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研究生硕士学位论文

**思维导图在大学英语阅读中的实证研究**

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Abstract: in English

**Title:** An Empirical Study

# on the Application of Mind Map to College English Reading

**Major:** English Curriculum and Instruction

**Name:** Liu Tao **Signature: Supervisor:** Han Meizhu **Signature:**

**Abstract**

In English learning, reading is a basic means for learners to obtain information. College English Curriculum Requirements has put forward specific requirements on students' reading ability and CET4 also sets for corresponding goals. However, the current teaching effect of college English reading is not satisfied and students' learning methods are improper, which leads to the students' reading comprehension staying on a surface level. As time goes on, students lose interest in English reading and are always reluctant to do reading.

Mind map as a graphical representation of one's thinking process and knowledge, using the whole brain, changes the complicated, boring and monochrome plane words into three-dimensional visual graphics which have clear structure and logic. It increases people's cognition and arouses students' interest and activates students' initiative and then improves the reading ability.

By applying mind map to college English reading, this research aims to explore the following questions:

（1）Compared with traditional English reading teaching, does using mind map in college English reading improve students' reading comprehension ability?

（2）In which aspects does mind map more efficiently improve students' English reading proficiency?

（3）Does the application of mind map to college English reading arouse students' interest and enhance their initiative to English reading?

Two parallel classes from the major of Chinese Language and Literature of Shanxi Normal University of Modern Arts and Sciences are selected as the subjects, with a total number of 105 students who are randomly assigned as experimental class and control class. The experiment lasts for six months. In the experimental class, the teacher uses the mind map

In English reading class, while in the control class the teacher uses the traditional teaching method. Before the experiment, a reading pre-test is conducted in both two classes, it proves that there is no significant difference between the two classes in reading proficiency. Meantime, pre-questionnaires are distributed which aims to learn about students' present learning situation. After the experiment, a reading post-test and post-questionnaires are conducted in order to testify the effectiveness of the application of mind map to college English reading class. SPSS 17.0 is adopted to analyze the data.

The research comes to the conclusion that compared with traditional English reading teaching method, the application of mind map to college English reading could improve students' reading comprehension ability. From the results of questionnaires, it can be concluded that mind map is helpful to deepen students' comprehending to the reading passages and to make students develop a good reading habit. It can promote students' interest and learning initiative to English reading.

**【Key Words】:** mind map; English reading; college students

**【Type of Thesis】:** Application

Abstract: in Chinese

论文题目：思维导图在大学英语阅读中的实证研究专 业：课程与教学论・英语

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摘 要

在英语学习中，阅读是人们获取信息的基本途径。大学英语课程教学要求对学生的阅读能力作出了具体要求，大学英语四级考试也对此提出了相应的要求。然而现行的大学英语阅读教学效果不甚令人满意，学生学习方法不当，导致阅读理解水平停留在对文章内容的浅层理解，久而久之学生对英语阅读失去兴趣，形成被动阅读的习惯。

思维导图作为人们思维过程和知识的一种图形表征方式，充分发挥人左右脑的功能，通过图形、色彩、空间将复杂、无趣的黑白平面信息构建为层次分明、逻辑清晰、可视化的立体图形，极大地提高了人们对事物的认知程度，调动了学生学习的主动性，激发学生英语阅读学习兴趣，最终提高英语阅读能力。

本文通过将思维导图应用于大学英语阅读中，旨在探索以下问题：

（1）与传统教学法相比，思维导图在大学英语阅读中的应用是否可以提高学生的阅读理解能力？

（2）思维导图可以在哪些方面更为有效地提高学生的阅读能力？

（3）思维导图在大学英语阅读中的应用，是否能够增加学生的阅读兴趣和调动学生学习的主动性？

本研究选取ft西师范大学现代文理学院汉语言文学的两个平行班作为实验对象，共105名学生，随机分为实验班和控制班，实验历时六个月。其中实验班采用思维导图教学法，而控制班采用传统教学方法。在实验开始前，对两个班进行了阅读前测，结果证明两个班的学生在阅读能力上没有显著差异，同时还进行了前问卷调查旨在了解学生当前的英语阅读现状。实验结束后，立即对两个班的学生进行了阅读后测和后问卷调查，所得数据用SPSS17.0进行统计分析。

研究结果表明：1.与传统教学法相比，思维导图在大学英语阅读中的应用能够提高学生的阅读理解能力。2.通过问卷调查可以发现，思维导图可以有效地提高学生的阅读能力表现在：它有助于加深学生对文章的理解程度和使学生形成良好的阅读习惯。3.思维导图在大学英语阅读中的应用，增加了学生对阅读的兴趣和学习的主动性。

# 【关键词】思维导图；英语阅读；大学生

【论文类型】应用型

**Tables:**

Tables and Figures

**Tables and Figures**

In Different Levels of School 15

In EC and CC 25

Pre-questionnaires in EC and CC 26

In EC and CC 29

Post-questionnaires in EC and CC 29

**Figures:**

Figure 4-1 Questionnaire Statistical Results of Students’Attitudes in EC (I) 31

Figure 4-3 Questionnaire Statistical Results of Students’Learning Situation

In EC (I) 33

In EC (II) 34

In EC (III) 36

# CC Control Class

Abbreviations

**Abbreviations**

CET- 4 College English Test Band 4

CNKI China National Knowledge Infrastructure EC Experimental Class

EFL English as a Foreign Language PETS 2 Public English Test System 2

SPSS Statistic Package for Social Sciences

Contents

**Contents**

目 录

[Abstract: in English](#_Toc686206993) 2

[On the Application of Mind Map to College English Reading](#_Toc686206994) 2

**[Abstract](#_Toc686206995)** 2

[Abstract: in Chinese](#_Toc686206996) 3

[摘 要](#_Toc686206997) 3

[【关键词】思维导图；英语阅读；大学生](#_Toc686206998) 3

[CC Control Class](#_Toc686206999) 4

[Abbreviations](#_Toc686207000) 4

**[Abbreviations](#_Toc686207001)** 4

**[1.](#_Toc686207002)****[Introduction](#_Toc686207002)** 5

**[1.1](#_Toc686207003)****[Background of the Study](#_Toc686207003)** 5

**[1.2](#_Toc686207004)****[Significance of the Study](#_Toc686207004)** 6

[Teaching and learning approaches in the learning of English reading.](#_Toc686207005) 6

