, we should teach them how to skim in their reading. The following are some strategies for skimming. We need instruct them some techniques and skills. Here are some strategies for skimming.

To skim

To get the outline of a passage or text.

To get the purpose of the central thought of a passage or text.

To conclude the text.

To summarize the text.

To preview skim

To find out the subject matter of the material,

The kind of facts that are presented,

The organization of the material,

A writer's style in writing.

And the strategy will be used when it is to be studied later.

To find out the relationship between skimming and subject,

The connection between skimming and organization,

The relationship between skimming and style,

The method of reading after skimming.

In China, great importance is attached to reading. This, I feel, is a good thing. However, we should also pay attention to the development of the other language skills because written language is different from spoken language. We shouldn't ignore the characteristics of written discourse, otherwise, the communicative abilities of students will appear unbalanced.

Even though we can distinguish between conscious language learning and unconscious language acquisition, it does not necessarily mean they cannot both take place in school at the same time. It is very important that we create situations where students are exposed to varied language in natural communication to complement what they learn in class.

5.4.5 Principles of Interest

Interest is the best teacher. Learning English must first be interesting and strive to develop this interest. Everyone has his own interests. Combining our interest with English learning is a critical condition for success in English learning. For example, if we are very interested in novels, we can read from many brief Charles Dickens English novels. In the 19th century, British life and thoughts and feelings were vividly displayed in Dickens' novels. Reading his story, we enter the world of English and enjoy the pleasure in the world of Dickens. Unwittingly, we can learn a lot of language and things other than language: We can not only master a lot of vocabulary, all kinds of grammar rules, but also have a deep understanding of English life, culture, and customs. If we are fascinated and read every day, we will learn English unconsciously. And when reading, we don't put pressure on ourselves to learn English. We don't think that we are learning English. We think we are trying to read to see what is interesting or attractive.

Also, we can watch a lot of British and American movies. If we are crazy about movies, we do not think we are learning English when we watch a movie because we are driven by interest to do it. As a result, we are particularly committed, our brain works actively, and unconsciously our memory works best.

I agree with this statement: When we do not realize that we are studying, it is when we learn the most, but only if we are getting the most out of it.

The key to English learning is to find a breakthrough. They like reading, they might as well start with simple reading; they like songs, they might as well start with English songs; they like newspapers, they might as well start by reading China Daily; they like movies, they might as well watch English movies. Remember, interest is the most important in doing anything.

I remember a famous Chinese scientist who did not know English when he went to study in the United States. He started with basketball he was interested in, solved the problem of English, and became a scientist successfully.

Because the acquisition of language often happens when we are not aware and completely attracted, it is subconscious (Krashen, 2019). The key to the English learning breakthrough is to find and stick to using language learning materials or content that can completely immerse us in it.

Krashen explains comprehensible input in this way: Language acquisition occurs when our brain receives language information that it can understand. That is to say, the acquisition of language takes place as the brain receives and absorbs language materials (Krashen, 2019).

5.4.6 English Thinking

Many people in China learn English for many years, but they do not form English thinking. The reason is that when they learn English, they use Chinese to learn, and memorizing words is remembering the Chinese meaning of English words. When they want to speak a few sentences in English, they think of Chinese first, then find the corresponding English words, and then think about grammar to organize the sentences. And people call this Chinglish. Therefore, the practice of translating Chinese into English in their minds and the emphasis on correct grammar cannot help them learn English well, but will bring obstacles.

We can think in English. For Chinese non-English majors, in their sophomore year, they always have a course devoted to European and American history and English literature. In fact, they learn English thinking from the context of English cultural development. For example, western people have the habit of starting with their own name and ending with the surname. This habit is related to the emphasis on individualism in western culture. They write the address from small to large. When writing a composition, they put forward a point of view and then discuss it. We Chinese people believe in collectivism which is

quite different. This is actually a study of different ways of thinking between the two cultures.

We can do critical thinking. Critical thinking involves the ability to think about one's thinking. One of the aims of reading learning for non-English major students in China is to cultivate humanistic spirit and critical thinking skills. On the one hand, we teachers must teach them to master a set of critical thinking skills. On the other hand, we teachers must develop their habits of using them to guide behavior based on intellectual commitment. According to Collins and Mangieri (1992), critical thinking can be encouraged through storybook reading. Teachers and students can talk about to share what they have read, with the teacher controlling, structuring the conversation to provide a model for thinking.

How to develop English thinking:

1. Do not use Chinese translation; try to establish English conditioned reflex;
2. Read more original English books and read English articles;
3. Listen to the English radio every day or something you are interested in and take half an hour to practice dictation;
4. Have more participation in communication with peers, if possible, with foreigners. Krashen (2019) call them "language parent", a foreign language friend who is particularly interesting and willing to communicate with you. Such a friend, like our parents, patiently talks with us in a foreign language and nourishes our language accumulation.

Don't be afraid of making mistakes and provoking jokes. Don't worry. Be confident. Another of Krashen's famous theories is affective filter hypothesis (1982). Emotional factors can hinder or accelerate language mastery.

Some materials can help you develop English thinking. You can look at historical and classic modern themes of British and American dramas slowly and cultivate your own interests and English thinking. At the same time, you can understand some of the British culture in listening practice. You can listen to the radio or watch videos. Most of the listening materials restore real scenes such as the reporting of the arrival of London subway station and so on.

5.4.7 Promoting Student Questioning

We teachers must alter our teaching methods. We cannot control the whole of the conversation and do all the thinking in the classroom. It is time to give our students a turn to speak, think, and learn in the classroom.

There are many places that need to be improved in the teaching of reading in colleges and universities in China. One of them is to promote students' questioning. Everyone knows that preschool children keep asking. As children continue to learn, they are constantly asking to know why. Children learn a lot from birth to school. The school prescribes what children must know and forces them to sit passively to stop "irrelevant" problems, so the school seems to lower their learning efficiency and their burst of curiosity. This is unscientific because there is no denying that inquiry is the source of all new knowledge.

The Advantages of Students' Questioning

Teachers must make questioning become the advantage of students. If they ask questions as a habit, it will help them improve their ability as learners. They can actively handle what they hear and read and interact with the material. Such questioning skills can help them to respond critically to an article or a speech; they are better able to participate in the classroom, get arguments or evidence from materials, and prepare for writing papers better.

When they develop the habit of asking questions, they become more effective and confident. When they keep looking for understanding, they may find that teachers and writers are not saints. In speaking or writing, teachers and writers also make mistakes. Sometimes their statements are inconsistent or wrong. When a person first learns to question and develops it as a habit, he or she can make judgments and respond. This is important if one is to be a successful learner as successful learning can only take place if one is open to new ideas although new ideas may go against his prior knowledge or preconception.

Questioning allows students to reestablish their values, assumptions, and beliefs. It also enables them to challenge established norms and prejudices. Promoting their inquiry in the classroom represents a shift in the model in education that has been a traditionally prescribed approach, which has been pervaded by teachers' dogmatism because of their status of authority and students' timidity because of their lack of knowledge.

Conclusion

The application of an eclectic approach is suitable for Chinese learners. It would be helpful to Chinese

learners. It is not contradictory to theory. On the contrary, we seek cooperation with theorists to work out a theoretical and practical approach. Currently, what we can do is to make use of the best of all approaches and methods to SLA to get good learning results. In addition to theory, there are other practical factors that need to be considered: create a sense of achievement and self-confidence; language is catchy; apply the language one has learned, etc. A learner ends up being a successful English language master.

6. Ways in Teaching Vocabulary

6.1 Schema Theory and Vocabulary Acquisition

Since 2001, scholars' research on the application of schema theory in foreign language teaching has gradually expanded from the initial reading comprehension to vocabulary acquisition, corpus linguistics, and writing. Shi Jieying (2020) discussed the application of schema theory in the process of English vocabulary acquisition from the aspects of listening, reading, writing and culture in order to improve the effectiveness of students' English vocabulary learning. The research points out that students' application of schema theory in English vocabulary acquisition can improve traditional word memory methods, activate original schema, integrate new knowledge into original schema so as to improve the efficiency and quality of vocabulary acquisition, which plays a very important role in vocabulary acquisition. A large number of foreign studies have shown that the meaning of most of the words we know, whether in our mother tongue or in a foreign language, is inferred from the context rather than through looking up a dictionary. Thus, strategies for inferring lexical meaning by context analysis play an important role for English vocabulary cognition and reading comprehension.

Vocabulary teaching is an important part of English reading teaching. Vocabulary is one of the three elements of a language. Human thinking activities are carried out by means of vocabulary, and human thought communication is also realized by forming sentences from vocabulary. Learners improve their ability to use the language by accumulating vocabulary. In the teaching of English reading in colleges and universities, how to cultivate students' English reading ability and guide students to master the independent learning strategies of English reading has become an important task of English reading teaching. In vocabulary teaching of reading teaching, it is more important to guide students to master vocabulary learning methods than to simply explain vocabulary knowledge.

The application of schema theory in English reading vocabulary acquisition is closely related to the process of decoding and encoding language information in reading. According to schema theory, the process of processing language materials is top-down and bottom-up. Bottom-up refers to that the reader decodes the language units layer by layer according to the order of knowledge points from small to large, from low to high, and constructs the meaning, that is, according to the specific attributes of the objective things that are known first, the concept of the objective things is derived. Bottom-up processing is also called data driven; top-down refers to that the reader can understand the content of the article by comparing the new information with the existing information according to the prior knowledge, for example, by predicting the content of the article. That is to say, the top-down processing is concept driven based on the concept of the objective things that we know first, and then predict the specific attributes of things. In fact, the two processes of reading do not exist in isolation, but rather interact and influence each other. Vocabulary is the basic element of an article, and the premise of reading activities or tasks is to have a certain vocabulary. In a sense, the understanding of vocabulary directly affects the understanding of the article, and the lack of vocabulary will seriously affect reading comprehension. Vocabulary ability is to use the vocabulary, mother tongue knowledge strategies, personal experience and existing knowledge to guess and analyze new words in sentences and articles, and gradually develop reading ability. Therefore, reading practice can cultivate students' vocabulary ability and improve the reading level of English learners.

Before reading the article, teachers can use the students' previous topic-related knowledge to preheat the keywords. The teacher explains the new words in the reading materials. One way is to explain the new words separately. Explaining new words separately will affect the learning effect of new words due to the separation of words and context. The second way is to explain new words in the process of reading the article. The teacher explains the new words according to the context in the article, uses the students' previous knowledge, analyzes the environment around the words, and recognizes the meaning of the words. In this way, the effect of explaining the words is good, the words are explained thoroughly, and it is easy to master and use flexibly. The disadvantage is that the students' reading ideas will be interrupted when explaining new words in this way although there is the context. But explaining alone is a mechanical way of learning. Explaining new words in the process of reading articles is a method of vocabulary cognition. Therefore, context analysis is highly recommended.

Students can feel the meaning of new words in the process of reading, and deepen their understanding of the reading materials. Continuous exposure to vocabulary in language materials can improve the efficiency of memorizing English words. When reading the materials, students will activate the words and phrases that often appear in the stored materials in the brain, and use them flexibly in similar language environments. English is polysemy. A word has multiple meanings, and students should determine which

is the meaning in the material. After students understand one of the meanings of a word through reading materials, teachers can guide students to expand the meanings of the word and construct the schema of word usage through schema theory. Therefore, students' understanding of the meanings of the word is deepened and their application ability is strengthened.

Many words in English are derived from words in other languages. Therefore, it is very important to establish cultural models in English culture teaching. Cultural schema is the embodiment of cultural knowledge module in the human brain. It is the cultural knowledge of folk customs, religious beliefs, local customs, etc. generated by the human brain based on the previous knowledge and experience. An important part of English teaching is culture teaching. Teaching vocabulary knowledge on the basis of comparative cultural differences can help students understand vocabulary more deeply and stimulate their interest in English learning.

First, activate the existing cultural schema. In a sense, English learning is the study of English culture. In a certain cognitive expression, people with different cultural backgrounds may have the same cognition, which is the proliferation of schemas. Schema proliferation is the mutual understanding of schemas with different cultural backgrounds. If schema proliferated words appear in two languages, students can quickly recognize even new words because they already have corresponding cognitive schemas.

Metaphor is not simply a rhetorical device within language, but is related to human cognitive process. It can reflect the relationship between language and human thinking and cognition. It is precisely because metaphor has this common cognitive basis that we can easily find the similarity of this cross-cultural metaphor in a large number of examples of English and Chinese metaphors. Take two sentences for example: He doesn't have any idea of his own; He just parrots what other people say (He doesn't have his own point of view, just imitates what others say.). Or, be all ears (Listen respectfully.). We can see that metaphor, as a unique form of cognition and thinking of human beings, has similarities in different ethnic and cultural backgrounds. Therefore, in the process of English culture teaching, activating the existing cultural schema is of great significance to understanding and memorizing related vocabulary.

Second, construct a new cultural schema. Although there are completely identical linguistic metaphors in English and Chinese vocabulary, there are sometimes differences at the purely linguistic level. The difference of any language is the cultural embodiment of the customs and social activities of using this language. For example, English and Chinese have different language systems, different cultural connotations are integrated into the development of their respective languages, and cultural differences are also reflected in them. “鸡皮疙瘩” in Chinese corresponds to “goosebump” in English. For another example, “新手” corresponds to “green hand” in English. In final example, “扭转局面” (turn the situation around) corresponds to “turn the table” in English, and so on. The same vocabulary may have different linguistic metaphors in different languages. Therefore, in English vocabulary teaching, teachers should compare different cultural phenomena so that students can construct new cultural schemata under the premise of activating existing schemata so as to remember and understand English vocabulary more deeply.

