A Research on English Reading Teaching Strategies in Senior High School of Promoting Deep Learning

Yuanxin Peng

School of Foreign Language & Literatures, Chongqing Normal University, Chongqing 401331, China

Abstract

Since the 21st century curriculum reform, schooling has greatly changed from teacher-centered to student-centered. It respects students' dominant status and makes them have more opportunities to participate in classroom activities. However, there are still some problems in the current senior high school English reading teaching, such as, some teachers only emphasize on whether students understand the grammatical points in a discourse, separate from context to explain some knowledge, and use a simple method to evaluate students' learning result, etc. Deep learning, a kind of concept based on the development of high-level thinking ability, provides a new perspective for solving these problems. Therefore, based on deep learning, teachers can adopt some strategies to effectively solve these problems and cultivate students' high-level ability, such as, setting the teaching objectives of high-level thinking ability, integrating the learning content having meaningful connections, and creating a real-world situation to promote deep learning.

Keywords

Deep learning; English reading teaching; Teaching strategies.

1. Introduction

1.1. Background of the Study

As one of the most critical means of comprehension and input, reading is an essential way to cultivate learners' logical thinking and critical thinking. What's more, the score of English reading comprehension accounts for 26.7% of the total score in National College Entrance Examination. Therefore, English teachers in senior high school should stress reading teaching and make efforts to improve students' reading ability.

Since the promulgation of the English Curriculum Standards for General High School (2020 Revised) (Hereinafter referred to as Curriculum Standards), the new teaching concept has been recognized by most English teachers, but some problems still exist. For example, the English reading teaching in senior high school presents the characteristics of "surface" (Qiang Wang, 2018: 11). It means that discourse teaching only stays at the level of comprehension, and generally lacks the deep understanding and analysis of text.

Deep learning is a kind of learning aimed at promoting the development of students' critical thinking and innovative spirit. It requires learners to fully understand and integrate what they have learned, so that the knowledge that they have learned will become systematic knowledge. Therefore, deep learning provides a new idea to solve the current problems of English reading teaching and improve learners' reading ability.

1.2. Purpose and Significance of the Study

1.2.1. The purpose of the study

With the development of science and technology, our country has new requirements for the cultivation of talents. Curriculum Standards presents general high school English course is to cultivate and develop learners' language ability, cultural awareness, thinking quality and learning ability (Ministry of Education of the People's Republic of China, 2020: 4-5). The latter two abilities are emphasized by deep learning, and they demand students to actively construct the knowledge what they have learned and apply the knowledge to solve real problems. Therefore, it is a crucial way to cultivate students' core competencies, especially in developing their high-level thinking ability. Based on the advantages of deep learning, this paper aims to explore some effective ways to facilitate deep learning in senior high school English reading teaching.

1.2.2. The significance of the study

Through the search of the keywords of "deep learning" in the CNKI database, it was found out that the studies on deep learning carried out by Chinese scholars start in 2005, and the number of articles in this field increases rapidly in 2015. What's more, there are only 3 articles and 7 theses about how to promote students' deep learning in senior high school English reading teaching. So, this research field is greatly necessary to be surveyed. Therefore, the study focuses on exploring this research field to enrich the relevant theories about promoting students' deep learning in senior high school English reading teaching.

According to the existing research on deep learning in English reading teaching, it is found that most of scholars only put forward the relevant implementation models from the theoretical level, and don't elaborate on the specific methods, which results in teachers not being able to effectively promote deep learning for students. Therefore, based on the previous literature, this study provides some suggestions for English teachers to construct deep learning classrooms in high school to promote students' deep learning and improve their core competencies.

1.3. The Layout

This paper is composed of five parts. The introduction part generally illustrates the background, purpose and significance, and the overall structure of the study. The literature review can be divided two sections. Firstly, the definition and characteristics of deep learning are presented. And the previous studies on deep learning in English reading teaching are reviewed. The theoretical basis illustrates Bloom's cognitive target classification theory and cognitivism. The next part is to provide some advice for English reading teaching in senior high school. The last part is the conclusion, which presents the findings, the limitations, and research expectation for further research.