**[1.3](#_Toc686207006)****[Structure of the Thesis](#_Toc686207006)** 6

[About the results.](#_Toc686207007) 6

**[2.](#_Toc686207008)****[Literature Review](#_Toc686207008)** 6

**[2.1](#_Toc686207009)****[The Brief Introduction of Mind Map](#_Toc686207009)** 6

**[2.1.1](#_Toc686207010)****[The Definition of Mind Map](#_Toc686207010)** 6

**[2.1.2](#_Toc686207011)****[The Characteristics of Mind Map](#_Toc686207011)** 6

**[2.1.3](#_Toc686207012)****[The Structure of Mind Map](#_Toc686207012)** 6

[Logicality and relevance of the thinking.](#_Toc686207013) 7

**[2.1.4](#_Toc686207014)****[The Drawing of Mind Map](#_Toc686207014)** 7

**[2.2](#_Toc686207015)****[The Theoretical Basis of Mind Map](#_Toc686207015)** 7

**[2.2.1](#_Toc686207016)****[Brain Science Theory](#_Toc686207016)** 7

**[2.2.2](#_Toc686207017)****[Knowledge Visualization Theory](#_Toc686207017)** 7

**[2.2.3](#_Toc686207018)****[Schema Theory](#_Toc686207018)** 7

**[2.2.4](#_Toc686207019)****[Constructivism Theory](#_Toc686207019)** 8

**[2.3](#_Toc686207020)****[Studies on Mind Map](#_Toc686207020)** 8

[Writing contents.](#_Toc686207021) 8

**[2.3.1](#_Toc686207022)****[Studies on Mind Map Abroad](#_Toc686207022)** 8

**[2.3.2](#_Toc686207023)****[Studies on Mind Map at Home](#_Toc686207023)** 8

**[2.3.3](#_Toc686207024)****[Studies on Mind Map in English Reading at Home](#_Toc686207024)** 8

**[3.](#_Toc686207025)****[Research Methodology](#_Toc686207025)** 10

**[3.1](#_Toc686207026)****[Research Questions](#_Toc686207026)** 10

**[3.2](#_Toc686207027)****[Subjects](#_Toc686207027)** 10

**[3.3](#_Toc686207028)****[Instruments](#_Toc686207028)** 10

**[3.3.1](#_Toc686207029)****[Questionnaires](#_Toc686207029)** 10

**[3.3.2](#_Toc686207030)****[Tests](#_Toc686207030)** 10

**[3.4](#_Toc686207031)****[Research Procedures](#_Toc686207031)** 10

[Have classes in that time.](#_Toc686207032) 10

**[3.4.1](#_Toc686207033)****[The Preparation Phase](#_Toc686207033)** 11

**[3.4.2](#_Toc686207034)****[The Implementation Phase](#_Toc686207034)** 11

**[3.4.3](#_Toc686207035)****[The Post -implementation Phase](#_Toc686207035)** 11

[3.4.4](#_Toc686207036) **[English Reading Teaching Cases of EC and CC](#_Toc686207036)** [Teaching Content: Unit 2 Section A Iron and the Effects of Exercise Teaching Objectives:](#_Toc686207036) 11

**[4.](#_Toc686207037)****[Results and Discussion](#_Toc686207037)** 12

**[4.1](#_Toc686207038)****[Comparison of Pre-questionnaires in EC and CC](#_Toc686207038)** 12

**[4.2](#_Toc686207039)****[Comparison of Post-questionnaires in EC and CC](#_Toc686207039)** 14

[Post-Q 7](#_Toc686207040) 15

**[4.3](#_Toc686207041)****[Comparison of Pre-questionnaires and Post-questionnaires in EC](#_Toc686207041)** 16

**[4.4](#_Toc686207042)****[Comparison of Pre-test in EC and CC](#_Toc686207042)** 18

**[4.5](#_Toc686207043)****[Comparison of Post-test in EC and CC](#_Toc686207043)** 19

**[4.6](#_Toc686207044)****[Pedagogical Implications](#_Toc686207044)** 19

**[5.](#_Toc686207045)****[Conclusion](#_Toc686207045)** 19

**[5.1](#_Toc686207046)****[Major Findings](#_Toc686207046)** 19

**[5.2](#_Toc686207047)****[Limitations](#_Toc686207047)** 20

**[5.3](#_Toc686207048)****[Suggestions](#_Toc686207048)** 20

[Acknowledgments](#_Toc686207049) 20

**[Bibliography](#_Toc686207050)** 20

**[Appendix A](#_Toc686207051)** 21

**[Appendix B](#_Toc686207052)** 24

**[Appendix C](#_Toc686207053)** 27

**[Appendix D](#_Toc686207054)** 29

**[Appendix E](#_Toc686207055)** 29

表格目录

**Table** **2-1** **The Number of Researches on Mind Map in English at Home** 8

Table 2-2 The Number of Researches on Mind Map in English Reading in Different Levels of School 9

**Table** **3-1** **Cronbach**’**s Alpha Coefficient of Questionnaires** 10

**Table** **4-1** **Independent Samples Test for Students**’**Attitudes of Pre-questionnaire in EC and CC** 12

**Table** **4-3** **Statistics of Students**’**Cognition to Mind Map of Pre-questionnaire in EC** 14

**Table** **4-4** **Independent Samples Test for Students**’**Attitudes of Post-questionnaire in EC and CC** 14

**Table** **4-5** IndependentSamples**TestForStudents**’**LearningSituationof Post-questionnaire in EC and CC** 15

**Table** **4-7** **Paired Samples Test for Students**’**Attitudes in EC (II)** 17

**Table** **4-8** **Paired Samples Test for Students**’**Learning Situation in EC (I)** 17

**Table** **4-9** **Paired Samples Test for Students**’**Learning Situation in EC (II)** 18

**Table** **4-10** **Paired Samples Test for Students**’**Learning Situation in EC (III)** 18

**Table** **4-11** **Independent Samples Test of the Pre-test in EC and CC** 19

**Table** **4-12** **Independent Samples Test of the Post-test in EC and CC** 19

# **1.** **Introduction**

As an introduction of this thesis, the author comes up with the background of the study, significance of the study and structure of the thesis.