Schema theory emphasizes the relationship between the original schema and the new knowledge, and establishes the corresponding knowledge networks. The application of schema theory in English vocabulary acquisition can improve the traditional method of memorizing words, activate the original schema, integrate new knowledge into the original schema, improve the efficiency and quality of vocabulary acquisition, and play a very important role in vocabulary acquisition.

6.2 Developing Vocabulary through Wide Reading

Students often spend enough time in the world of words and think about what they are reading. They cannot help but increase their individual language banks. Since most words in English are learned over and over again, students will become familiar with the most commonly used words. For the less frequently used language units, students can read readings of interest and pertinence beyond the basic instructional materials suggested by teachers—followed by direct instruction. Students can rather painlessly reinforce and extend their vocabulary by reading a large number of materials.

Context Clues as Aids for Unlocking and Generating Meaning.

Language is best encountered and learned in context because language reflects the contexts in which it is used and the purposes to which it is put. Instead of learning lists of decontextualized vocabulary items, students should develop strategies for inferring the meaning of a new word from the context in which they occur, and use a range of cues to determine its meaning. Readers do not need to resort to a dictionary for every unknown word they encounter. It wastes time to look up every unknown lexical item

because a reader can get an approximate meaning based on contextual clues. Teachers should not be misled into isolating words or working with word lists. Students need “mental hooks” to hold onto, and they must learn words in contextual settings. Sometimes, spending some time contrasting words in different settings or circumstances can facilitate learning. Notice the following example:

On the one hand, if the body doesn't have enough cholesterol, we would not be able to survive. On the other hand, if the body has too much cholesterol, the excess begins to line the arteries.

Teachers should introduce the concept that it is often possible for readers to understand the approximate meaning of a new word from contextual clues so that readers are aware of the importance of unlocking and generating the meaning of a new word from contextual clues and the unnecessary of looking up all new words in a dictionary.

Although gifted learners are often able to remember and integrate isolated language teaching, they too benefit most from teaching which takes into account the overall context of the language and learn best. Many gifted learners really need help in vocabulary development. Giftedness in itself does not ensure knowledge or independent mastery.

The very characteristics that distinguish the gifted from other learners and determine the scope and sequence of the language arts often hinder the type of experiences of gifted learners and the degree of progress they achieve. However, experiences and expectations of the language arts are sometimes related to the characteristics of talent as if those characteristics were absolute and invariant, which only a genius can possess. Thus, curriculum experiences and expectations are based on a stereotypical description of talent rather than an analysis of the entry skills, abilities and interests of the individual gifted students.

All students must learn strategies for unlocking and generating meaning in different ways. The following context clues are important strategies for students to internalize over time.

The term *context clues* is sometimes used as an oversimplification of a set of vital strategies for vocabulary development. The term is often used to represent a vague and general way of searching for the words surrounding an unknown word to see if the reader can guess what it means. On the other hand, knowledge and trained application of such knowledge about semantic interrelations, syntax and structural analysis will lead to understanding most of the time.

Admittedly, the use of contextual cues does not always unlock meaning, especially when the reader's experience does not match that of the author, when an article is poorly organized, and / or when the writing lacks redundancy. At such times, the reader must resort to a dictionary, a peer, or the teacher. If students must often rely on dictionaries to try to study given material, the teacher should suggest a dictionary closer to the student's present language ability.

The following part of this section deals with specific types of contextual clues, but students will need help in integrating strategies into the overall ideas or actions. For example, just knowing that a noun marker for the word *attack* is *a*, *an*, or *the* will not fully help learners adequately. Once students have mastered some of the following strategies, they should start combining them as an overall approach to taking advantage of the environment in which unknown or fuzzy language units are embedded.

The syntactic, semantic, and internal context clues are organized all together for integration because they can never be used in isolation. They are integrated together to help students understand their qualities as a whole. Teachers should guide students to know their individual qualities, develop context clue strategies and gradually use them in an integrated approach.

For the information and strategies discussed below, students need not to remember because they do not have a lasting impact on unlocking ideas independently, but teachers should master them and ultimately guide students to incorporate these strategies into their existing strategy networks through practical and relevant classroom work.

6.2.1. With the Aid of their Microscopic Eyes and Minds

Readers can figure out the approximate meaning of the hazy or unknown word by using different strategies with the aid of their microscopic eyes and minds to look for details.

6.2.2 Look at patterns and functions of words.

Parts of speech are general aids, which usually do not help the student to have specific meaning but narrow the possibilities. These include the function of the word in question, i.e. noun, adjective, etc. and the subject being discussed.

Vocabulary is connected with grammar, so familiarity with grammatical pattern helps the reader guess the meaning of a word. For example, a word can be classified as a grammatical item or as a vocabulary

item. *Erratic* is a vocabulary item, and in functional grammar, it is also an epithet in the nominal group *the erratic fluctuation* and reflects the speaker's opinion of *fluctuation* described. The connection between vocabulary and grammar can be seen by the interdependence of grammatical and lexical cohesion. In a typical text, grammatical and lexical cohesion support each other.

Therefore, it is necessary to help learners use their grammatical knowledge to reduce possible alternatives to unknown language units in a given context. Just by understanding the order and function of words in sentences, a reader can eliminate a large number of improbable meanings of unknown language units. For example, suppose that the learner understands the following information reasonably well, except for the word *idiosyncratic*: More than an *idiosyncratic* choice or desire for variety underlies this range of options. Before considering using any other strategy to guess its meaning, learners can use syntactic context to analyze its position in the sentence, and can find that the word is not the name of something (noun or subject) or an action (verb) just by looking at its position in the sentence. Its position indicates that it must be describing the subject *choice*, so it is an adjective. In this way, the choice of meaning is at least roughly fixed or established. Students should be urged to become conscious of the patterns and functions of words as an initial means of approaching unknown language units.

6.2.3 Look at inflectional changes.

Tense. By understanding inflectional cues and their consistency, students can delimit the possible range of an unknown language unit. Look at the following example: Inside the cover someone had *inscribed* the words 'To Thomas, with love'. Some students have heard the word *inscribe*, but have never really determined its meaning. Before predicting the meaning of the word according to semantic or meaning clues in the sentence, learners already know that the event occurred in the past only by paying attention to the inflectional ending "d" added to *inscribe*. In addition, through the knowledge of sentence patterns, learners draw a conclusion that *inscribe* must be an action (verb), indicating what someone did. External inflectional changes (such as *d, ed, ing, s*) and internal inflectional changes (such as foot to feet, tooth to teeth, man to men) can be used as initial context clues in limiting possible choices.

6.2.4 Look at markers.

Teachers must make a brief introduction of language markers as well as a brief review from time to time so that they give students another strategy for beginning to evaluate unknown or unclear language units.

There are a small number of words in English that do not have a complete lexical meaning, but they play a key function as structural cues, and have grammatical meanings or grammatical functions. They are called functional words or structural words. Functional words include common pronouns, numbers, articles, auxiliary and modal verbs, a few adverbs, prepositions, conjunctions and interjections. Once students are guided to use words as syntactic markers of meaning, they add a strategy to their repertoire for delimiting possible choices for the unknown language unit. Teachers must cultivate students' awareness of syntactic markers although it must be built over time. They can improve students' awareness by selecting a small part of the text in the content area and asking students to point out the markers and their functions.

A noun marker is usually an article (the, a, an), a number, or a possessive (his, her, its, and our). The presence and location of the marker indicate that a noun follows:

- (1) A gyroscope is a device that contains a disc turning on an axis that can turn freely in any direction, so that the disc maintains the same position whatever the position or movement of the surrounding structure.
- (2) Their assembly line produced a car in ten seconds.

A verb marker (was, had, will) indicates that a verb follows: Within Britain, people *are* falling in a state of chaos and panic.

Phrase markers (prepositions) help to identify the function of an unknown language unit: His illness left him subject *to* asthmatic attacks.

Clause markers are helpful in identifying the unknown language unit because they are signals to indicate specific types of meaningful actions. For example, *while, unless, though, what, and how* are common clause markers. Consider the following examples:

- (1) Our rowboat's course was *erratic* after we lost the oars.
- (2) If nature *abhors* a vacuum, journalists *abhor* a transition, when there is little news to cover. Obviously, the phrase and clause markers in these two sentences help the reader understand the difficult language units: *erratic* and *abhor*.

6.2.5. Look at pictures, diagrams, and charts.

Teachers must point them out to students. Students can connect the illustration with the item that gives him difficulty. Students must be able to read charts and graphics in English and they can practice reading them in Chinese first.

6.2.6 Look at punctuation marks.

- a. A colon is used to guide a list or a series of words and phrases, which is a detailed explanation and supplementary description as described above, such as Most such standards no doubt point to *the delectare and prodesse* of Horace's advice to the poet: *Delight and benefit your reader!* The meaning of *the delectare and prodesse* must be related to *Delight and benefit your reader*.
- b. Parentheses or footnotes, which are the most obvious defining clues. Students can be taught to recognize the physical characteristics of the clue. Consider the example: John's recapitulation (review of the major points on both sides through a brief summary) of the Watergate debate, which finally concluded after three hectic days in civics class, was masterful.
- c. Occasionally, a reader can obtain the meaning of a language unit according to an asterisk or superscript number, a footnote formally defined in relation to or in a word list.
- d. Students should be trained to identify statements of meaning through the typographical aids of parentheses, commas, and dashes to quickly locate statements in parentheses easily and satisfactorily.
- e. Before and after the semicolon are two parallel clauses, from which we can infer the meaning of a new word.

Example: A child's birthday party does not have to be a *hassle*; it can be a basket of fun, according to Beth Anacleria, an Evaston mother of two, aged 4 and 18 months.

6.2.7 Look at parallel structures.

Look at parallel structures such as She used her weekends to study hard, to exercise, to *catch up on* sleep, and for visiting friends she had not seen in a long time.

6.2.8 Look for conjunctions, transitional words, etc.

Take some words of different categories for example: and, also, in addition; as a result, accordingly, for this reason; in the same way, in comparison, likewise; similarly, at the same time (to show contrast); first, eventually, meanwhile; above, across, behind; for example, namely, including; above all, in fact, particularly; in conclusion, in other words, it can be seen; although, because, and when.

In English, there are coordinating conjunctions such as *and*, *but*, and *as well* and subordinating conjunctions such as *although*, *because*, and *when*.

6.2.9 Look for meaning relationships in sentences through cohesive markers (it, he or she; another; the solution to this problem; conjunction (contrast/turning relationship)).

The conjunctions of contrast/turning relationship are used to indicate the relationship between each sentence and show how what will happen next is related to what happened before. Notice the words *in addition*, *similarly* and *however* indicate a contrast or turning relationship in meaning.

- (1) The whole Cabinet agreed that there should be a cut in the amount that the unemployed were receiving; where they disagreed was in whether this should include a cut in the standard rate of benefit. The opposition parties, *however*, were unwilling to accept any program of economies which did not involve a cut in the standard rate of benefit.
- (2) Lions are mammals. They are carnivores and do not eat plants. *In addition*, female lions typically hunt.
- (3) The United States won most of the track and field events. *Similarly*, in swimming, the top three places went to Americans.

6.2.10 Look for inference clues from discourse, which are usually not confined to one sentence.

Although never free from constraints of syntax, using semantic clues for learning vocabulary through context seems to be the best way to understand the unknown or ambiguous language units encountered in context. The meaning of a word can only be learned through context. If the reader wants to remember the meaning, he or she must touch it in various occasions. Contextual learning strategy is to let students use context clues to infer the meaning of new words through their usage in the text when possible. Unless the language unit is formally defined in context, the unlocking of meaning may not be completely accurate, but is often sufficient for the reader to decode the author's information. When a more precise definition is needed, the reader should turn to an external authoritative source such as a dictionary or the teacher.

It is also necessary to turn to external sources if meaning cannot be generated when the reader carefully

examines the context. Occasionally, the context can be misleading. For example, in reading *The student was very distorted when he finally won the grant*. A reader may think the student was very happy, excited and grateful when he finally won the grant—a reasonable guess based on the structure of the word (*distorted*), the structure of the sentence (*The student was very distorted*), and the range of possible meanings. But for that reader the context was misleading. Sometimes, the context provides little help, for example, a reader recognizes a word is a name of sth, but it could mean almost anything.

Fortunately, writers will try their best to clarify the content when writing so that readers can understand it. Context often does provide assistance for readers in finding the meaning of a language unit. The following context clues are useful for readers in unlocking difficult language units.

The most commonly used contextual clues are as follows. Students should receive practice in recognizing and using these clues as vocabulary strategies and, in the long run, as tools for overall comprehension.

Statement of Meaning

When the author feels that the meaning of a language unit may be misunderstood by or unknown to the reader, he will use a straightforward statement to clarify it. Writers usually make such statements for language units that they think are particularly important. Students must be taught to pay attention to many types of highly useful definition clues. The following techniques are used more commonly:

- a. X is Y; X, that is Y; X is called Y are easily recognized signal words giving definition clues.
- b. Appositive clause constructions set off by commas (X, Y), *which* (X, which is Y), *or* (X, or Y), dashes (X-Y), or *that is* (X, that is, Y) are also physically recognizable clues.

Example: (1) Second generation Puerto Ricans who were born in New York but who have returned to the island, are called *Nuyorican*.

(2) According to a report published on the British medical magazine, *The Lancet*, a study of ten German mobile phone users found that when they turned on their phones, their blood pressure goes up by 5 to 10 millimeters of mercury.

- c. Subsequent statement: We must all soon learn how to use computers to add, subtract, multiply, divide and process words. Computers are used in various occasions. *It is* an advanced calculator with a large display.

Students should be trained to identify statements of meaning through the typographical aids of parentheses, commas, and dashes as well as through the words *or* and *that is*, etc., to quickly locate statements in parentheses and in apposition easily and satisfactorily. Also, they should be accustomed to the formal definitions because writers are used to presenting more formal definitions (frequently introduced by *is*) than they are aware of.