2. Literature Review

2.1. Deep Learning

2.1.1. The definition of deep learning

In 1956, Bloom's division of cognitive dimensions in "Taxonomy of Educational Objectives" contains the view that learning is divided into deep and shallow levels (Anderson, 2009: 70-80). In 1976, American scholars Marton and Saljo studied the learning process of students based on Bloom's cognitive target classification theory and found that learning has shallow and deep differences. They put forward the concept of deep learning that is to develop learners' ability to solve practical problems. Since then, many scholars have focused on deep learning, such as, Biggs and Collis (1982), Ramsden (1988), Entwistle (1997) and other scholars have developed the theory of deep learning from different perspectives (Smith, 2007: 205-211).

In 2005, Chinese scholars began to research the field of deep learning. For example, He Ling and Li Jiahou (2005: 29) believes that deep learning emphasizes that learners should critically learn new ideas and facts, integrate the new knowledge into their original cognitive structure and apply the knowledge to solve some problems in their daily life. Based on this understanding for deep learning, An Fuhai and Chen Yulian (2017: 6) points out that deep learning not only promotes the development of students' critical thinking ability, but also their emotions. Besides, deep learning is student-centered. Students should independently construct their knowledge under the guidance of teachers, and actively learn to solve some problems in real situations (Jie He, 2018: 42).

From the above definitions, it can be concluded that deep learning means students deeply understand and construct their own knowledge with the help of teachers, and independently apply the knowledge to solve some problems in real situation. Through adopting this learning way, students can promote their critical, innovative, and applying ability.

2.1.2. Characteristics of deep learning

Deep learning and surface learning are indispensable. However, there are many different characteristics between them, shown as the Table 1, which is summarized based on Bloom's Cognitive Classification Theory (Han Zhang, Xiujuan Zhang, 2012: 8).

Table 1. Characteristics of Deep Learning and Surface Learning

Characteristics	Deep learning	Surface learning
Memory method	Understanding memory	Mechanical memory
Knowledge system	Establish a connection between new knowledge and original knowledge, and master some non-structural knowledge.	Fragmented, isolated, and surface knowledge, such as, concepts, principles, etc.
Focus of attention	Focus on some key concepts and skills needed to solve problems	Focus on problem solving
Input degree	Active learning	Passive learning
State of reflection	Self-reflection	Lack of self-reflection
Migration ability	Flexible, comprehensive migration and problem solving	Mechanical migration and problem solving
Thinking level	High-level thinking	Low-level thinking
Learning motivation	Learning is due to one's own needs	External pressure

(1) Deep learning emphasizes critical understanding of knowledge.

Deep leaning, a kind of understanding-based learning, emphasizes learners critically learn new knowledge and ideas, incorporate them into the original cognitive structure, and establish multiple connections between various perspectives (Juan Du, et.al, 2013: 15). This requires students to be good at questioning and analyzing based on the understanding of the knowledge, hold the critical and skeptical attitudes toward any new knowledge, and deepen the comprehension of complex concepts and principles (Fuhai An, 2014: 58).

(2) Deep learning emphasizes the integration of information.

Learning content integration includes the integration of content itself and learning process. (Sun Yinli, 2007: 35) thinks that the integration of content itself refers to the connection between a variety of knowledge and information, including the fusion of multidisciplinary knowledge and the connection of new and original knowledge. Based on this concept, deep

learning advocates associating the new knowledge with known concepts and principles and integrating them into original cognitive structures. Learning process integration refers to the formation of cognitive and metacognitive strategies of the information integration, such as, students can use charts, mind maps and other ways to establish the connection between the new and original knowledge.

(3) Deep learning emphasizes knowledge transfer.

Deep learning requires learners to understand and grasp some key elements about the learning situation to make learners transfer the knowledge in similar situations. If the learners cannot apply the knowledge in a new situation to solve some problems, then their learning still belong to surface learning (Naisheng Yan, 2013: 76). (Guo Hua2016: 27) believes that the more important significance of this ability is that it is a preliminary attempt for students to engage in social practice in teaching activities, and it is also an essential embodiment of the educational nature of teaching.

(4) It emphasizes creative problem solving.

Deep learning is to cultivate learners' high-level thinking ability to solve the problems in real situations. It requires students to try their best to solve some practical problems. Otherwise, the results of learning hard to be assessed (Huanhua Liang, 2019: 12). In fact, the complexity of the problems needed to be solved in our daily life reflects the necessity and importance of deep learning.