## **1.1** **Background of the Study**

In the English language learning, reading is an important means for EFL learners to obtain information and exchange thoughts in daily life. To some extent, a language learner's language input relies on his reading ability. Krashen (1988) pointed out directly that other language abilities are the results of meaningful reading and reading is the fountainhead of most vocabulary knowledge, writing styles, advanced grammar ability as well as spelling. In the process of reading, students can not only acquire information, accumulate vocabularies, grasp the sentence patterns and cultivate their writing ability, but also broaden their horizon and know about other countries' culture. As we all know, reading occupies a high proportion in many linguist tests abroad and in China. It can be proved in the College English Test Band 4 or 6 (CET 4/6). In the whole test, the reading comprehension part takes up 35%. Hence, reading plays an important role in college students' English learning.

In the light of College English Curriculum Requirements (2007), reading is set at three levels. For the basic requirements which are the minimum level that all non-English majors have to reach before graduation, students should be able to grasp the main ideas, understand major facts and relevant details and understand texts of practical styles commonly used in work and daily life. They are required to learn to use effective reading strategies. As is known to all, each college student has to pass the College English Test Band 4 before graduation. According to the requirements for CET-4, students should be able to get a correct understanding of major facts and relevant details and then do some summaries, judgments, inferences according to the implicit information, students should be able to command the author's opinions and attitudes and logic relationship of the context.

On the basis of the importance of English reading and the requirements to students, so English reading class should not only complete the task of imparting language points to students and develop their language ability, but also deepen the nature of the reading material and broaden them to help students to obtain information and society news, and then develop students' ability to use English in a well-rounded way.

However, current college English reading situation is not satisfying. Current foreign language teaching puts over emphasis on the communicative competence of language and weakens the language's conveying information and thinking functions (Wen Qiufang, Zhou

Yan, 2006). It could be ascribed to following reasons. First, teachers only see the reading texts as a carrier of some knowledge points and focus mainly on the explaining and training of language points in the teaching process and spend most of the time on the analysis of language points. On the one hand, it leads to students' reading level just staying in the surface meaning of reading materials and lacking of overall grasp to the reading materials. On the other hand, students just get some one-sidedness of knowledge, it can not be applied to the real life and is difficult for the representation and transferring of the knowledge. Second, due to the limited reading class time, many teachers do not focus on the development of students' reading skills. When doing reading comprehension, students tend to do well in the objective questions but they always make errors in the subjective questions which need deep understanding to the passage. Third, English reading course is filled with teacher-based analysis, students are not treated as the learning center and are passively received the new knowledge. This utilitarian teaching approach ignores learners' initiative, inhibits learners' English reading interest, ignores the nature of English reading teaching, and is not helpful to promote learners' reading ability.

Considering above problems in college English reading, the author tries to employ a new way to change the current situations. While through using mind map in college English reading, these problems can be solved effectively. By drawing mind maps, teachers guide students to giving priority to the analysis of passages as a whole then combine with the explaining of language points. The mind map of a reading passage can not only help students grasp the main ideas and know the detailed information and facts, but also can help students quickly understand the logical relationship well and students can make judgments and do some inferences based on their understanding. Besides, due to mind map stressing students' understanding to the passage as a whole, students can grasp well the writing purposes, the author's opinions, attitudes and writing features. In the process of drawing mind maps, students have a better understanding to the passage and at the same time it achieves students' language from input to output which indirectly improves reading efficiency. Therefore, the author hopes to apply mind map to the college English reading to achieve a good reading teaching and learning effect.

## **1.2** **Significance of the Study**

This thesis introduces mind map into the college English reading as a teaching-aided tool and students' learning tool, aiming to testify its feasibility and effectiveness in improving students' reading proficiency, increasing students' interest and initiative and improve the

## Teaching and learning approaches in the learning of English reading.

By applying mind map to the college English reading, it has following significance:

For the students' part, it provides a new learning method for college students and enhances their interest and initiative to English reading. While making mind maps, students need to apply some reading skills such as skimming, scanning instead of traditionally reading word by word. With the features of hierarchical structures, key words, colors, the mind map of a reading passage is clear and vivid, which seems reduce the difficulty of passages and arouses students' interest. Besides, students have to draw mind maps by themselves and communicate with their teacher and partners about what they have drawn, which fully achieves students' learning initiative.

For the teachers' part, the research strives to offer a feasible and effective teaching model for the college English reading. It breaks the traditional teacher-centered class in which there is only input and no output to students. The application of mind map makes the class dynamic and interactive. It really demonstrates teachers' role as a guider, organizer and facilitator under the New Curriculum Reform.

Theoretically, it contributes to the research of college English reading and enriches the theory of mind map. Although there are many researches about the college English teaching, the previous studies are just confined to the theoretical level and there are few empirical researches. It provides frontier-teachers a practical teaching approach and improves the college English reading teaching. It can also give some references to the later researchers.

## **1.3** **Structure of the Thesis**

The thesis falls into five chapters. Chapter One is an introduction of the thesis. First, it is the research background which comes up with the importance of the English reading, College English Curriculum Requirements and the problems in current college English reading. Then it explains the significance of the research. The last is the structure of the thesis.

Chapter Two serves as the literature review. It includes the brief introduction of mind map, theoretical basis of mind map and studies on mind map abroad and in domestic. In the part of introduction of mind map, the author gives the definition and characteristics and structure of mind map, and operations of drawing mind maps.

Chapter Three presents the research methodology comprehensively. It includes research hypothesis, subjects, instruments, research procedures and English reading teaching cases.