Example Clues

Example clues, where the meaning for the word can be inferred from an example, often use clues such as *i.e.*, *e.g.*, *like*, and *for example*. Sometimes, the author uses examples only to clarify a meaning, although it is more common to combine the definition by examples with a statement of meaning. This combination is common in science and mathematics texts when writers are eager to emphasize and accurately express some important concepts. Occasionally, they have no such clues: All the furniture had been completely removed so that not a single table or chair was to be seen. (Tables or chairs *are examples* of furniture.)

Writers (especially of expository material) use examples as the support for the major concepts, but they usually do not focus on the example itself. However, from the reader's perspective, the examples may be important to help them learn how to use the main concepts in future coping situations. For example, in mathematics and science, when a given principle or theorem is revealed, students can review the specific examples, and then complete problems according to a given principle or theorem. In particular, when the more general statement fails, the reader should be careful to notice examples because their specificity often clarifies meaning.

A reader can often only infer one meaning and usage of a word from an example. In order to let the readers understand multiple meanings and usages, teachers can provide several sentences containing the same unknown word in the follow-up activity. Students guess the meaning from the context provided by the examples. After that, teachers can ask students to offer several sentences containing the same unknown word. Here is an example of teaching *accident*:

- a. A traffic *accident* happened to him yesterday.
- b. In December, a workplace *accident* took place at a construction site at No.500, Lanxianghu Road

S., Minhang District, a worker from Shanghai Shengyu Construction Engineering Co. Ltd fell through an inspection hole on the floor and died in the basement.

The children aged 3-8 years were the main group of victims of traffic *accidents*, especially the girls aged 3-6 years.

One of the advantages of using this technique is that it allows the learners to make intelligent guesses from a meaningful context. This will make the learning task much more active, interesting, and challenging than direct explanation of words. It has a problem-solving characteristic that appeals to most people and challenges them to make use of their intelligence to an extent that is not always common in language classes. Another advantage is that the examples provide input on the semantic properties, register, and even collocation of the word taught. In the example above, the teacher may help the students to draw their own inference that an accident normally entails an element of suddenness, unexpectedness, and misfortune, and it is more often in a serious tone. The collocated words are *happen, take place, occur*. This will help readers not only learn the referential meaning of a word, but also syntax, pragmatics, and even emotional color. It could be particularly useful in teaching abstract words. Asking students to offer examples is an effective way of checking comprehension and interpretation and provides a smooth transfer from reception to production.

Synonym: Teaching Vocabulary through Word Domains

Teaching vocabulary effectively begins with building on what students already know. Suppose students find an unknown word in a reading passage, they can look for familiar words related to the concept or the theme in the text, and try to add new words to the lexical networks. The new words can be in the form of a word domain. This activity based on a word domain (semantic field) is a great leap beyond giving students lists of unrelated words. It will then help students store the words in long-term memory and finally use the words as their own.

From the perspective of semantics, commonly used vocabulary learning methods are hyponymy, synonyms/ antonyms, relativity, meronymy, etc. For example: Henry *offers* a gift to Jane. Jane either *accepts* the gift or *refuses* it. Understanding the relative relationship between words can help students understand the internal information of words more deeply, effectively expand their vocabulary, and finally accurately apply it to language practice.

A synonym is a word or succinct expression that is close to the unknown or vague language unit in meaning. As synonyms are widely used, readers should pay attention to them. But, readers should themselves have at least a certain vocabulary or at most a large vocabulary, especially if the synonym is a single word. A synonym must be known to the reader or else it will fail to serve its purpose. In addition, a synonym never represents the exact meaning of the unknown language unit, but at times it will be close enough to provide enough meaning for the reader to continue reading and understand the meaning. This allows the reader to move ahead. At other times, readers need to consult dictionaries and ask teachers and peers for clarification of meaning. Despite its shortcomings, synonyms are often a useful contextual aid. Here are a few examples:

Insomnia is the inability of falling asleep or sleeping restlessly.

John loves to talk, and his sisters are similarly *loquacious*.

Ichthyologists, or specialists in the study of fish, have contributed to our understanding of the past.

Although he often had the opportunity, Mr. Tritt was never able to steal money from a customer. This would have endangered his position at the bank, and he didn't want to *jeopardize* his future.

First put forward by the French mathematician Pierre de Fermat in the seventeenth century, the theorem had *baffled* and beaten the finest mathematical minds, including a French woman scientist who made a major advance in working out the problem, and who had to dress like a man in order to be able to study at the Eco-lab Polytechnique.

Synonyms and antonyms usually occur along with other clues: *that is, is....., explanations in parentheses*, and so on, which are described under the headings *Statement of Meaning* and *Punctuation Marks*.

Experience Clues

Experience clues or general information clues or common-sense clues: Comprehending what one reads suggests that the reader is able to have a meaningful dialogue with the author. The background—linguistic and experiential—that the reader brings to the page becomes a contextual aid. In the absence or even presence of more structured and obvious context clues, the reader should be encouraged to unlock meaning by recalling a similar situation he has experienced, searching through his experiences for keys, or making the appropriate inferences based on general information or common sense. Note these

examples:

We like our new house because it has a few *elms* in the back yard that will give us shade and keep the house cooler.

The snake *slithered* through the grass.

She read my letter slowly to the end and then tore it to *shreds*.

Similarity Clues

Although the reader cannot be sure of the exact meaning, similarity clues are useful because known words or ideas are matched with unknown or vague language units. Sometimes figures of speech, especially similes and metaphors, are the keys to the unknown language units. The similes use the preposition *like*, conjunctions *as*, *as if*, *as..... so*, the verb *seem*, and sentence patterns (*A... to B as C... to D*) to express the meaning of *as if*. Here are some examples.

(1) As *idle* as a painted ship.(In this example, a simile is used to define the word *idle*.)

(2) a. To me, the *pageant* of seasons is a thrilling and unending drama.

b. In 2006, Xiao Shenyang joined Zhao Benshan. In 2009, Xiao Shenyang became famous at the Spring Festival Gala by performing "I've got much money" at the recommendation of Zhao Benshan, and was said to be a capable *disciple* of Zhao Benshan.

(3) Scientists have discovered a rare *binary* system. It has a celestial system consisting of two stars, whose positions appear to be very close to each other.

(4) The doctor was an affable local practitioner with white hair....."we all want a little *patching* and repairing....."

Contrast Clues

A reader may need to refer backward or forward when using contrast to understand the meaning of an unknown language unit. Sometimes referring forward to a contrasting idea will help the reader to decipher the meaning of a word or phrase that has been temporarily skipped due to lack of certainty; more often than not, however, the reader will find that retrospection (referring back) is the most helpful. At times the contrast will be between two antonyms, or words or brief expressions; at other times the contrast is developed by explanation, description, or example:

(1) Are the workers free or *enslaved*?

(2) A good supervisor can recognize instantly the *adept* workers from the unskilled ones.

(3) Although it's not strenuous exercise, you feel *toned-up*, *supple* and relaxed.

(4) *Hybrids* are unlike pure electric cars, which never need to be plugged in.

Cause and Effect Clues

There are many ways to show causality in English. In addition to cause adverbial clauses, nouns, prepositions, connecting adverbs, verbs and verb phrases, juxtapositions and subordinate conjunction can also be used to indicate logical causality..

Summary Clues

Students can understand the word according to the sum of the information in a sentence or paragraph: Mrs. Christopher contributes money to the Red Cross, the Girls club, and the Cancer Society. She also volunteers many hours in the emergency ward of the hospital. She is indeed *altruistic*. They have clues or without clues.

6.2.11 The Whole Context

The overall context is used to infer the meaning of a new word. This is one of the main methods we use to infer the meaning of a word.

Example: The days of elderly women doing nothing but cooking huge meals on holidays are gone. Enter the Red Hat Society—a group holding the belief that old ladies should have fun.

"My grandmothers did not do anything, but keep house and serve everybody, they were programmed to do that," said Emily Cornette, head of a *chapter* of the 7-year-old Red Hat Society.

According to the context, we can easily conclude that the meaning of a *chapter* is a branch of the Red Hat Society.

6.2.12 The Writing Purpose or Topic Sentence

In order to inform the reader of some information, the writer adopts topic reinforcement, induction, and provision of topic sentences to provide the reader with topic information through specific description, notification, or specific key information.

For example, the topic sentence of the first sentence of the following paragraph (Income is generally considered to be an important variable in the level of life satisfaction, but the relationship between the two is not a simple one.) reflects that the purpose of writing is to discuss the factors involved in the relationship between income and life satisfaction. There are two types of language units used to express the theme in this paragraph: income, money, materially; satisfaction, perception, feelings, what money represents to the individual, expect to increase, expectation, adjust to a rather substantial decline in income. If the meaning of a language unit is unknown, its general meaning can be guessed according to the topic sentence or writing purpose.

(Income is generally considered to be an important variable in the level of life satisfaction, but the relationship between the two is not a simple one. Investigators have pointed out that besides the actual size of the income, one must take into account such related matters as a person's perception of its adequacy, feelings of relative deprivation, and what money represents to the individual. Obviously, money is important to everyone, since it determines how well one's life may be maintained materially. Beyond providing for the necessities of life, however, what money means to the individual and how he or she uses it may differ widely. In part, this difference may be related to one's age. To begin with, a younger person may expect to increase the size of his income in the future, whether that expectation is met or not, while an elderly person generally must adjust to a rather substantial decline in income. Streib, for example, found an approximately 56 percent reduction in income upon retirement among a sample of about 2000 people. Although money may represent status, opportunity, and security for anyone, older people are likely to place more emphasis upon its security function. At the same time, the elderly appears to be generous with money. Studies suggest that when money is passed between generations within a family, the usual direction is from elderly parents to their children.)

6.2.13 Reflection of Intent, Mood, Tone or Setting

In using this type of context clue, a reader must infer a feeling that harmonizes with the overall context.

Example: The slight trembling of his body, the sweat of his forehead, the acceleration of his heart, and the anger of his face warned that father was in a *hysterical* mood. Absolutely anything suited him: abusing, beating, kicking, yelling!

In this example, both *the mood and the setting* contribute to providing the reader with a reasonable meaning for *hysterical*.

This type of context clue is mainly at the affective level and does not normally rely on deep thought. Therefore, the understanding of the meaning of a language unit is rarely accurate. Especially when the reader and the author do not match in experience, the understanding of the meaning will be diverse, resulting in ambiguity. This approach also involves high-level thinking, especially when the intention being conveyed by people is quite subtle.

Example: Strive hard, let yourself fly, and fly bravely in the sky of dreams. I believe you will do well.

In this example, if taken at face value, the tone would appear to give you some encouragement to break through the shackles and dare to be true to yourself; however, people would need to think of and understand the larger context. On the one hand, the intent was to refuse a young guy in a euphemistic and implicit tone who desperately needs a job. On the other hand, if a teacher was using a conversational tone with the intent of criticizing students so as not to hurt the children's young minds, the meaning would change fundamentally.

Students need to focus on practicing various types of semantic context clues to develop each as a strategy. Teachers must guide them to participate enough to use a given strategy at an appropriate time. The context clues above are absolutely useful, and the general meaning of a language unit can be guessed. If the readers need help, especially when the readers cannot communicate well with the authors when reading new materials, the teachers need to renew their guidance.

6.2.14. Look for word elements in the word such as prefixes and suffixes, and roots.

The ability to analyze word structure and word family is probably the most important lexicographical skill that a student who reads English as a foreign language can have. The capability of structural analysis greatly reduces the number of new words he will encounter, and increases his control of English vocabulary. Students can practice finding prefixes and suffixes from newspaper articles, and classify these suffixes into nouns, verbs, adjectives, and adverbs. In addition, teachers can arrange word family practice. It is

very useful for learners to be aware of regular rules and features that can be generalized in the future, thus making subsequent learning easier for the student. If students have learned the main derivational suffixes of English, they can have access to the other members of a word family by giving (or guessing if they don't know) the other related words in the word family. In this way, students can know many words related to the newly learned words, and manipulate the parts of speech of different members of a word family. Also, teachers can explain the word formation processes to students: an acronym; blending; compounding; clipping such as phone from *telephone*, abbreviation; conversion (such as *empty* which can be a noun and verb) ; back-formation (like *edit* can be intercepted from *editor*).

6.3 Related Activities

6.3.1 Find a topic or theme.

Read a text to find a topic or theme. Then, think about the topic and words associated with it. For instance, the topic may be family, and some synonyms may be related to it such as brood, folk, kin, clan, tribe, etc. Assuming that the word *brood* is unknown, we can guess that its general meaning is about the people in the family. You can try to remember the word by imagining a picture of a family and associating it with the family. Another example is, in an article about aids or abortion, we can guess the meaning of *condom*. In the last example, in a reading text on physical fitness, you can construct the semantic network for the lexical item and think of the categories into which the words could be sorted according to their meanings. This helps learners to acquire and remember the meanings of the lexical words.

6.3.2 Be a willing person.

In daily life, we may encounter some new words or phrases from any nonacademic source: conversations, television, films, songs, signs, books and magazines or newspapers in Chinese. They become high frequency words. We should learn these new words and phrases in English. They must include the pronunciation, correct spelling and meaning and the sentence or context in which we find the word or phrase. With the development of social economy, the progress of science and technology, and the frequent international exchanges, we will encounter some new English words in many media. As a universal language in the world, English is evolving and developing. In newspapers, magazines, television, radio, the internet, and other media, new English words will appear. Their appearance not only enriches the English vocabulary, but also enhances the English expression ability and form, for example, COVID-19, virus, positive/negative, infect, incubation period, asymptomatic COVID-19, etc.