2.2. Previous Studies on Deep Learning in English Reading Teaching

2.2.1. Previous studies on deep learning in English reading teaching abroad

Since the concept of deep learning was introduced into the field of English teaching, research on reading teaching has gradually increased. Aharony (2010: 851-856) compared the difference between deep learning and surface learning and proved that deep learning is an effective way to improve students' learning ability. In addition, some scholars have developed some deep learning models for reading teaching. For example, English teachers will regularly carry out different forms of activities through group discussion. In these activities, every group member is assigned a different role, and required to complete a reading task according to the role. Students need to present a group work at the end of these activities, and the teachers will assess students' performance in these activities and their group work. This deep learning model emphasizes that full communication, cooperation, evaluation, and creation among group members.

Liping (2012: 1603-1613) and other scholars conducted case studies with the help of scientific experiments to demonstrate the necessity to improve students' reading comprehension ability. They advocate teachers should think about the deep meaning behind the reading texts. From these studies, it can be concluded that foreign scholars design the specific operation mode from the theoretical discussions and pay more attention to the empirical research in the real reading class.

2.2.2. Previous studies on deep learning in English reading teaching at home

Domestic scholars have explored the specific implementation modes from the current problems in English reading teaching. According to the phenomenon of surface and fragmented reading, (Wang Qiang et al. 2021: 17) thinks that teachers should combine the content of the teaching materials and the needs of the students to set up a teaching unit with interrelated contents. And (Xie Meng, 2019: 54-50) proposed that teachers should deepen the reading teaching process from three aspects: before, during, and after reading. What's more, teachers should provide some open and practical questions to cultivate students' ability to solve practical problems (Wei Zhang, 2019: 102).

According to the teacher-centered phenomenon of senior high school English reading teaching, many scholars put forward many solutions. For example, (Li Jingyan, 2020: 72) emphasizes that teachers should respect the subject status of students, guide them to think independently and form the consciousness of self-construction of knowledge and ability. (Luo Yonghua, 2021: 100) believes that teachers should focus on creating a friendly classroom atmosphere and increasing opportunities for interaction with students to promote their initiative to express their views actively.

2.2.3. Review of research status

According to the relevant literature about deep learning in English reading teaching, it can be concluded that the research on this field becomes increasingly mature. Many scholars at home and abroad have provided some strategies on how teachers promote students' deep learning in reading teaching. These provide some ideas for teachers to promote students' deep learning in English reading teaching. However, these strategies are too general and lack operationality. In addition, in senior high school, as a crucial period to cultivate students' thinking ability, there are relatively few studies on promoting students' deep learning in senior high school English reading teaching. Therefore, based on Bloom's cognitive target classification theory and cognitivism, this study will put forward some specific suggestions about how to promote students' deep learning in senior high school English teaching.

3. Theoretical Basis

3.1. Bloom's Cognitive Target Classification Theory

Bloom's Cognitive Target Classification Theory is designed for classifying educational goals in thinking levels. It provides the standards for assessing students' learning results to better guide teaching. Bloom et al. (1956) listed six categories in the cognitive domain from a low level to a high level, namely, knowledge, comprehension, application, analysis, syntheses, and evaluation. Based on this classification, Anderson (1990) revised this classification to six different levels：memory, understanding, application, analysis, evaluation and creation, and these six levels also reflected the process of thinking development from a low level to a high level. This classification provides a theoretical foundation for dividing students' thinking levels. The revised version is presented in the table below, and the definition and related behaviors in each category (Anderson, 2009: 40-45).

Table 2. Bloom's Cognitive Target Classification Theory (Revised version)

Category	Definition	Related behavior
Memory	Retrieving related knowledge from long-term memory	Identification, repeat, and recognition
Understanding	Constructing the meaningful knowledge from the given oral, written, and graphic communication.	Generalization, interpretation, and description
Application	Using rules and principles to solve problems in a new situation.	Demonstration, illustration, and report
Analysis	Analyzing and classifying the specific information to determine the relevance between different information and the original knowledge structure	Comparison, contrast, and categorization
Evaluation	Making judgments of the value of ideas or materials based on standards	Judgement, selection, and criticism
Creation	Integrating each element into a coherent and functional structure	Design, invention, and plan

From this table, it can be concluded that students' thinking gradually develops from a low level to a high level. Low-level thinking contains memory and understanding. High-level thinking contains application, analysis, evaluation, and creation. This concept is consistent with the core characteristics of deep learning, which gradually cultivate students' high-level thinking ability. Therefore, Bloom's Cognitive Target Classification Theory provides an authoritative foundation for deep learning.