Chapter Four is the results and discussion. It describes the data of the pre-questionnaires, post-questionnaires and tests in detail and then does some discussion

# About the results.

Chapter Five draws the conclusion of the thesis. In the meantime, the author puts forward the limitations of the research and comes up with some suggestions for further studies.

# **2.** **Literature Review**

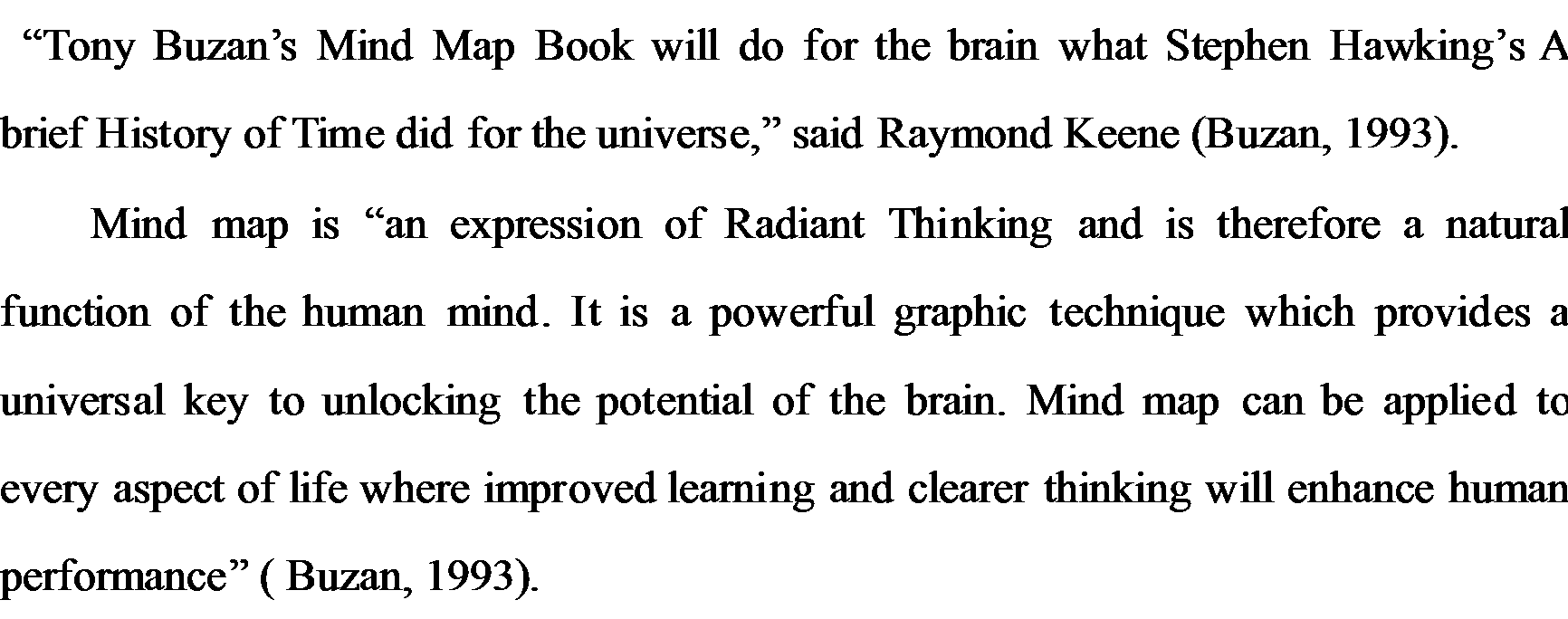
This chapter serves as the literature review. It includes the brief introduction of mind map, theoretical basis of mind map and studies on mind map abroad and in domestic.

## **2.1** **The Brief Introduction of Mind Map**

In this part, the author gives the definition and characteristics and structure of mind map, and then demonstrates the operations of drawing mind maps.

### **2.1.1** **The Definition of Mind Map**

Mind map was first put forward by Tony Buzan, a noted British brain expert, psychologist, educator, who is also the chairman of The Brain Foundation. At first, it was used to help students with learning disabilities to optimize the way taking notes and improve memory. Now mind map can be used for almost all kinds of activities related to thinking, memory, making plans or creating such as essay writing, exams, meeting records, exchanges, lectures, study, work plans and data compilation. It affects 250 million people around the world to help them improve comprehension ability and memory, known as global revolutionary thinking tool, learning tool and management tool of the 21st century.



After Tony Buzan, many other researchers have also defined the mind map. However, they all agree that mind map uses the graphics to organize and elaborate the knowledge, and it is the graphical representation of one's thinking process and knowledge.

### **2.1.2** **The Characteristics of Mind Map**

Buzan points out that mind map has four basic characteristics：

（1）The focus of attention clearly centralize on the central graphic.

（2）Taking the theme as a trunk, the branches radiate from the central graphic to the surroundings.

（3）The branches are constituted by a key graphic or key words written on the lines

Generated by the association, lesser important topics are also manifested in the form of branches, attached to the higher level of branches.

（4）All branches constitute a connective node structure. So a mind map is a tree structure in the performance form.

### **2.1.3** **The Structure of Mind Map**

The basic elements of mind map include central words, curves, nodes, key words, colors, graphics and hierarchical structure.

Central words refer to the main idea to which the mind map is related, it is presented in the form of image. We also call it central graphic. The central words must be words or phrases and be concise as much as possible. The eye-catching central graphics make the learner focus on the central theme without other interference.

Curves: Our brain is easily bored with straight lines, while curves are more natural aesthetic and easy to attract human brain's attention, keywords can also be written on them.



From: [http: //image. so. com/iie=utf-8& src=hao\_360so& q=%E6%](http://image.so.com/i?ie=utf-8&amp;src=hao_360so&amp;q=%E6%25)80%9D%E7%BB%B4%E5%AF%BC%E5%9B%BE

**Figure** **2-1** **Structure of Mind Map**

Nodes: It is the intersection of the trunks and branches.