6.3.3 Learn nouns.

When learning a foreign language, students are faced with the daunting task of learning a massive amount of vocabulary, the largest class of words being nouns. There are various classes of nouns that concern each aspect of lives. Students can read articles about a wide variety of topics, events, and all aspects of our lives including everything from fashion, sports, family affairs, leisure activities, and baby care, to music, travel, and jewelry. They can enlarge their lexicons by referring to typical sentence patterns and collocations, and creating adjectival phrase, verb phrase and the like to integrate the development of collocation relationship into the subjects, activities, and various aspects of life easily.

6.3.4 Find the technical words.

You can choose a technical article such as sales advertisements, technology updates, or sports reviews, etc., read it by skimming for content and search for the words or phrases that you believe are technical, or specialized, vocabulary related to the subject matter. Due to the development of science and technology, new disciplines and fields are constantly emerging, and new inventions and creations emerge one after another, and some words are becoming increasingly specialized, for example, in the actual navigation English teaching such as nautical charts, logbooks, draft difference, etc. There are some words that are common in daily life but are given specific meanings in nautical English such as officer(pilot), telegraph (clock), and sounding (water depth), etc.

6.3.5 Learn co-occurrences.

English contains a number of expressions that are made up of two or three words that often occur together in a fixed order. These expressions, or co-occurrences, are joined together with the connectives *and* or *or*. Learning co-occurrences involves the learning of semantically related words as well as the learning of conventional word order. Most of them are nouns such as lock and key, shoes and socks, etc. Sure, there are other parts of speech such as hit and run, far and wide, etc. Students should learn these expressions by associating semantically related vocabulary items and paying attention to word order.

6.3.6 Learn polysemy.

Students can process the words learned semantically after reading a text, think of other sentences in which the new words can be used. Some words have different meanings in different aspects. Take the word *cover* for example. *Cover* means one thing is placed over another, but in terms of tourism, it means travelling a particular distance; in terms of the surveys, the lectures and the rules, it means including or dealing with something, etc. This semantic processing will provide a basis for the organization and retention in the student's memory, and the new items can be used effectively and understood without difficulty.

6.3.7 Think of connections.

When students study a text, they can find words of a similar part of speech, work with the words and try to find connections between them. Take for example: style, comfort, sample, combination, service, guarantee, advertisement, parade, index. They can arrange them into groups and make connections between them easily and understand their connections. In this way, the meaning of an unrecognized word is clear, and can be remembered longer. For example, (in creative advertisements) she is good at showing her unique comfort and safety style, and blending with the temperament of riding comfort in the service, and the riding comfort and travel peace of mind in the service.

7. Syntax and Constructivism

7.1 *On English Structure Teaching Method under Constructivism*

One of the development goals of reading comprehension for Chinese non-English major college students is that students can read articles with certain difficulties. Therefore, improving students' syntactic ability has become an important factor in teaching college English reading. In order to effectively carry out the college syntax teaching and improve the language ability and language level of college students in a real sense, teachers must pay attention to the achievement of students' emotional goals, stimulate students' interest in English grammar, enable students to actively learn in the classroom, and experience the pleasure and sense of achievement brought by active learning, so the effective way is to cultivate the students' skills to actively analyze the syntax improving the students' ability of English syntax analysis.

7.1.1 Literature Review and Theoretical Basis

Zhang Bin, Zhang Zhenbang, Zhang Daozhen, Xu Liejing, Lai Shixiong, Liu Ningsheng, Hu Zhuanglin, and a number of scholars have made a lot of efforts for the research and promotion of English grammar. The research data show that constructivism favors English teaching, especially in English grammar teaching (Li Jingying, 2021).

Constructivism theory is regarded as the most promising learning theory at present. It has gradually become the guiding theory for education and teaching reform in various countries around the world. It emphasizes that students need to actively construct the meaning of their knowledge they have learned, and to actively explore and discover knowledge. Syntax is the core of the whole language system with syntactic structure occupying a macroscopic and important position in improving students' language ability and language level in a real sense.

In syntactic learning, students must self-construct rather than have passive input. Constructivists propose that knowledge is an interpretation and hypothesis, not a correct representation of real life. Knowledge cannot exist outside a concrete individual. Although we give knowledge some external form of knowledge by using language symbols, this does not mean that students acquire the same understanding as we expect. Whether students acquire knowledge depends on their own construction practices. We call it a successful attempt to build knowledge, and they must analyze the experience of knowledge effectiveness according to their own experience and the amount of knowledge stored. The students' learning process is not reflected in the simple understanding of new knowledge, but more importantly, they analyze, check and criticize new knowledge according to their own knowledge reserves.

According to the constructivist learning point of view, the learning process is equivalent to the process of students' self-construction, which shows that students must actively participate in the learning process when learning rather than passively and mechanically accept knowledge. They must actively select and process external information sources. Moreover, learning is not a process that we simply interpret as knowledge accumulation, but a two-way interaction process between acquired and newly acquired experiences.

7.1.2 The English Syntax Teaching Method under Constructivism

One of the teaching methods of English syntax under constructivism is mind mapping, and knowledge visualization has the advantage that knowledge is presented in the most streamlined and core way, making complex knowledge concise, changing students' cognitive forms, and making learning simpler.

English sentences are long and complex. Many English sentences are complex ones. From the perspective of composition, any complex sentence is formed by several clauses through complex combinations on the basis of simple sentences (Wang Jianyu, 2021). In the teaching process of English reading class, the understanding of long English sentences is a difficult point for students. For this problem, the usual solution is the hierarchical analysis method, that is to say, a relatively complex sentence is decomposed into several simple clauses to handle it, thus guiding students to improve their ability to read long English sentences. This chapter proposes the solution by identifying key elements of a sentence for the key idea which can help students break down long and complex sentences into simple sentences through the subject-predicate-object grammar so as to learn and think about them, and improve students' skimming efficiency of reading and their comprehension ability.

7.1.3 Feasibility of Syntactic Teaching Method under Constructivist Learning Theory

Constructivism believes that learning is the process of students constructing knowledge by themselves. Teaching of constructivism is based on the belief that learning takes place in the process of students'

active participation in construction rather than simply passive, mechanical acceptance. Constructivist teaching can make students develop the ability to think actively, so that they can transform the theoretical knowledge in books into their own knowledge reserves, and apply them.

Syntactic analysis is a method to analyze the functions of sentence components starting from the relationship significance of syntactic structure, that is, labeling the basic components (subject, predicate, object) and the secondary components (adverbial, complement, etc.) with various methods. It helps to grasp and remember the parts of speech of words and know their functions in a sentence because an English word has a polysemy and more than a function; one can easily grasp complex sentences accurately distinguishing between principal clause(s) and subordinate clause(s) of a sentence for understanding its constituent form by splitting the sentence so as to understand its true meaning continually improving skimming ability; it helps to use nonfinite verbs correctly, distinguish between the predicate verb and the nonpredicate verb, and well understand the role and the mutual relationship between the two in a sentence; it helps to improve the ability to comprehend and skim so as to understand long and complex sentences, and skim difficult articles in college textbooks.

7.2 Identify Key Elements of a Sentence for the Key Idea

7.2.1 Rationale and Definition

A sentence may provide a lot of information, but it usually provides a key idea. A reader must find the key idea of a sentence to clearly understand the sentence. Accurate, concise understanding at the sentence level is essential to all other comprehension skills as well as to the effective study of a paragraph, passage, and text.

Grammatical rules, the habits that people must abide by when speaking, exist objectively, not stipulated by linguists. A sentence is composed of words grouped together and consists of a subject and a verb (sometimes with an object) and expresses a complete thought. The subject represents either the actor or the affected person or thing in relation to the process. It tells what the sentence is about. The process described by the verb is a process that is a kind of action that happens in relation to a person or a subject. The subject and verb (and sometimes object) are grammatically essential. They contain information relating to the key elements of a sentence, and are referred to as the core part of a sentence. Sentences contain many other grammatical elements, such as modifiers, which make them complex. The core sentence expresses something that is central or basic. The structure of other types of clauses can then be described in terms of differences from the core sentence. Other types of clauses belong to the secondary parts of the sentence although they originate from the basic core sentence. Therefore, identifying the subject-predicate (-object) structure of the core sentence helps to determine the core meaning or key idea of the sentence.

English is Germanic and is a typical structure language. English sentences usually take the subject and predicate (and sometimes object) as the core, and are modified and expanded through conjunctions, phrases and clauses and other additional components to make the sentences vivid. But no matter how complex the additional components are, the additional components always maintain a clear logical relationship with the central component, and this logical relationship is clear and orderly. Therefore, knowledge of the structure of the basic core sentence will help the reader in determining the overall meaning of the sentence and understanding the basic structure of English sentences is the key to learning English well.

While a sentence may provide plenty of information, there is usually only one key information. The reader needs to understand the key information of a sentence to better understand the sentence. Therefore, reading texts quickly entails the activity of identifying the key elements in a sentence—the subject and verb (and object) in the main or core sentence so as to understand the key information or the idea of a sentence, ignoring the modifiers or the clauses or the secondary parts, or just taking a glance over them. This method of reading is called the method of identifying key elements of a sentence for the key idea with the help of connectives, which is based on the main structure of the core sentence in the grammar, that is, the key elements in a sentence—the subject and verb (and object) in the core sentence. This is an effective way to quickly browse texts to get a general meaning, which belongs to a fast way of reading. See below for details.

7.2.2 Identify the Key Elements of a Sentence to Find Out the Key Idea of a Sentence

- (1) Find the subject and verb of the main or core sentence for the key idea, sometimes with an object. (See example 1)
- (2) A reader must figure out what is the key idea of a sentence, and what is the secondary information of

a sentence. Many words in a sentence describe the subject of the sentence, which is primary, and others are restrictive modifications to the subject which belong to secondary information. The key idea in a sentence is primary, and others are additions to the key idea belonging to the secondary information of the sentence.

By using the method of identifying key elements of a sentence for the key idea with the help of connectives, the reader can identify the key components of the main or core sentence for the key idea of a sentence, ignoring other modifiers or the clauses or the secondary parts, which is a fast reading strategy. It is noteworthy that ignoring other modifiers or clauses or secondary parts means sometimes ignoring completely, and sometimes taking a glance to judge the necessity of reading or not reading. (See example 3)

(3) For story-based sentences, if the reader asks when, what, where, or why, how, etc., it is easy for the reader to find what the key idea of a sentence is, and what the secondary information of a sentence is. (See example 2)

(4) The method here is about reading comprehension at the sentence level, which can also be used for paragraph, passage and even text reading comprehension as sentences are their basis. (See example 3). It is important for reading comprehension that students are aware of sentence-level information (MacKay et al., 2021)

Example 1 (a sentence): Macroeconomics has an elegant and remarkably powerful set of tools that come together in an orderly fashion that may be described as the “macroeconomic model”.

(Source: Yang Peng, *GRE & GMAT English Reading Comprehension of Difficult Sentences*, World Book Publishing Company, 2001)

key idea: Macroeconomics has a set of tools.

additional information :

- 1) The tools are elegant and remarkably powerful.
- 2) Tools come together in an orderly fashion.
- 3) The tools in an orderly fashion are described as “the macroeconomic model”.

Example 2 (a story-based sentence): On one occasion a fight broke out at a beach party, with every punching and shoving.

(Source: Zheng Shutang, *New Horizon College English* (the second edition) Reading and Writing 1, Foreign Language Teaching and Research Press, 2016)

key idea: A fight broke out.

additional information: on one occasion (when); at a beach party (where); with every punching and shoving (how)

Example 3 (a paragraph): The black font is partially extracted from the method of identifying key elements of a sentence for the key idea. Read the black font to get the general meaning of the passage and glance at the underlined words for possible details. Then answer the following 5 questions:

- 1) What is the author's main purpose in this article?
 - A) to criticize Pearl Buck's works.
 - B) to expound Pearl Buck's views on Chinese literature
 - C) to explain the background and different interests of Pearl Buck
 - D) to talk about Pearl Buck's influence on Eastern and Western cultures
- 2) According to this article, Pearl Buck is considered a writer in all the following aspects except——
 - A) novels
 - B) children's books
 - C) poetry
 - D) short stories
- 3) Which of the following is not the award of Pearl Buck mentioned by the author?
 - A) the Nobel Prize
 - B) the Newberry Medal
 - C) the William Dean Howell Medal

D) the Pulitzer Prize

4) According to this article, Pearl Buck was a special figure in American literature because she—

A) reported widely on a very diverse culture

B) brought out half of her books overseas

C) obtained more prizes than any woman of her time

D) came to the top for the first time in her later years

5) According to the article, Pearl Buck called herself as "mentally bifocal", suggesting that she was—

A) able to solve the differences between two different language systems

B) perceptively conscious of how the past will affect the future

C) able to create literary works of interest to adults as well as children

D) capable of knowing two different cultural environments very well

Questions 1 and 4 were the questions of general meanings; questions 2 and 3 and 5 were the questions of details.