3.2. Cognitivism

As an important branch of learning theory, many schools in cognitivism are related to the core concept of deep learning. However, constructivism and situational cognitive theory are more closely related to deep learning from the perspective of the connotation, characteristics, and process of deep learning. Therefore, this part will introduce constructivism and situational cognitive theory.

3.2.1. Constructivism

Constructivism is an important part of cognitivism, and it is closely related to the ideological systems of some psychologists, such as, Piaget, Vygotsky, and Bruna. Even though many scholars of constructivism have different views, most of them believe that learning is a process that learners actively acquire and construct the new knowledge based on their original knowledge and experience in socio-cultural environment (Lei Mo, et.al, 2005: 138-142).

Constructivism has two branches: cognitive and social. In the cognitive version of constructivism, emphasis is placed on the importance of learners constructing their own representation of reality. It means that learners must individually discover and transform complex information (Slavin, 2003: 257-258). However, social constructivism emphasizes the importance of social interaction and cooperative learning in constructing both cognitive and emotional images of reality (Spivey, 1997: 24).

It shows that Constructivism emphasizes that learners actively use their existing knowledge to construct the meaning of the new knowledge and interact with other people. To some extent, deep learning stresses the connection between the new and old knowledge, and the construction of the new knowledge system based on the existing knowledge. Therefore, constructivism has a certain logical connection with deep learning, and it can guide teachers how to promote students' deep learning in senior high school English reading teaching.

3.2.2. Situational cognitive theory

The learning ideas advocated by Situational Cognition Theory can be traced back to the theory of "Learning by Doing" proposed by Dewey and the socio-cultural view proposed by Vygotsky. This concept was put forward in the late 1980s, and gradually become a popular topic in the field of learning theory. It does not regard the knowledge as the representation of the individual's internal psychology, but as the attribute of connection and the outcome of interaction between individual and social context (Wen Gao, 2001: 31). Therefore, learning is not only to acquire a large amount of factual knowledge, but also to put oneself in the specific physical or social situation in which the knowledge is generated and actively participate some practical activities to acquire knowledge, construct meaning and solve problems. Only when learning is embedded in its associated social and natural context, can learning be endowed with real meaning and meaningful learning be possible to take place.

It demonstrates that situational cognitive theory is an important learning theory that can provide meaningful learning and promote knowledge transfer to real life. And this feature is also emphasized in deep learning. Therefore, this theory is one of the most essential theoretical foundations to promoting deep learning.

4. Strategies for Promoting Students' Deep Learning in Senior High School English Reading Teaching

4.1. Setting the Teaching Objectives of High-level Thinking Ability

Although Curriculum Standard stresses that teaching objectives should be set from the four dimensions of the core literacy of the subject. However, many teachers do not fully understand the meaning of the core literacy. They mechanically state the teaching objectives from the four dimensions of the core literacy and make efforts to achieve these goals in a short period of 40 minutes. This understanding for the core literacy and behavior will inevitably lead to students' learning can only stay in surface learning. The high-level thinking ability should be regarded as the primary teaching objective, though teaching objectives are guided by the core literacy of the subject. In fact, each dimension of the core literacy has the different standards for high-level and low-level thinking, but most of the English teachers just set some teaching objectives that belong to low-level thinking, such as, understanding the main idea and the grammatical rules of a passage. The English reading teaching can only help students understand some factual knowledge, but not develop their problem-solving ability.

Therefore, this study suggests that teachers should regard the high-level thinking ability as the core of their teaching objectives to help students apply what they have learned in real life. However, the development of high-level thinking ability must be based on the students having fully understood the meaning of the text and being able to simply apply what they have learned.

4.2. Integrating the Learning Content

Deep learning is essentially a process of constructing the meaning of structural and non-structural knowledge, and it is also a complex information processing process, which must effectively and precisely process the activated prior knowledge and the acquired new knowledge. However, many English teachers in senior high school are separated from the discourse to explain the knowledge. This isolated, non-situational teaching method is not conductive to promoting students' overall perception of meaningful knowledge. Besides, students store knowledge in memory in isolated and fragmented forms, they will only use the fragmented knowledge to solve problems mechanically when encountering new problems. Due to there is no connection between the new knowledge and the existing knowledge in students' cognitive structure, students will meet some troubles in solving practical problems. For example, they will solve practical problems inefficiently for having difficulty in retrieving the isolated and fragmented knowledge very quickly.