Key words: They are located on the curves and reflect the main content or propositions so that the logical relationship between the hierarchies is more visible and legible

Hierarchical structure: Mind map divides into different hierarchies which enhance the

### Logicality and relevance of the thinking.

Graphics, symbols, colors and lines will be conducive to the development of the" sleeping right brain" and play the overall function of the brain.

### **2.1.4** **The Drawing of Mind Map**

There are two ways drawing mind map, drawing by hands and drawing by software.

（1）The Procedures of Drawing Mind Map by Hands

Before drawing, all what we should prepare is a blank A4 paper and some color pens.

First, identify and draw the central theme. According to the different content of each reading passage, refine the main idea and then draw it into the middle of the blank A4 paper and leave enough blank around it. It is better to use symbols or pictures in the design as vivid graphics contribute to stimulate the brain and enhance the attraction of mind map.

Second, extend from the center to form branches at all levels. Sub-topics directly related to the central theme, connected with the center by the branch. Then expand the first branch to the second branch and so on. The length of the branches should be the same as the length of keywords or its corresponding key images. If the branch is too long, it will leave much space which would hinder the thinking of brain. According to the different hierarchies, the thickness of branches varies, the higher level branches are thicker than the next level.

Third, add key words to the branch lines. When adding a branch for mind maps, key words should be written on the lines. There is one key word on each curve. The key word must be a word or phrase, avoiding the long sentences which will restrict thinking, while the former can arouse our boundless imagination.

Fourth, check the ready-made mind map to see whether it deviates from the central theme, remove the unneeded branches, add the missing information and try to keep the original mind map.

Fifth, while drawing mind maps, following details should be kept in mind. ①Many

Different colors, images and capital letters should be used as much as possible when drawing the mind map. This conforms to the Brain Science Theory. ②The connection of the central theme and trunks, trunks and branches, and branches and other branches, must use the curves not the straight lines. ③More space should be left in order to supplement more information at any time. One great feature of mind map is that it could add content, because people's thinking will have great changes after a period of time, a lot of excellent mind maps complete through continuously supplementing over a period of time. ④When creating a mind map, students should try to form one's own style, as the mind map will reflect one's own unique

Thinking mode and thinking network. The more personalized mind map is, the more it is likely to be remembered. Furthermore, an individualized mind map can highlight a sense of accomplishment.

（2）Mind Map Software

With the extensive application of mind maps, there are many mind map software such as MindManager, FreeMind, XMind, Inspiration, iMindMap. Each has its own characteristics. We can easily use these software to make mind maps.

Compared to drawing mind maps by hands, the mind map software has powerful functions, rich images, large capacity and fast operating characteristics. However, in the actual teaching process, the hand-drawn method should be taken more, due to its less restrictive conditions, vivid, personalized character and easy to operate in the class. At the same time, it is beneficial to teachers to develop their teaching procedures gradually.

## **2.2** **The Theoretical Basis of Mind Map**

Mind map is based on the Brain Science Theory, Knowledge Visualization Theory, Scheme Theory and Constructivism Theory.

### **2.2.1** **Brain Science Theory**

Dr. Roger Sperry (1968), through the famous split-brain experiment, confirmed the brain asymmetry of" division of left and right brain theory", won the 1981 Nobel Prize in physiology and medicine. In his research about" left and right brain", Sperry points out that the brain separates into left and right and each has its different functions and processes information in different ways. The left brain is mainly engaged in logical thinking, the right brain is mainly engaged in abstract thinking, the storage of right brain is one million times of the left brain. The former deals with numbers, words, logic, sequence, analysis and linearity and so on. While the latter is in charge of the overall consciousness, spatial perception, color, rhythm, imagination, dimensions, daydreaming, etc.

The current education forms mainly focus on reading, writing, calculating and only pay attention to the exploitation of the left brain, while the right brain is basically untapped. The brain science theory shows that the right brain can store and process information more massively and rapidly than that of the left brain. The right brain thinks through the image, it can instantly convert the language, numbers, and smell into the images, and vice verse. However, mind map is a thinking mode of a" whole brain", which combines left brain with right brain, enables the two brain hemispheres develop coordinately and excavates the brain potential fully.

Mind map combines the functions of right brain with left brain, and make one's thinking clearer and makes the boring information be a colorful, easily-remembering, logical picture, which conforms to the natural way of brain thinking. The application of images and colors in mind map conforms to the brain science theory. Meanwhile, drawn mind map is divergent and non-linear, which can activate the right brain and achieve the" whole-brain" thinking. Mind Map not only can arouse students' learning interest and confidence, but also can train brain's synthetic ability.



From: [http: //image. so. com/iie=utf-8& src=hao\_360so& q=%E6%](http://image.so.com/i?ie=utf-8&amp;src=hao_360so&amp;q=%E6%25)80%9D%E7%

B B%B4%E5%AF%BC%E5%9B%BE

**Figure** **2-2** **Characteristics of the Brain**

### **2.2.2** **Knowledge Visualization Theory**

Knowledge visualization refers to using visual representation methods to promote the spread and innovation of group knowledge (Eppler & Burkard, 2004). It is an emerging research area which is based on information visualization, data visualization and visualization in scientific. Vision is an important channel to receive information. It has been proved more than 80% of the human information is acquired through visual sense. It is widely known that it is better to see for oneself rather than to hear for many times, and a picture is worth a thousand words, that is to say, it is very significant to make the abstract things become visual. Visualization technology refers to make the abstract things or processes into graphical

Representation. The external presentation of knowledge has an extremely important influence on the cognition, application and dissemination of its internal content.

Knowledge visualization aims to help people reconstruct, memorize and apply knowledge in a right way and it can also transfer insights, experiences, attitudes, values, expectations, perspectives, opinions, predictions, etc. Its essence is to present people's individual knowledge (cognitive knowledge products) by means of graphics, and thereby form an apparent knowledge forms (the physical knowledge products) which can directly act on human's sense, so as to promote knowledge's obtainment, sharing and renewal. It creates effective conditions for tacit knowledge which can not directly effect on human's sensory, it shows knowledge in a means of graphic form which is explicit knowledge and can directly act on human's senses. While the visual presentation of information and the language form information can enhance memory and recognition. Knowledge in the form of graphically represented, provide a good complement and supplement to language-based understanding, which greatly reduces the cognitive load of language channel, and accelerates the generation of thinking.