(1) **One of the most popular literary figures in American literature is a woman** who spent almost half of her long life in China, a country on a continent thousands of miles from the United States. (2) In her lifetime **she earned** this country's most highly acclaimed **literary award**, the Pulitzer Prize, **and also the most prestigious form of literary recognition** in the world, the Noble Prize for Literature. (3) **Pearl S. Buck was almost a household word** throughout much of her lifetime because of her prolific literary output, which consisted of some eighty-five published works, including several dozen novels, six collections of short stories, fourteen books for children, and more than a dozen works of nonfiction. (4) When she was eighty years old, **some twenty-five volumes were awaiting publication.**(5) **Many of those books were set in China**, the land in which she spent so much of her life.(6) **Her books and her life served as a bridge** between the cultures of the East and the West. (7) As the product of these two cultures, **she became**, as she described herself, "**mentally bifocal**". (8) **Her unique background made her into an unusually interesting and versatile human being.** (9) As we examine the life of Pearl Buck, **we cannot help but be aware that we are in fact meeting three separate people**: a wife and mother, a motivationally famous writer and a humanitarian and philanthropist. (10) **One cannot really get to know Pearl Buck without learning about each of the three.**(11) Though honored in her lifetime with the William Dean Howell Medal of the American Academy of Arts and Letters in addition to the Nobel and Pulitzer prizes, **Pearl Buck** as a total human being, not only a famous author, **is a captivating subject of study.**

(Source: Peter Conn, *Pearl S. Buck (A Cultural Biography)*. Cambridge University Press, 1998)

(1) Using the method of identifying key elements of a sentence for the key idea with the help of connectives, readers can browse through this passage to get its general meaning by reading the black font of the passage. Questions 1 and 4 are the questions of general meanings. So, readers can answer the first question: What is the author's main purpose in this article? The main purpose of the article is to explain the background and different interests of Pearl Buck.

Readers can also answer the fourth question: According to this article, why was she a special figure in American literature? The reason was that she came to the top for the first time in her later years.

(2) The second question is about her works belonging to the question of details. Identifying the subject and predicative and complement of the third main or core sentence, readers can glance at two secondary sentences (because of and which), knowing that they (two secondary sentences) include the literary output and published works of Pearl S. Buck. So, in answering the question: According to this article, Pearl Buck is considered a writer in all the following aspects except—, the reader can go to two secondary sentences of the third sentence to look for the answer. According to two secondary sentences of the third sentence, her works comprise novels, short stories and children's books except for poetry. Thus, "poetry" is not her works.

(3) The third question is about the awards belonging to the matter of details. Identifying the subject, verb and object of the second sentence, readers can find that there are two objects in the sentence and they are literary award and literary recognition. After glancing at the specific details of the awards, readers can see the second sentence includes two awards: the Pulitzer Prize and the Noble Prize for Literature.

Likewise, identifying the subject, predicative and complement of the eleventh main or core sentence, readers can glance at the secondary sentence (though honored.....), especially at the word *honored* and

see the author mentions the William Dean Howell Medal in the secondary sentence in the 11th sentence. So, readers can answer the third question of details: Which of the following is not the award of Pearl Buck mentioned by the author? The answer is B.

It is worth reminding that about awards, readers can look for award cue words: literary award, medal, prize, honored, etc. They are key words expressing the subject of the award.

(4) Identifying the subject, predicative and complement of the 7th sentence, readers can identify the key words “*mentally bifocal*” and get the answer to the fifth question from the seventh sentence. Now readers can answer the fifth question: According to the article, Pearl Buck called herself as “mentally bifocal”, suggesting that she was—. The answer is D.

7. 2.3 With the Help of Connectives

English Connectives Research: Scholars have done a lot of research on English connectives. When reading the textbook, students may make a coherent representation of the text psychologically including the coherent relationships between the text fragments. It is an essential precondition for learning from the text to construct such a representation (Van Silfhout, G. et al., 2014). Van Silfhout, G. et al. emphasize the importance of connectives based on eye-tracking data: connectives accelerate students' processing, especially when texts have a consecutive overall arrangement. The results show that the continuous layout of explicit texts has low processing requirements for the processing of students' working memory.

Connectives (e.g., but, on the other hand, etc.) have abstractive meanings and often indicate the key relationships between text thoughts. The research of Crosson & Lesaux (2013) discussed whether understanding connectives is a unique field of lexical knowledge that provides a special lever for reading comprehension, and whether students from different language backgrounds differ in the contribution of knowledge of connectives to reading comprehension. The results show that although the strength of influence of connectives varies according to the language background of readers, connectives play a significant role in understanding texts.

The study by Zarcone & Demberg (2021) examines the expected gaze in the visual world and supports the view that literal knowledge, time order signal words, and verb selection preferences together contribute to forming the rapid prediction of event participants.

With the Help of Connectives: Getting the key ideas of sentences through syntactic analysis should be with the help of connectives. When you use the method of identifying key elements of a sentence for the key idea with the help of connectives, the key is for you to identify the key components of the (main or core) sentence for the key idea of the sentence, in the meanwhile to glance at the clauses or the secondary information for additional information of the sentence. For example, when reading the black font of the passage above, you get the general meaning of the passage. At the same time, you glance at the secondary sentences by reading their connectives such as *who*, *because of*, *which*, *when*, *as*, *though*, etc. for possible additional information. One reason is that a glance at these connectives reveals that they are secondary sentences, not the focus; the second reason is that when you glance at these connectives, you know very well in your heart there are some “dry goods” in these places and you will come back for a look when needed. The third reason is that a glance at these connectives will help you choose or decide if you read them, ignore them or just glance at them without focusing. Therefore, connectives are important in students' processing and predicting event participants.

The author has an English reading concept: The highest level of English reading is having read, but as if not having completely read; although not having completely read, but as if having read already.

7.3 Analyzing More Complicated Sentences to Look for Additional Information

7.3.1 Additional Information Added to the Simple Sentence or the Key Idea of a Sentence

For students, complex sentences are the most confusing types of sentences (Koçak, 2019). The complexity of sentences can create comprehension problems for struggling readers. In Toyama (2021)'s study, an investigation was done to explore the concurrent effects of the reader, the text, and the task factors and their interactions on reading comprehension, using explanatory item response models. Among the characteristics of the article, long and short sentences, lexical frequency, simplicity of syntactic structure and time sequence have a significant impact on the difficulty of understanding the article, and understanding the complex interactions will be the key to supporting the development of students' understanding ability to read the text. So, the ability to understand sentences, especially complex sentences, will contribute to students' reading comprehension.

As the sentence becomes longer and more complex, your task as a reader becomes more difficult. Textbooks often contain sentences that include several ideas critical to understanding the material. Textbook writers frequently combine and relate information within a single sentence. Advancing knowledge in a specific field, academic works tend to use complex sentences to ensure the precision of expression (Xu Ting, 2020). The research results of Sun Haimei (2020) show that university texts are generally more complex in language and content complexity than high school texts, especially in long and difficult sentences and the use of complex nominals. In addition to this emerging model, variability reflects the size of difference in complexity and the way of difference of texts. If you are reading too quickly or reading without attention to the detail, you may miss the important information contained in these sentences. Instead, if you are reading too slowly or reading with attention given to every detail, you may lose interest in reading and even be interfered in your understanding because you are too concerned with individual details that you become less aware of comprehension. It also results in slow and inefficient reading.

As mentioned earlier, the method of identifying key elements of a sentence for the key idea with the help of connectives can be used to identify the key components in a sentence, that is, the subject, verb and sometime object in the sentence for its key idea. After identifying the key idea in the sentence, readers may analyze more complicated sentences by reading for the additional information added to the simple sentence that contains the key idea, and detect ideas within the complex sentence. Sometimes it is not so easy to decide which information is the key idea and which details are added to the key idea. But often the subject and verb (sometimes with the object) of the main or core sentence determines the key idea of the sentence. The details attached to the key idea usually belong to the additional ideas or information.

The research by Huang Danyan (2019) was designed to probe into the possible application of “sentence tree-structure” in college English grammar teaching (pp.178-190). After combining schema theory and lexical chunk theory, she put forward “the sentence tree-structure tool” and attempted to use it in one of her college grammar classes. In the teaching process, students were required to study long and difficult complex sentences from the IELTS reading texts. Her study showed that most students have improved their ability to analyze long and difficult complex sentences after using the tool to learn difficult grammar.

Alqahtani (2019) studied “the effect of the internal structure of the subject slot on its recognition by students learning English as a foreign language”(pp.77-82). However, the surprising finding of the study is that a compound subject, whether simple or complex, is more easily recognized by students than a non-compound complex one. The results of the study are aimed at making a positive contribution to the language teaching process. According to the results of the study, EFL teachers can make students pay attention to the different structures of a sentence. Students need to know that some parts of a sentence are intended to expand the sentence or add information to it, not to change it, which is called “the slots of the sentence”. The sentence comprehension tasks not only need understanding sentences, but also need storing verbal information temporarily (Muto, 2021).

The following example demonstrates how additional information can be added to a simple sentence (the main or core sentence) and how many ideas you can detect within the complex sentence.

Example: simple sentence: This simplest kind of black hole is called a Schwarzschild black hole.

Complex sentence: This simplest kind of black hole—one formed by the contraction of nonrotating, collisionless matter with spherical symmetry—is called a Schwarzschild black hole, after the astronomer and mathematician Karl Schwarzschild, who devised the first known solution to Einstein's equations of general relativity.

key idea: This simplest kind of black hole is called a Schwarzschild black hole.

additional information or ideas:

- (1) one formed by the contraction of nonrotating, collisionless matter with spherical symmetry
- (2) after the astronomer and mathematician Karl Schwarzschild
- (3) who devised the first known solution to Einstein's equations of general relativity

Comprehending material may be both challenging and time consuming. The process of analyzing complex sentences takes time and practice, but developing a strategy to tackle sentences will greatly add to the reader's comprehension of material.

7.3.2 Think How to Read

Some readers read by skimming steps, others by using the method of identifying key elements of a sentence for the key idea with the help of connectives to get the general meaning of a text. But still others read through a combination of a variety of approaches. Readers can find out what works best for

themselves to read the particular material.

Readers must practice using strategies and turn various strategies into their own strategies so that they can use strategies independently and read easily and calmly, and finally become a master in reading. English textbooks have been widely used in every field of study in most colleges and universities in China. In order to prepare university students for their jobs of tomorrow, it is essential to systematically train and practice them and let them read these books. The survey results of Cheng Hsiao-fang (2015)'s study showed that it was necessary that students should be trained in reading strategies, the complex sentence structure analysis and the accurate terminology pronunciation. It is recommended that readers buy a book on difficult sentence analysis and practice the strategies above. For students majoring in economics, they can buy English books on economics and practice the strategies above. Relatively speaking, both professional or academic books are relatively difficult and suitable for the practice of the strategies above.

7.4 Conclusion

In conclusion, under constructivism, knowledge is presented in the most streamlined and core way, making complex knowledge concise, changing the cognitive form of students, and making learning simpler. Identifying the key elements of a sentence for the key idea with the help of connectives can help students to split long and complex sentences into simple sentences so as to well construct their meanings, improve students' skimming reading efficiency and students' understanding ability; glancing at secondary sentences by reading the connectives such as *who*, *because of*, *which*, *when*, *as*, *though*, etc. helps them considerably in identifying the key idea in a sentence, which is important in students' processing and predicting event participants. After identifying the key idea in a sentence, readers can analyze more complicated sentences by reading for the additional ideas, which are the additional information attached to the key idea. Whatever strategies, readers must practice using them and eventually become efficient readers.

8. Paragraph Comprehension under Structuralism

For Chinese non-major college students, one of the development goals of reading comprehension is to successfully read articles related to their majors in English newspapers and English literature, integrate relevant contents, analyze the author's views and positions, and better understand the logical structure and implied meanings. Therefore, improving students' structural ability has become an important factor in college English reading comprehension. In order to effectively learn the structure and improve reading comprehension, students must pay attention to what is being said or how it is being said. An important advantage of doing this is that students' attention is focused on the language features that will occur again and again. Their study today will make tomorrow's reading more effective. When reading, they must understand texts, not just a text. They must be interested in the features of the reading texts and the strategies to deal with them that are generalizable. These features and strategies can include pronoun reference, lexical cohesion, guessing words from context and comprehending complex sentences.

Teachers must help students understand the logical relationships in texts, build the awareness of using the logical relationships in texts as the framework for students' reading comprehension, and explicitly teach students to use the logical relationship in the text to understand the text structure so as to support students' reading comprehension ability. Although comprehension instruction is only one part of the overall literacy block, it may be essential to lay a solid foundation for students' complex comprehension skills (Hudson et al., 2021). Therefore, teachers must strengthen the guidance of understanding the logical relationships in texts, determining the text structure and identifying the main idea, and use some practices and skills to help students with continuous reading comprehension difficulties. This chapter studies the skills of understanding a paragraph, including finding the main idea.

8.1 *On Paragraph Comprehension under Structuralism*

8.1.1 Literature Review on Paragraphs and Structures

Paragraphs have a number of functions in discourse studies. For example, it encourages a writer to pay full attention to the diverse aspects of his or her information; it helps to distinguish one idea in an article from another idea (Owusu, 2020). The paragraph can be regarded as a discourse marker, a powerful technique, a device for structure, a unit of grammatical and lexical devices, a helping hand for readability, a pillar for cultivating writers, a pedagogical problem, or all these and more (Duncan, 2020). The study by Owusu recommended that second language teachers should pay special attention to students' paragraphs, especially in writing of concluding sentences, and observance of paragraph transitions, that is, paragraph coherence. In addition to the unity of ideas and topics, paragraphs need to achieve the coherence of expression. The sentences in the paragraphs in the article need to be naturally and logically linked together rather than stacked together.

Some classical second language writers (such as: Stern, 1976; Halliday & Hasan, 1976; Warriner, 1988; Lunsford & Connors, 1995; Driscoll & Brizee, 2000; Langan, 2001; Sekyi-Baidoo, 2003; Kirzner & Mandell, 2007 and Beare, 2012) on discourse researches have paid attention to the key theoretical issues of paragraph theory such as: definition, type, structure and elements (Owusu, 2020).

The main characteristics of structured literacy methods include explicit, systematic and sequential literacy teaching at multiple levels—phonemes, letter-sound relationships, syllable patterns, morphemes, vocabulary, sentence structure, paragraph structure, and text structure (Spear-Swerling, 2019). The research done by Strong (2021) shows that text structure is not a standard or skill that can only be taught occasionally. Instead, students should be taught how to identify and use text structures every time they read in all content areas.