Teachers should integrate the new and existing knowledge to build a knowledge scaffold for students to learn new vocabulary and grammar. In the study of a reading text, the vocabulary and grammar knowledge that students have mastered will affect the efficiency of the new text learning. Therefore, teachers should analyze the learning tasks needed to learn new knowledge and then build a systematic knowledge framework after fully understanding the students' knowledge and experience base. For example, in the process of learning the article "Anne's best friend", teachers can integrate the content from the writing method of diary for students have a certain understanding of the narrative structure of the diary subject to deepen students' understanding of the original knowledge and improve the learning efficiency of learning new knowledge.

4.3. Creating a Real-world Situation Promoting Deep Learning

English reading learning includes the understanding of the vocabulary, cultural background, and the thematic meaning of the text. Senior high school English reading discourse has many complex words, and students are fear to reading the discourse. Teachers should establish a real-

world atmosphere to let students overcome fear. This relaxed atmosphere is beneficial to realize the deep communication between teachers and students in thinking.

Teachers should create real-world situations based on the content of the discourses to provide a place for students to read profoundly. Context plays an important role in the process of learning discourse knowledge, understanding the textual content, and perceiving culture. Therefore, teachers should pay attention to the creation of scenarios related to the reading discourses and design a learning scenario based on the reasonable correlation and deep integration between the textbook and the real world. And then students are put into this real-world situation, which can motivate them to connect between the new knowledge and their existing knowledge, to enable them to start to autonomously finish learning tasks in social context.

4.4. Constructing the Diversified Teaching Evaluation System

Teaching evaluation is an effective way to guide students to reflect deeply on their learning effect and adjust their learning strategies in time. It can not only promote students' deep understanding of learning content and improve their learning strategies, but also help teachers adjust their teaching method and enhance the effectiveness of classroom learning.

First of all, teachers should construct a teaching evaluation system that includes teacher evaluation, student mutual evaluation and self-evaluation. In the process of promoting students' deep learning, students need to evaluate and diagnose their cognitive structure and cultivate their metacognitive strategies to promote the construction of cognitive structure. Students' self-evaluation helps them learn to control and promote their learning.

Secondly, teachers should construct immediate and continuous teaching evaluation and feedback system. When designing this evaluation method, teachers should not only assess the learning result of the students, but also include the correction of their wrong understanding and deepening of shallow understanding.

Finally, teachers should construct a hierarchical evaluation system so that students at different levels can be motivated. The hierarchical evaluation system can be divided into three stages. The first stage is to divide the level of students, that is, to accurately know about students' existing knowledge and experience. The second stage is to set reasonable goals for students at different levels. Finally, teachers should analyze students' shortcomings in the current reading learning and encourage them to actively look for problems and improvement measures in the reading process based on the evaluation whether the students' goals have been achieved or not.

5. Conclusion

Deep learning focuses on cultivating students' high-level thinking ability, which plays a positive role in improving students' ability in solving problems in real life. However, senior high school English reading course as an important course to promote students' deep learning, the studies on this field are relatively few. Therefore, based on the previous studies, this paper puts forward some suggestions about how to promote students' deep learning in senior high school English reading teaching, such as, teachers should set the high-level thinking teaching objectives, integrate the learning content having meaningful connection, and create a real-world situation promoting deep learning. These suggestions can provide some enlightenment for senior high school English teachers to promote students' deep learning in reading.

However, there are still some limitations in this study. First of all, these suggestions have not been put into practice and lack a teaching experiment to check their effect whether they can promote students' deep learning. Secondly, this paper does not provide a specific teaching design about how to promote students' deep learning in senior high school English reading teaching, and just list some key points. Finally, in the literature review, most of the studies are

reviewed from the theoretical aspect, while there were relatively few reviews of practical studies on deep learning.

Therefore, in the future studies, scholars can provide a specific teaching design based on the four suggestions, and then design a teaching experiment to check its effect. Besides, they should combine theoretical and practical research on deep learning to conduct the review literature.

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