Knowledge Visualization theory well supported the research of mind map. In modern society, the sharp increase in the amount of knowledge, knowledge updates at an unprecedented rate, humans urgently need some means and methods which can help them quickly understand and master the knowledge, knowledge visualization exactly meet these demand, and also has an extremely broad application prospects.

### **2.2.3** **Schema Theory**

Anderson believes the Schema Theory is highly refined and generalization to the typical characteristics of similar things, and it is the knowledge in human brain formed interrelated knowledge units around a theme.

The main function of the schema is to illustrate the process of human's understanding of objective things, its basic functions are: (1) Construction. American cognitive psychologist Goodman believes that learning is a process of learners' actively constructing to the internal mental representation, the knowledge is not moved from the outside to the learners' memories, but is based on the existing knowledge and experience, and learners reconstruct the knowledge through the interaction with the outside. In other words, people's understanding of objective things is to use the schema to extract their characteristics, nature and then build links between them. (2) Inference. Learners can use the inner link of the schema's variables to infer the implied and unknown information which plays an important role in acquiring or

Understanding knowledge. (3) Search. Learners can make targets or predictions by utilizing the schema thereby actively seek more relevant information. In the reading process, learners will form plenty of" thinking chunks" and merge into effective cognitive structure. When confronted with problems, learners will search the related thinking chunks in existing cognitive structure, and then analyze, compare, synthesize, and solve the problem which achieves the communication and application of the knowledge. (4) Integration. Learners input the new information into the schema framework, linking to the corresponding variable, and make the variable specific, integrated.

The main function of drawing mind map is intended to illustrate the process of human's understanding of objective things, and reading comprehension is the use of schema to process and assess reading comprehension materials. Cognitive psychology noted that the main mechanism of understanding is that when the clues of reading material activate the schemata in the students' mind, the variables in the schema will be embodied by the information of the reading material, thereby the students will use the schema to assimilate the new knowledge, or to change the old schema in order to accept new knowledge.

### **2.2.4** **Constructivism Theory**

As a significant branch of learning theory in cognitive psychology, Constructivism holds the views that: 1) Learning is a process that learners consciously and actively utilize the prior knowledge by means of teachers, peers, learning materials and tools to filter, absorb and process the outside information. Accommodation and assimilation are two key concepts which create the construction of an individual's new knowledge. 2) Students are the center of learning and their thinking should be respected. 3) Students should interact with other students so that they can learn from each other and they are encouraged to give full play to their initiatives and enthusiasm to study.

Drawing mind map is a process that learners handle new knowledge on basis of the original cognitive structure, their own likes, habits and cognitive to understand the new information actively. It lays emphasis on learners' initiative and active construction of knowledge. Mind Map combines every knowledge points organically and constitute a relatively rich and complete knowledge network diagram, eventually forming a complete knowledge system.

## **2.3** **Studies on Mind Map**

Before writing this thesis, the author has read a considerable number of literature about mind map. By summarizing and evaluating to these literature, the author formed her own

### Writing contents.

### **2.3.1** **Studies on Mind Map Abroad**

In 1960s, Tony Buzan, later known as" Mr. brain", put forward mind map based on the study results of brain science. (Buzan, 1993). In 1971, based upon radiant thinking and mind map, Tony Buzan assembled the results into a book then the mind map gradually came into people's sight and has received widespread attention in academic. Until 1993, Tony Buzan has published more than twenty books, such as" *Mind Map - Radiant thinking"，“The Power of* Creative Intelligence"，”*How to Mind Map"* and so on, then they have been translated into many languages. As the official training institution of mind map, Buzan centers are around the world. Currently, mind map is widely used in the fields of culture, business and education.

In the business, mind map is deeply favored by many world well-known companies. It is used to corporate planning, stuff training and market managing. Take the US Boeing company for example, they use mind map to draw the aircraft maintenance manual, so that the employees with only a few weeks accomplish the work they would spent for years, which save $10 million for the company. The author of the novel" Harry Potter", JK Rowling mind map the plot and the characters of the novel.

Since mind map is introduced into the field of education, it has had a huge impact on education sectors. Especially in Korea, Japan, Germany, and the United States, many educational institutions have applied mind map into the research of primary and secondary education reform. Among them, Singapore and Britain have set mind map as a compulsory course of national elementary and secondary schools, and" Child Mind Map" is the necessary book that young parents must read in Singapore. Harvard University, Cambridge, The London School of Economics and Political Science and other famous universities are using and teaching mind map ( Zeng, 2008).

Mento et al (1999) applied mind map into the teaching of EMBA course and found it could enhance students' learning efficiency, creativity and memory. Goodnough & Long (2002) believed mind map could stimulate students' learning interest and enthusiasm and students can express their opinions and thinking using images and colors. Dhindsa & Kasim (2007) married mind map with the natural science in adult teaching, and drew the conclusion that students' scores who use the mind map are higher than those who applied traditional teaching, and it can minimize the gender differences in academic achievement in science. Farrand (2002) proved mind map is beneficial to students' recall to the facts of written information. Howitt (2009) explored the application of mind map to children's education and

Reached the conclusion that it is better to use real objects to make mind map and it could improve knowledge's sharing and connection. Conole and Weller (2008) found that mind map as a teaching design tool, it can not only achieve the expected goals but also help the designer organize thinking better and share and discuss the thinking with others.

From the above, we can see that the application of mind map abroad is widespread. There are a lot of important findings and achievements in mind map both in theoretical and empirical researches. It shows that mind map developed well abroad and it will become more and more mature in the future studies.