There is a system behind paragraph organization. In other words, there are paragraph development patterns such as enumeration, order or sequence, definition, compare/contrast, classification and analysis, cause and effect, problem-solution-evaluation, persuasion and argumentation. The research (Sabarun, 2019) found that most respondents (50%) stated that the skills to develop through the paragraph writing course was the understanding of the paragraph development.

8.1.2 Bruner's Structuralist View of Education

On the Basic Structure of Discipline

Bruner (1960) put forward the idea of the basic structure of discipline when constructing his teaching theory. He believes that any discipline has a basic structure, that is to say, its internal regularity. The so-called basic structure refers to the basic concepts, basic principles and laws of various disciplines. No matter what subject we teach, our teaching must enable students to understand the basic structure of the

subject. This is the minimum requirement in the application of knowledge so as to help students solve problems or resolve events encountered outside the classroom or in the future classroom because these basic structures reflect the connection between things and include universality and strong adaptability. Understanding the basic principles can make the subject easier to understand; understanding the basic principles is conducive to human memory. Teaching the basic structure of a subject will help students understand the subject and remember knowledge. When people learn something, they lose their memory, but they also keep something in mind, which will make them rethink when they need it. At the same time, learning the basic structure reduces the gap between high-level and low-level knowledge, which is conducive to students' learning by analogy and drawing inferences from one instance. He stressed that students should actively participate in the learning process of knowledge construction and structure formation, and master the general relationship between the whole knowledge and things rather than the conclusion of sporadic experience or things or knowledge.

It should be noted that if you are familiar with a discipline, you should not only master the basic structure of the discipline, but also master the attitude and methods of the discipline.

On Discovery Learning

Discovery teaching mode is the central concept of Bruner's structural curriculum theory. One of the safeguards of discovery learning is that teachers talk about basic principles, guide students to explore, induce and maintain students' enthusiasm for exploration (Bruner, J. S., 1960). Discovery learning is based on Bruner's cognitive psychology learning theory. He believes that learning is to establish a cognitive structure, which is equivalent to what we call the subjective world and the composition of the experience system in the mind. The establishment of cognitive structure is an active subjective activity with subjective initiative. Therefore, Bruner attaches great importance to active learning and emphasizes that students think, explore and discover things by themselves.

8.1.3 Feasibility of College Students' Learning Structure under Structuralism

Compared with primary school students, college English teaching can be modernized and theorized, and the course content can be abstracted; in addition to basic knowledge and skills, college students need the education and training of advanced English structures; despite the development trend of continuous differentiation and integration of knowledge, college students need to understand the relationship types of the internal knowledge structure of the discipline itself in order to learn the differentiated knowledge of various disciplines; although there are universal connections and mutual penetration between the knowledge of various disciplines, college students need to understand the differences between the knowledge of various disciplines so as to actively or passively accept the fragmented knowledge, systematize the fragmentary knowledge and form their own knowledge network; implementing the discovery learning method once in a while is undoubtedly an effective means. Whether students firmly grasp knowledge, cultivate various psychological qualities, form inquiry habits and develop students' transfer ability is of great value; using discovery teaching mode combined with other teaching methods can teach students to learn structure while learning indirect knowledge; the discovery learning method is applicable to college students as college students have mastered a lot of knowledge, have rich social practice experience and know all kinds of phenomena and can think more independently than little children; the discovery learning method encourages students to explore and guess boldly, explore and discover the laws of things, and master the methods of exploration. Learners will gradually establish scientific exploration methods in the practice of solving problems and trying to find problems through practice; using discovery teaching method can reduce students' dependence on teachers and teaching materials, cultivate students' curiosity, reasoning ability and observation ability so that they can master the methods of exploring problems, acquire knowledge and become discoverers; it is a valuable theory to combine the structure of mastering knowledge with the structure of discovering knowledge, but Bruner makes it absolute, which affects students' interest in learning. However, after a period of learning and discovering the knowledge structure, students' interest will increase.

8.2 *From the Perspective of Conjunctions and Structure*

8.2.1 The Structure of Paragraphs: The Learner Should Know

Once a writer decides on the appropriate form or forms of genre to convey the material most effectively, he or she develops a plan to use the proper form or forms of patterns for organizing paragraphs, passages, or entire texts.

A text conveys the author's ideas, and if it is well written, it conveys them coherently. The typical straight line of development of an English paragraph is the basis of its coherence (Bander, 1978). An English

paragraph is coherent when its ideas are clearly related to each other in orderly sequence. Each sentence in this paragraph should naturally grow out of each previous sentence in the process of developing the main idea. Ideally, there should be a sense of movement or flow, a going forward and building on what has been said before. In other words, the sentences in the text should be combined in a meaningful way. They should come together in a way that provides a structure for the paragraph. In some types of paragraphs, this structure indicates what the author thinks is more or most important. Prominence is an organizational language principle which plays a role in all levels of language representation including discourse structure (Schumacher & von Heusinger, 2019). Mature readers can see and explain this structure. It is conveyed to the reader through the conjunction relationship between sentences and groups of sentences in the paragraph. Readers can observe a paragraph's coherence by looking at conjunctions, signal words or various transitions added by the writer to alert the reader to the direction the development idea is taking. Conjunctions facilitate the text cohesion and comprehension by making explicit the logical relationships between ideas in written language. Conjunctions play their novel, abstract, and text-connecting role. Fraser et al. (2021) pointed out that the confluence of general vocabulary and conjunctions leads to individual differences in English language learners' reading comprehension. Conjunctions are a special form of lexical knowledge, which should not be classified as general lexical knowledge in teaching.

Signal words can be found anywhere in the paragraph. Signal words form close connections between sentences and paragraphs and they are classified according to their functions. The following methods/techniques or conjunction relationships are the different theme development methods employed by English language learners in performing written discourse (Shawish, 2018).

1) Addition: Some words signal more of the same to appear. Take for example: and, furthermore, more than that, also, likewise, moreover, in addition, what's more, next, too, besides.

2) A turn in the course of events/ turning words: Words that change the direction of thought include: however, but, otherwise, nevertheless, yet, still.

3) Order: first, second, then, after, before, when, next, last, at last, afterward, finally, soon, meanwhile, in the end, until, to begin with.

4) Summary: in short, in conclusion, in brief, to sum up, in a word.

5) Cause and Effect: as a result, for, thus, because, for this reason, so, therefore, as, since, consequently, the reason is that, result from, so that, in order to, that's why, accordingly, result in.

6) Example: for example, for instance, such as, as, like.

7) Comparison and Contrast:

Comparison: first, furthermore, for one thing, another, too, moreover, equally important, then, at the same time, besides, in addition to, in fact, like.

Contrast: on the contrary, different from, on the other hand, unlike, whereas, despite, in contrast, although, instead.

8) Definition: Words that signal the author defines the specialized terminology. They are: is/are, is/are defined as, consist of, mean, is/are distinguished by, refer to, is/are commonly called, and is/are described as.

9) Alternative: or, nor, alternatively.

10) Restatement: in other words, that is to say, I mean, namely.

11) Amplification: to be more specific, thus, therefore, consist of, can be divided into.

12) Exclusion: instead, rather than, on the contrary.

Most often, context clues are implicit, so the reader must find out the relationship by considering the information in the sentence. If the context clues are explicit, various context clues can be used. Context clues are usually conjunctions, but they can be adverbs, pronouns, nouns, verbs, and preposition groups. The term *conjunction relationship* doesn't mean the use of a conjunction, but rather refers to the relationship between two or more sentences or clauses (Halliday and Hasan, 1976). A reader can also see how a writer achieves coherence by arranging a paragraph's details in a systematic way that is appropriate for the subject matter.

There are two types of relationships. In one type of relationship, the items involved carry equal weight. In another type of relationship, one sentence is given more importance than the others. These two types produce two kinds of paragraphs. One is a paragraph mainly composed of items with equal weight, and the other is a paragraph containing a topic sentence with details. With addition, alternative, time and

arrangement and restatement, etc., the sentences should be combined in a way that provides a structure for the paragraph that indicates the author considers items, steps or information to be both important or equally important as they may involve more than two items. Example: X-ray therapy, that is, treatment by use of X-ray, often stops the growth of a tumor. Both *X-ray therapy* and *treatment by use of X-ray* are of equal weight.

With exemplification/example, amplification, summary, definition, exclusion, cause-effect, a turn during events, contrast, etc., on the contrary, sentences are formed by using the paragraph structure to indicate what the author thinks is more or most important.

Example 1: The first part of the exam will consist of two pairs of slides. In this sentence, *two pairs of slides* describes *the first part of the exam* in greater detail; *the first part of the exam* is more important than *two pairs of slides*.

Example 2: We see the world wrong, on the contrary, the world deceived us. In this sentence *The world deceived us* is contrary to the expectation raised by *We see the world wrong*; *The world deceived us* is more important than *We see the world wrong*.

So, there are two types of conjunction relationships. The most common relationship with items of equal weight is the time or arrangement relationship. Each sentence describes a step in a process or in a series of events that occur in the description. Look at the example below. Readers must pay equal attention to each part of the description and construct a picture of how the ship sailed.

Example: The masts of a vessel were showing above the top of an iceberg. As the captain watched, the ship came into view from behind the berg. She passed the last of the ice along the channel and drifted into the open water. Her ice-covered masts, sails and ropes glittered in the sunlight. She looked like a ghost as she approached the whaler.

If the items in a conjunction relationship are not of equal weight, the reader must give a weighting to the appropriate item in the relationship to understand how the author organizes the paragraph. In amplification and exclusion (For example, *he speaks in concepts rather than specifics*. source: A Brief English-Chinese Dictionary) relationships, the most important items usually appear first. In this example, *in concepts* is more noticeable.

Then, the reader must look at how the paragraph deals with part or all of the first sentence in more detail.

Example: The variety of things put up for sale is really wonderful—dishes, books, used clothing, tools, tires, empty bottles, bicycles, furniture. A man in Atlanta, Georgia, even sold a full-size replica of a 1931 Ford.

The second sentence gives more details of the first sentence and expresses the controlling idea *wonderful* of the topic sentence. From an organizational point of view, the first sentence is the topic sentence in the paragraph. This is a general statement, which is enriched by the rest of the paragraph.

In the turning relationship, the second item in the turning relationship is more important than the first item. For example, in the sentence *The return is uncertain. However, the investment is worth a try* the overall effect is positive because of the positive message of the second part of the turning relationship. In *The investment is worth a try. However, the return is uncertain* the overall effect is negative because of the negative message of the second part of the turning relationship. Here is another example of a turning relationship. The Japanese have their electronics, the Germans their engineering. But when it comes to command of global markets, the U.S. owns the service sector.

In this example, the turning relationship is signaled by *But*, and the noticeable idea is that *the U.S. owns the service sector*—the second part of the turning relationship.

Teachers can explicitly teach students to use the conjunction relationships between the sentences in a paragraph to determine the structure of the paragraph so as to identify a main idea statement so as to support students' reading comprehension ability.

Now let's analyze a whole paragraph and see how the conjunction relationships determine the structure of the paragraph.

8.2.2 A Sample Analysis

Topics include paragraphs. By definition, a paragraph must have a main idea, a sense of unity around the idea, structural coherence, and all-round development; paragraphs are the structural elements of a cohesive manuscript; and the following paragraph can extend or refute the argument just put forward or introduce a new topic sentence (Hicks, 2020).

Main idea generation is a higher-level understanding skill, which requires students to read the text,

connect the information across the paragraph or section of the paragraph, determine the most important information, and express the information in their own language. Many students find it difficult to produce main ideas because they have to actively think about the text (i.e., monitoring for meaning), determine the most important information, and eliminate irrelevant information or details. In order to help them understand and learn from the text, they need to skillfully generate the main ideas of smaller parts of the text (Stevens & Vaughn, 2021). The following is an example showing how to use the conjunction relationships between the sentences in a paragraph to determine the paragraph structure and identify the main idea statement.

The following paragraph is about the possible reasons for “dumb English” in China. Now let us use the conjunction relationships to determine the structure of the paragraph and identify the main idea statement.

(1) There are many reasons accounting for this dumb English in China. (2) First of all, examination-oriented educational system plays a vital role in China today. (3) Teachers and students neglect speaking practice because it is not heavily tested. (4) In addition, English is just a foreign language in China and students don't need to speak it for survival. (5) And lastly, the lacking of oral practice makes students turn out to be too shy to speak. (6) All these factors work together to contribute to the “dumb English” phenomenon.

Source: Peng Jinding, *Paragraph Extension and Rhetoric in English Writing*. jdpeng@126.com

Judging from the explicit and implicit causality, this paragraph is a causal structure. The first sentence *There are many reasons accounting for this dumb English in China* is the topic sentence of the paragraph. We can confirm our intuition by examining the conjunction relationships. Sentence (1) itself is in a cause-effect relationship. In this relationship, *dumb English* is the effect and *many reasons* are the causes and *dumb English* is more important than *many reasons* as in a cause-effect relationship, the effect is generally more important than the cause. Sentences (1) and (2) are in a cause-effect relationship, (1) is the effect and (2) is the first cause or reason signaled by *First of all*. In this cause-effect relationship, sentence (1) is more likely to be the topic sentence than sentence (2) as sentence (1) contains the effect.

Sentence (3) itself is in a cause-effect relationship with the conjunction word *because*. Sentence (3) and sentence (2) are in a cause-effect relationship without the conjunction word *therefore* before sentence (3). We could insert words or phrases like *so, therefore, thus, hence, as a result* before sentence (3). Sentences in a cause-effect relationship are of no equal importance and the effect of sentence (3) could be given more weight than the cause of sentence (2). Because (3) is the effect and (2) is the cause while (1) is the effect, sentence (1) still remains the key sentence.