### **2.3.2** **Studies on Mind Map at Home**

Although the research of mind map abroad is relatively mature, it is in initial stage at home. It had some scattered studies until the end of 1990s, which mainly takes place in Hong Kong and Taiwan regions which take mind map as a teaching method to study and practice. Especially in Taiwan, many researchers use mind map to make innovative education experiments and conduct mind map workshops and publish mind map monographs. In mainland of China, the research of mind map in teaching subjects emerges increasingly in recent years. From the book" Learning Revolution" published in 1997, domestic scholars have started to study mind map. Until 2005, Mr. Buzan visited China and organized a series of training activities, mind map was really introduced into China. The research of mind map has also been included in Chinese Fifteenth Plan. At present, except for a small number of secondary schools has been introduced mind map to teaching, using mind map in a large scale in teaching and learning is still in the exploratory stage (Wei, 2010).



**Figure** **2-3** **The Number of Researches on Mind Map at Home**

In order to show the research about mind map at home, the author collects all the data on CNKI. By the end of October, 2015, there are 1519 references of mind map (See Figure 2-3). The first master these came up in 2005, Application of Mind Map in Junior English written by Zhang Dan. From 2005, the researches at home have increased gradually and got the summit of 315 in 2014. It is obviously that mind map has drawn researchers' attention and played a significant role in domestic education.

Through further studying, it is concluded that the studies of mind map in our country mainly focused on three aspects: First, the ontology study of mind map, it refers to the origins, definition, nature, characteristics and theoretical basis of mind map. Second, the application of mind map on pedagogy, it means apply mind map into the teaching practice and knowledge management. Third, the study of mind map software and drawing methods, it is mainly about the introduction of mind map drawing software based on computers. Of all three aspects, it is especially concentrated on the application of mind map to education which involves biology, English, chemistry, geography and other disciplines (Cen, 2011).

### **2.3.3** **Studies on Mind Map in English Reading at Home**

From the data of Table 2-1, the research of mind map in English is relatively few. And these studies mainly focus on English vocabulary, Integrated English, English writing and English review class. However, the research of English reading is very few and most published articles are periodical literature. It lacks of in-depth analysis of master's and doctoral theses and it only has 18 theses on English reading in 10 years which accounts for 1.18% of the total research of mind map and 6.7% of the research of mind map in English. Hence, the study of mind map in English reading is necessary and need more attention.

**Table** **2-1** **The Number of Researches on Mind Map in English at Home**

|  | Mind Map | Involving English | Involving  English Reading | Involving  English Listening | Involving  English Writing | Involving  English Vocabulary |
| --- | --- | --- | --- | --- | --- | --- |
| Masters' Theses &Doctoral  Dissertations | 367 | 72 | 18 | 0 | 10 | 18 |
| Periodical  Literature | 1152 | 195 | 30 | 0 | 14 | 35 |

According to further searching of CNKI, there are only 3 masers' theses and 8 periodical literatures on mind map in college English reading (See Table 2-2). It is obviously that most researches on mind map in English reading concentrated on the junior and senior high schools. Besides, taking college students' characteristics into consideration, they are more adapting to use mind map in English reading class. College students' thinking have matured and are more independent, so they spend less time drawing mind map and the teacher can easily control the class.

Table 2-2 The Number of Researches on Mind Map in English Reading in Different Levels of School

|  | Mind Map in  English Reading | Junior High  School | Senior High  School | College |
| --- | --- | --- | --- | --- |
| Masters' Theses | 18 | 6 | 9 | 3 |
| Periodical Literature | 30 | 3 | 9 | 8 |
| **Total** | 48 | 9 | 18 | 11 |

As for the previous studies on mind map in English reading, Liao(2013) studies the application of mind map in senior high school English reading and put forward the mind map reading modes on the basis of different reading genres. Xia (2013) married mind map with interactive teaching mode in English reading class in high school, and found it is beneficial in stimulating students' reading interest and initiative, and enhancing their reading competence by strengthening the understanding of text as a whole. Zhou (2013) studies the effectiveness of mind map in rural junior high school English reading course. Zhang (2005) did a case study on the application of min map in junior English reading. Wang (2014) explores the effect of mind map on adults' English reading. Cen (2011) confirms that mind map has a positive effect in the promotion of college students' reading competence.

The research of mind map in English teaching in China has following characteristics: First, the researches of mind map in English started late, until 2005 there are some theses about the application of mind map in English, but the development is relatively rapid. Second, studies in English are not balanced, no matter the research content or the research subjects are extremely uneven. The research content focused on vocabulary and Integrated English, writing, reading and listening are clearly insufficient. The research subjects are mainly junior and senior high school students, the college students are very few. Third, the views of mind map are scattered and lack of systematicness. Fourth, there is little specific description of

“

How to use mind map in English teaching", most of these are theoretical, the empirical theses are few. Fifth, there is no mind map reading mode, thus it can not provide a good guide to the English reading teaching. Sixth, it lacks of the evaluation research of mind map in English teaching (Liao, 2013).

Therefore, according to existing research results, based on the analysis of college English reading and the characteristics of college students, the study of mind map in college English reading is feasible and deserved. This study explores the effectiveness of mind map in college English reading.

# **3.** **Research Methodology**

The experimental method and questionnaire method were used in order to test the effectiveness of mind map on college English reading. This chapter will demonstrate the detailed research design.

## **3.1** **Research Questions**

The research applies mind map to college English reading and tries to explore following questions:

（1）Compared with traditional English reading teaching, does using mind map in college English reading improve students' reading comprehension ability?

（2）In which aspects does mind map more efficiently improve students' English reading proficiency?

（3）Does the application of mind map to college English reading arouse students' interest and enhance their initiative to English reading?

## **3.2** **Subjects**

The subjects were from two parallel classes of the major of Chinese Language and Literature in Shanxi Normal University of Modern Arts and Sciences. Class 1 had 53 students and Class 2 had 52 students. Before the experiment, the two classes had a pre-test which showed they were homogeneous. The two classes have been taught by the author of this thesis since March of 2015. Class 1 was assigned randomly as the experimental class, in which mind map teaching was applied in English reading class and Class 2 was the control class, in which the traditional teaching method was applied in English reading class. The experiment was conducted from March of 2015 to October of 2015, lasted for six months. During the experiment, the two classes were taught and used the same books and content and arranged for the same homework.