Sentence (4) is in a cause-effect relationship with sentence (1). (4) is the second cause or reason signaled by *In addition*, and (1) is the effect and is more important than (4). (4) and (2) are in a relationship of addition. Sentence (4) is equal to sentence (2), and (4) and (2) are the reasons, (1) is the effect, so sentence (1) remains the topic sentence.

Sentence (5) is in a cause-effect relationship with sentence (1). (5) is the third cause or reason signaled by *And lastly*, and (1) is the effect and is more important than (5). (5) (4) and (2) are in a relationship of addition. Sentence (5) is equal to sentence (4) and sentence (2), and (5) (4) and (2) are the reasons, (1) is the effect, so sentence (1) remains the topic sentence. Sentences in a relationship of addition are of equal importance, although the shortest or more general of the sentences could be given more weight.

Sentence (6) itself is a cause-effect relationship, with the *dumb English* phenomenon being the effect which is more important than *all these factors work together* being the reason in this cause-effect relationship. So, sentence (1) remains the topic sentence.

A coherent text involves conjunction relationships like those described above. In some texts, depending on the type of relationship, a paragraph has a topic sentence with more weight than the rest of the paragraph. In other texts, paragraphs contain almost equally important items. The role of the topic sentence depends in part on the type of conjunction relationship it is involved in. The topic sentence may contain the most important piece of information in the paragraph if the types of conjunction relationships are summary, cause and effect, amplification, exemplification, contrast, exclusion, transition. If the type of conjunction relationship is amplification, the topic sentence usually does not cover a great deal of information in the paragraph itself, but provides a generalization which prepares the reader for what follows. If the type of conjunction relationship is definition, the topic sentence may or may not contain a great deal of information in the paragraph. If the type of conjunction relation is amplification, the topic sentence usually does not cover a large amount of information of the paragraph itself, but provides a summary to prepare the reader for the next content.

The topic sentence is in the most cases the first sentence in a paragraph. Sometimes it is the last sentence

and very rarely it appears between these two. Sometimes, the topic sentence is both the first sentence and the last sentence. There is a relationship between the kind of conjunction relationship involved and the position of the topic sentence. If the paragraph belongs to the amplification or exemplification relationship, the topic sentence is most likely to be at the beginning. If it belongs to the contrast or summary relationship, the topic sentence is most likely to appear finally. If the paragraph belongs to the cause-and-effect or definition relationship, the topic sentences are likely to appear sometimes at the beginning, sometimes finally. “Being able to identify the main ideas within a complex multi-paragraph content-area text is an essential reading comprehension skill” (Shelton et al., 2021, pp. 217-223).

8.3 Pedagogical Implications

A number of important implications for English paragraph comprehension instruction follow from a belief of Bruner's structuralist view of education. Here I shall elaborate on the implications of Bruner's structuralist view of education for English paragraph comprehension instruction and shall also examine how to use the conjunction relationships to help learners cope with paragraphs.

8.3.1 Implications for the Instruction of Structure

It is a common practice in college reading classroom that students rely on their teachers in reading class. The teacher may go through the text word by word and sentence by sentence in order to let the students understand everything about the text in terms of grammar and vocabulary. We are all aware that the role of grammar and vocabulary is essential to the success of English language learners. However, this doesn't necessarily mean grammar and vocabulary are always the focus of English reading class.

Bruner's structuralist view of education shows that instruction of structure is one part of the overall literacy block. Therefore, our teaching must enable students to understand the basic structure of the English language in order to help students to learn outside the classroom or in future classroom and apply the knowledge.

8.3.2 Suggested Paragraph Analysis Ways

Mature readers do not need to deliberately do the above analysis. They use intuition to know about the conjunction relationships and their positions in prominence and make judgements based on this as they read. In this way they find out the organizational structure of the paragraph, look for the topic sentence, and judge which parts of the paragraph are comparatively important. If they cannot, they can use the methods suggested below to make decisions intuitively.

The reader can figure out where the main idea in a paragraph is by the kind of analysis of the paragraph about “*dumb English*”. Often, students can learn from the teacher giving an explanation of the structure through an example (Stevens & Vaughn, 2021). The research shows that the teaching of text structure can improve students' reading comprehension of expository texts (Roehling et al., 2017). It is useful for teachers to use such paragraph analysis as an example to teach students to understand paragraphs. In order to gain an advantage, students should be familiar with the relationships and their weightings. They don't need to be very skilled in identifying the relationships in the text, but they need to find out how the teacher analyzes the paragraph and follow the teacher's analysis of the paragraph. They need to do some exercises to make decisions or judgments about whether the paragraph has a main idea, or just a group of sentences with equal weight. The easiest way to get familiar with various relationships is to start with the relationship of signal words because signal words provide some clues to the relationship. Some relationships of signal words, however, are not direct and care is needed. Some signal words are inexplicit. *Thus*, for example, can be a signal word of cause-effect, exemplification and amplification. *While* can be a signal word of time or contrast. Some signal words are misleading. *On the contrary* signals exclusion not contrast. *All the same* signals contrast and not inclusion.

After readers get familiar with the marked relationships involving two sentences or clauses, they can move to the study of marked relationships where a part of the relationship consists of several sentences or clauses. By asking them to propose markers that can be placed between sentences, a study of the relationships without signal words becomes easier.

Before using the conjunction relationships between the sentences in a paragraph to teach students how to determine the paragraph structure to identify the main idea statement, “students need to learn that texts are organized in specific ways” (Stevens & Vaughn, 2021, pp. 300-308). The teacher can post guiding questions that students can ask to help identify the structure of the passage and find the topic sentence like: What kind of paragraph development pattern is this? How are two sentences related to each other? Are they of equal weight? Or is one more important than the other? Or is one the most important among them? What signal words tell us their mutual relationships? What signal words could be placed between

sentences? If readers don't get familiar with the types of conjunction relationship, analogy and intuition would work for them.

Readers can practice reading the first sentence of the paragraph, then stop to guess what the rest of the paragraph is about, and to explain how the clues in the first sentence enabled them to guess. After guessing and proving reasonable, they look at the text. In most cases, there is enough information in the first sentence to make a reasonable and accurate prediction. Stevens & Vaughn (2021) stated, "Stopping to identify the most important information after reading a brief section of text supports monitoring for understanding" (pp. 300-308).

Teachers can improve students' reading comprehension by an intensive main idea identification strategy, sentence-level message, which requires students to determine the subject and important words in each sentence, and then synthesize this information to write a main idea statement for a section of the text (Pollack et al., 2021).

Here are some examples.

(1) I know that both of you think going college is a good chance, a chance you never had, and I know you are right.

The clues in this sentence are *both of you think* and *I know*. It can be predicted that the next sentence begins with *But* and contains the main idea. As predicted, the next sentence is: But I also realize that you want me to use my own judgment, and what you want most is to make me happy.

(2) Professor Harmer carried out a series of experiments on sunflowers in the field to study the reason for the sunflower tracking the sun.

Source: Andy Fell (2016). *Sunflowers Move by the Clock*.

The clues are the indefinite or general noun groups *a series of experiments* and *the reason for the sunflower tracking the sun*. It is expected that these will be discussed in more detail and in fact they are dealt with later—the general noun groups (*experiments on sunflowers in the field, in pots outdoors and in indoor growth chambers*) and the reason (*A plant growth-regulating hormone, called auxin, appears to be a key driver*). Notice that although this has an organizational function in the paragraph, it does not give a lot of information. The relationship is of an amplification with general indefinite noun groups in the first sentence being explained in more detail in the rest of the paragraph, which is the most common type of arrangement for a paragraph which has a topic sentence.

(3) She was standing almost directly behind the girl, a woman well past forty,.....

Source: Zheng Shutang (2011). *New Horizon College English 2 Reading Tutorial* (2nd Edition).

In this sentence, the clues *she* (a woman) and *the girl* make us expect a contrast. In fact, the following sentences describe the features of this woman. This contrast does not appear until the next paragraph describes the features of the girl, and so do Blandford's (a character in the story) reactions to this dilemma. Doing this predicting exercise can help students discuss a text in an interesting and useful way and form a useful reading threshold. If a reader can well predict what will come after the first sentence, he or she can easily read the rest of the paragraph. This prediction includes the use of clues that suggest conjunction relationships.

Readers can learn some simple strategies to look for the main idea of the paragraph. First find out what kind of paragraph it is. Then, if it is a paragraph with a main idea, find out where the main idea is. To check your decision, look for any clues near the main idea. If there is not a clue, try to put into a suitable word. Make sure that the weightings given in a type of relationships give weight to the sentence you have chosen. If it is just a set of equal steps, just see how many steps there are. Notice they have equal weightings; look for clues in the first sentence itself. For example, when you choose the first sentence as the main idea, look for the general noun groups which are discussed in detail in the rest of the paragraph.

8.4 Conclusion

Readers can understand what a paragraph is by studying the conjunction relationships between sentences and a group of sentences in a paragraph, and can also understand the organization of a text by analyzing the conjunction relationships in a paragraph or a text when they deal with a written text. They can also use the analysis of the conjunction relationships in a paragraph or a text as a basis for assessing the writer's skills in organizing and presenting the materials. Using this type of critical method to study texts will naturally produce organizational ideas in learners' own compositions.

The role of the main idea or topic sentence is not in whether it always provides important information,

but in its organizational function. Readers can use the conjunction relationships between the sentences in the paragraph to determine the structure of the paragraph, whether they are signaled or un signaled, including finding the main idea. In some of them, one sentence is given more prominence in the paragraph's structure. If we can find out the structure, we can make the interpretation of the ideas in the paragraph closer to us, more cordial and easier to understand. Good readers can more intuitively understand the author's real intention. If they can't, they can use a variety of strategies to make intuitive decisions.

The contextual clues can be adverbs, pronouns, nouns, verbs, and preposition groups besides conjunctions; items in one type of relationships are of equal weight and one sentence in another type of relationships is given more importance than the others; there is a relationship between the type of conjunction relationship involved and the location of the topic sentence.

9. Reading Comprehension Methods and Skills for a Paragraph and a Passage

9.1 For a Paragraph

9.1.1 Look for Repetitive Words and Key Words in Extensive Reading

Look for Repetitive Words or Phrases

Extensive reading is an overall understanding of the subject matter and content of the article. A paragraph discusses only one topic or one aspect of the topic. All the facts, examples, and reasons in a paragraph support and develop the subject content or the main idea. Therefore, during extensive reading, the reader can identify the subject matter and derive the main idea by looking for repetitive words. Repetitive words often express the theme or controlling idea of the article. They sometimes appear in the same form; sometimes in different forms. For example, several phrases of the same or similar meaning constantly appear in a paragraph: the beginning of the sea, got its ocean, acquired an ocean, and there is an ocean. Therefore, this paragraph is about one subject matter (the beginning of the sea) and the controlling idea (beginning). Occasionally the entire topic sentence is needed to state this idea; but often it appears in only a word or phrase.

Look for the Key Words

Words with high frequency are likely to represent the focus or the main idea of the text. Therefore, readers can look for repetitive words and key words during extensive reading. They can make the relationship between sentences and paragraphs clearer; they run through the whole text and build a "bridge" between the main points, providing readers with a guiding light; they are clues throughout the text. Examinees can fully understand the content of the article through key words and key information when browsing the article so as to shorten the time for problem solving.

9.1.2 Grasping the Controlling Idea of a Paragraph

Readers can read the topic sentence to focus on the subject of a paragraph and grasp the controlling idea of a paragraph. In most topic sentences, a word or phrase expresses the main idea or controlling idea of a paragraph. Occasionally the entire topic sentence is needed to state this idea. Therefore, when readers identify the main idea in the topic sentence, they can look for words or phrases that express the controlling idea.

For example, the topic sentence of a paragraph is: The trick is to be consistent you, at your best. Its controlling idea is *consistent*. This controlling idea controls all the details or explanations of the topic sentence. Therefore, some words expressing *consistency* appear in the details explained below: never change from one situation to another, the same, their whole being, match, which all express the controlling idea of *consistency*.

9.1.3 Problem Solving by Answering Certain Questions

Identifying Topic, Main Idea and Supporting Details

An important strategy for understanding reading materials is to identify topic, main idea and supporting details presented in a paragraph. A paragraph is usually defined as a group of several related sentences, involving a main idea and a topic. A paragraph usually contains three basic elements, namely topic, main idea and supporting details. Answering certain questions can greatly improve the overall understanding of a paragraph.

Identifying Topic

A well-written article usually contains a topic, and the entire paragraph must be about a topic. When writing a paragraph, the author only discusses a topic or an aspect of the topic, and only focuses on a single idea, that is, the main idea. Usually, a topic sentence expresses the subject and the main idea of the paragraph. A topic sentence usually uses a word or phrase to express its controlling idea. Identifying a topic is to identify the subject matter of the reading material, not to distinguish or identify the information of the subject.

A topic sentence usually tells the reader what the topic, content, or main idea or purpose of the paragraph is. To identify the topic, readers can first read the topic sentence and see what topic is expressed in the topic sentence. Usually, readers can answer the question: What is the one thing this paragraph is about? and then identify the topic.

Identifying Main Idea

A paragraph contains a main idea in order to let the reader know what the author is trying to express. The

main idea is an important element of a paragraph, which provides a purpose and direction, usually expressed in a complete sentence. Take the following paragraph as an example.

Yet the graying of America is not uniform across the country—some places are considerably older than others. The oldest metropolitan areas, according to a study in 2010, have twice as high a concentration of residents over the age of 60 as the youngest. In these areas, it's already 2020, and some may get to the 2050 aging level decades early.

In this paragraph, we can identify the topic of this paragraph: the graying of America; its controlling idea is: not uniform; its main idea is: The graying of America is not uniform across the country; further reading is a detailed description of the topic sentence. For the main idea of a paragraph, sometimes the reader needs to read all the sentences to identify the main idea, but most of the time they need to read the first statement of a paragraph, which is usually called the topic sentence.

The topic sentence is in most cases the first sentence in a paragraph. Sometimes it is the last sentence and very rarely it appears between these two. Sometimes, the topic sentence is both the first and last sentence. There is a relationship between the kind of conjunction relationship involved and the position of the topic sentence. If the paragraph belongs to amplification or exemplification relationship, the topic sentence is most likely to be at the beginning. If it belongs to contrast or summary relationship, the topic sentence is most likely to appear finally. If the paragraph belongs to cause-and-effect or definition relationship, the topic sentences are likely to appear sometimes at the beginning, sometimes finally.

To identify the main idea, readers can usually answer the question: What is the idea or key idea expressed in this paragraph? Or they can usually answer the question: What is the author saying about the topic in this paragraph?

What does the author say about the topic *the graying of America* in the thesis statement (The graying of America is not uniform across the country.)? The author says that the graying of America is not uniform across the country, so the main idea of this sentence is that the graying of America is not uniform across the country.

Identifying Supporting Details

Why to identify supporting details? Because the main idea does not provide us with all the information. The facts and details in a paragraph are used to support and develop the main idea. These facts and details may depict a complete picture; it may help readers better grasp the main idea; it may prove a point; it may reveal ideas that are related to each other.

A paragraph in English focuses on a single idea, and all the details in the paragraph should be related to the main idea. The sentences in the paragraph should support and develop the main idea. These details include facts, examples, reasons and explanations or evidence. Therefore, a paragraph usually provides supporting details of the paragraph. The specific approach is to identify the main idea first, and then analyze the important facts or details used to support and develop the main idea. Through these facts and details, we can deeply understand the main idea of the paragraph.

Take *the graying of America* as an example. The main idea is developed from three details: a study and two explanations. See below:

Main idea: The graying of America is not uniform across the country.

Supporting details:

Explanation 1: Some places are considerably older than others.

A study: The oldest metropolitan areas, according to a study in 2010, have twice as high a concentration of residents over the age of 60 as the youngest.

Explanation 2: In these areas, it's already 2020, and some may get to the 2050 aging level decades early.

How to identify supporting details: To identify supporting details, readers can answer the question: What facts or evidence does the author provide to support the main idea statement? Notice the example: The simplest kind of advertising is the classified ad. Every day the newspapers also carry a few pages of these ads; in the large Sunday editions there may be several sections of them. A classified ad is usually only a few lines long. It is really a notice or announcement that something is available.

The topic of this paragraph is the classified ad. The main idea is: The simplest kind of advertising is the classified ad. Its details include the following. Note the details in italics.

a few pages of these ads,
may be *several sections* of them,

a few lines long,

really a notice or announcement.

These details are all about how the classified ad is the simplest type (of advertising). Therefore, answering some questions is an excellent way to identify the topic, main idea and supporting details.

9.1.4 Identify the Main Detail(s) of a Paragraph.

The facts or details in a paragraph are not equally important. The facts or details related to the main idea are important. Small or less important facts or details can enrich the article, attract readers' attention, and concretize complex materials. However, our goal is to quickly understand the content of the reading materials, so we can ignore the unimportant details in the reading process a little bit.

Specifically, when identifying the main detail(s) of a paragraph, first identify the main idea, then identify the facts and details that support and develop the main idea, then identify which is/are the main detail(s) and which are secondary details, and distinguish between the main detail(s) and unimportant details. Once the main detail(s) of a paragraph is/are identified, other details are secondary and unimportant information. To identify the main detail(s) of a paragraph, the reader needs to answer the question: Which fact(s) or detail(s) is/are closely related to the main idea?

Example: I worked on my communication skills. As I've said before, I always used to be extremely shy. I began to participate more in class discussions, in conversations with people and in communication at the clinic. Communication skills are the most important leadership skills anyone can have. You need to make sure members understand exactly what is happening and how to deal with it. The only way to do that is to communicate in a strong, kind and polite way.

(Source: Wang Shouren (2019). *New Generation of University English (Improve) Comprehensive (Tutorial 2)*. Foreign Language Teaching and Research Press)

Main idea: I worked on my communication skills.

Main detail: I began to participate more in class discussions, in conversations with people and in communication at the clinic.

Minor details: Others are secondary details.

9.2 For a Passage or a Text

9.2.1 Principles

The Minority is Subject to the Majority.

Sometimes, indeed, "the truth is often in the hands of a few people". But most of the time, the minority is subject to the majority. Its basic concept is that most voting systems are based on the principle that the minority is subordinate to the majority. Usually, if a scheme or plan is supported by more than half of the voters, it will be passed. The principle of "the minority being subordinate to the majority" is an idealized state of democracy. The principle of "the minority being subject to the majority" applies to public matters. This principle can also be applied to English reading comprehension at the paragraph or the passage or the text level.

For example, the main idea of an article is: There is the lack of manners in today's world. There are 10 paragraphs in the body part of this article, most of which support this main idea, but there are three paragraphs that do not support the main idea. The first half of the fourth paragraph is: Men almost always acknowledge this courtesy with a wave of the hand(which means that men are polite); the six paragraph is: I never ran in public, much less between and around the legs of people in stores (which means I am well-mannered). The subject content of these two paragraphs is irrelevant to the main idea (the lack of manners), even opposite; the 12th paragraph (It's not necessary to provide yet another analysis of the disintegration of the family or the breakdown of the social fabric or the price of democracy to explain what has happened to our society.)signals and prepares to end the article, and it has only the function of writing, but no function of meaning.

According to the principle of "the minority being subordinate to the majority", in general, this article expresses the main idea of the lack of manners. Because there are more paragraphs expressing the lack of manners than I am well-mannered, the main idea of this article is the lack of manners according to the principle of "the minority being subordinate to the majority". Therefore, the principle of "the minority being subordinate to the majority" is an important criterion for understanding English passages or articles.

Sure, before finally identifying the main idea of a text, readers can look at the introduction and conclusion

to look for the final identification of the main idea of a text.

Another example is a passage of four paragraphs. The main idea of this passage is the use of simplified texts. The following four sentences are the first sentence of each paragraph in the passage, which is the topic sentence of each paragraph, or the main idea of each paragraph.

(1) Historically, the most significant attempt to solve the beginner's paradox was the vocabulary control movement, which attempted to drastically limit the vocabulary found in learner texts.

(2) However, use of such simplified texts has been greatly criticized because they are not seen as "authentic".

(3) Note that beginning native speaker readers are not expected to read difficult texts, e.g., literature, until they are at a more advanced state in their schooling.

(4) Accordingly, many proponents of extensive reading advocate the use of simplified material for beginners, but readily admit that the goal must be to move as quickly as possible to more authentic native speaker texts.

Three of the four sentences (the first sentence, the third sentence and the fourth sentence) are in favor of the use of simplified text, and only one sentence (the second sentence) is against the use of simplified text. According to the principle of "the minority being subject to the majority", the main idea of this passage is in favor of the use of simplified texts rather than against the use of simplified texts. Therefore, when identifying the main idea of a passage, the principle of "the minority being subject to the majority" can be applied.

Repetitive and Key Words

Repeated words may appear in a passage or an article. These words are sometimes repeated in the same form, and sometimes appear in different forms, but they all refer to the same thing. Therefore, they are likely to express the core issue, the key thing and the core idea related to the subject of the passage or article. They are likely to be key words for a passage to express the core idea. Therefore, readers can find repetitive words or key words during extensive reading. They can make the relationship between sentences, and between paragraphs clearer; they run through the whole text and build a "bridge" between the main points, providing the reader with a guiding light; they are clues throughout the text. When the examinee browses the article, he can grasp the key information through the key words, fully understand the content of the article, and shorten the time for answering the questions.

Take the example above. There are four main idea statements in the four paragraphs. The phrase *the use of simplified texts* continues to appear in the four main idea statements, so we can confirm that the central thought of this passage is the use simplified texts.

Another example: The first sentence of a paragraph is: One of the most popular literary figures in American literature is a woman who spent almost half of her long life in China, a country on a continent thousands of miles from the United States. Therefore, when reading, readers can focus on the key words related to this literary figure such as "earn, literary award, literary recognition, literary output, published works, volumes, books, medal, honored", etc. These words are related to the subject and express the content related to the subject. Therefore, they are the key words to express the subject content. By paying attention to these key words, readers can well answer questions about works, awards and culture. Therefore, when reading, the reader can focus on the key words related to the subject content.

The third example: A text is entitled with *Stopping "should" shaming*. In this article, the "should" shaming is the subject matter, and the main idea is: Stop "should" shaming, and how to stop it. The word "should" appears repeatedly in the article. In addition, the article also repeatedly presents the following words related to emotions: negative, self-approach, guilt (guilty), negative self-talk, mental exit door. Therefore, the topic of this article is "should" shaming ("Should" brings a sense of shame or guilt.)

Interference in Listening and Reading Test

Just as there will be interference items in listening and reading multiple-choice tests, the author intentionally or unintentionally mentions something irrelevant to the core content of the subject in the article, perhaps for the purpose of comparison. The interference item interferes with the examinee's correct understanding of the text and answering questions.

Take an example of the principle of interference. Take an article entitled with *Why "less is more" is the new lifestyle trend for this generation*, for example. "Less is more"(the simplicity of style) is the subject, and the main idea is "Less is more" is the new lifestyle trend for this generation. The body of the article basically supports the main idea. However, there are four paragraphs, the descriptions of which have something to do with the behavioral characteristics of the millennials, but they seem to be far away from

the topic (less is more.), and seem to be out of tune with the key words (Less is more, money, material, consumption, a car, taking less, etc.). They are interference items, which tend to confuse the readers. The readers are disturbed, feel at a loss, and prone to make wrong judgments. In combination with the main idea of the article, especially the conclusion, readers can judge that these paragraphs support the main idea: there are two paragraphs which express the young people's pursuit of a life of spiritual abundance (Less material); there are two paragraphs which are about not saving money and not getting married (less money, less marriage). It can be seen that these paragraphs have a great relationship with the subject, especially with the conclusion (more reliant on real-world engagement and substance; it is far richer in spirit and experience than those from preceding eras; future invest in growth of experiences). Therefore, although they may confuse readers and lead them to make wrong judgments and interfere with readers' correct judgments of the main idea, they are related to the subject and support the main idea.

Therefore, readers should conform to the main idea in the process of reading. The content and the structure of a good article are carefully arranged. Generally, there is no irrelevant content, or rarely irrelevant content. The paragraphs arranged in a certain order mostly serve the main idea of the article, and are carried out around the main idea. Therefore, readers should carefully identify the relevance of each paragraph to the main idea on the premise of determining the main idea of the article. It is not difficult to distinguish paragraphs that seem irrelevant to the main idea once they are related to the main idea or the conclusion of the article. Therefore, when reading a passage or a text, the reader should closely focus on the article and the author's point of view. The main idea of the article is very important to distinguish the true relevance between the content of the paragraph and the main idea. In addition, readers also need to improve their reading level and ability, and enhance their identification ability.

9.2.2 Problem Solving by Answering Certain Questions

Recognizing Central Thought, Main ideas, Supporting Ideas/Facts, Supporting Details

College students' English learning materials cover a wide range perhaps because they are interested in a particular field, or because they must meet the curriculum requirements by doing so. The focus of reading should not be sentences or paragraphs, but passages or texts. Passages often describe several main ideas, including a central thought. The central thought controls the whole part of the passage. The central thought is an important element of a passage. Readers can identify the topic of the passage by reading the passage. The reader adds the main idea of each paragraph together, and then identifies the central thought of the passage according to the principle of "the minority being subordinate to the majority". An English passage usually focuses on a single central thought. Therefore, the main idea of each paragraph in a passage is mostly related to this central thought, which is supporting ideas and the factual argument of the central thought. Each paragraph provides additional details to support the main idea. To understand a passage, readers must first identify the main idea of each paragraph in the passage. A paragraph provides supporting ideas about the central thought of the passage. Therefore, the author may provide examples or descriptions, or provide additional data, giving facts and details to support the main ideas and the central thought. However, sometimes, in a passage, the main idea of a particular paragraph is irrelevant or contrary to the central thought of the passage. In this case, the central thought of the passage should be determined according to the principle of "the minority being subordinate to the majority".

Identifying Topic

To identify the central thought of a (passage), read the topic sentence or the first sentence of each paragraph, and sometimes the second sentence, find out what topic that each paragraph expresses, and put the topic of each paragraph together to get the topic of the passage. Usually, readers can answer the question: what is the one thing this passage is about? Then identify the subject matter.

Recognizing Central Thought

To recognize the central thought of a passage, first identify the main idea of each paragraph in the passage, then add the topic sentence or main idea of each paragraph, and recognize the central thought of the passage according to the principle of "the minority being subordinate to the majority". The reader can usually answer the question: What is the central thought expressed about the topic in this passage?

Recognizing Main ideas, Supporting Ideas/Facts

To identify the main idea of each paragraph in a passage, readers can usually answer the question: What are the main ideas expressed about the topic in each paragraph of this passage? Or readers can usually answer this question: What is the author saying about the topic in each paragraph of this passage?

Recognizing Supporting Details

To recognize the details of a passage, readers can usually answer the question: What are the details of the

supporting paragraphs to support the central thought?

In a word, in the reading process, readers can pay attention to the words with high frequency and key words. Frequent words and key words are likely to represent the central thought of a passage; in the process of reading, readers should learn to recognize useful supporting main ideas and details, and not be confused by irrelevant non-supporting main ideas and corresponding details. Readers can recognize the topic and the central thought of a passage by answering some certain questions according to the principles of “minority obeying the majority”, repetitive and key words, and interference. Only by grasping the subject and the central thought or the main idea can we understand the passage or the text and acquire vocabulary.

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