## **3.3** **Instruments**

Questionnaires were employed to survey students' attitudes, learning situation and cognition to mind map and tests were employed to know about students' English reading proficiency.

### **3.3.1** **Questionnaires**

Questionnaires were designed including pre-questionnaire and post-questionnaire. As there were no ready-made authoritative questionnaires about mind map, the author referred to Chen Yanlin & Liao Xiuhui's questionnaires, the former comes from Central China Normal

University, the latter comes from Minnan Normal University, and both of their theses are excellent. Combined with the aims of this research, the author made some changes under the guidance of her supervisor.

The pre-questionnaire aims to investigate students' attitudes toward English reading, their learning situation and whether they know about mind map before the experiment. The pre-questionnaire was distributed in both EC and CC before the experiment. There are 15 items and they are designed into three dimensions (See Appendix A): Students' attitudes to English reading, Students' present learning situation about English reading, Students' cognition to mind map. Among them, Question1, 2, 3 and 4 belong to the first dimension, Question 5, 6, 7, 8, 9, 10, 11, 12 and 13 are about the second dimension, and Question 14 and 15 belong to the third dimension.

The purpose of post-questionnaire is to check whether mind map makes a difference in students' English reading and how mind map influences students' English reading learning. The post-questionnaire was issued both in EC and CC. Questions 1 to13 in post-questionnaire are the same as Question 1 to 13 in the pre-questionnaire, and Question 14 and 15 in the pre-questionnaire and post-questionnaire are different but they both belong to the third dimension (See Appendix B). Question 16 is an open-ended question which is only presented in post-questionnaires.

Both the pre-questionnaire and the post-questionnaire use Likert five-point scale. Each item has five choices by using" totally agree"，“agree"，”not sure"，“disagree", and" totally disagree" and they are assigned a score from 5 to 1 successively when make statistics. In every item, 5 is the highest score and 1 is the lowest score. To ensure the questionnaires are understood clearly by students, they were designed in Chinese. After sending out the questionnaires, the author explained the demands of finishing them, in order to avoid students' anxiousness, the author noted that there were no absolutely correct answers and students just needed to do it according to their own real conditions.

Before the experiment was conducted, the reliability of pre-questionnaires was tested. In order to test the reliability of questionnaires, the author sent out the questionnaires in two classes in Shanxi Normal University of Modern Arts and Sciences which were the same grade with the experimental class and control class. 93 questionnaires were collected and the author used the Cronbach's Alpha Reliability Coefficient to analyze the data. The results are as follows:

**Table** **3-1** **Cronbach’s Alpha Coefficient of Questionnaires**

Cronbach's Alpha N of Items

0.749 15

It is generally acknowledged that the acceptable Cronbach's Alpha Coefficient should be higher than 0.70. As is shown in Table 3-1, the Cronbach's Alpha Coefficient is 0.749 which is higher than 0.70. Therefore, the questionnaires are qualified and available.

### **3.3.2** **Tests**

Before the experiment, all subjects had a reading comprehension pre-test which aimed to check if there were significant differences in students' English reading proficiency in EC and CC. The pre-test was chosen from Public English Test System 2 (PETS 2) of March, 2009, which is widely known as an English proficiency test for college students, so it has high reliability and validity. Since when the experiment was doing, all subjects were freshmen and in the beginning of their second half year, their English reading level did not get to the level of CET-4. While the difficulty of PETS 2 exactly suited the students' level. The pre-test involves five reading passages and each follows with four questions, 2 scores for each question and 35 minutes are required according to the requirement of PETS 2.

Post-test was held in EC and CC as soon as the experiment was finished. It aimed to compare if there were obvious changes in two classes' English reading scores after applying mind map in EC for a period of time. When experiment was finished, all subjects were in the first term of sophomore, at the time their English reading level almost got to the level of CET-4. Hence, the post-test paper was picked up from the reading comprehension passages of CET-4 in July, 2009. It is because the subjects have little chance to have done the test before. Post-test paper includes four passages, each of the passage follows 5 questions, 2 scores for each question. The test time is 35 minutes in according with CET-4.

Before doing the pre-test and post-test, the students were informed that the tests had nothing to do with their final exam and they just needed to do them carefully. No matter the pre-test or the post-test papers, they were all multiple-choice and were easy to do statistics. All the test papers were graded by the author. The samples of pre-test and post-test papers are displayed in Appendix C and Appendix D.

## **3.4** **Research Procedures**

The experiment lasted for six mouths from March 2015 to October 2015. July and August were not conducted the experiment as it was summer holidays and students did not

### Have classes in that time.

### **3.4.1** **The Preparation Phase**

The first three weeks at the beginning of March 2015 was the preparation phase. The pre-questionnaire and pre-test for students in EC and CC were executed. Besides, training for mind map was also implemented in EC.

In the first place, reading comprehension pre-test for both EC and CC were done in the first class for the sake of confirming whether the two classes were homogeneous. The author of this thesis monitored the examination and graded the test papers on her own. As the preceding section mentioned, the English reading comprehension tests were all multiple choices, so students' scores were objective. Afterwards, the author collected the pre-test scores and made an Independent Samples T-test and discovered that the two classes were at the similar level of English reading. Therefore, it was feasible to conduct the experiment in these two classes.

In the second place, the pre-questionnaire was delivered to all participants. It meant to investigate students' learning attitudes, learning situation and cognition to mind map. The questionnaires were collected on the spot and the author analyzed subsequently by using SPSS 17.0.

Then, before the experiment was implemented, training mind map for subjects in EC was imperative. The teacher introduced mind map to students, completing with what mind map is, its features and functions, mind map software and how to draw mind map by hand and so on. To begin with, the students were given a reading passage to read for a few minutes and find out the main idea. Then the teacher asked students to find out key sentences of the main idea. And afterwards, students found out key words and phrases for the key sentences. Next, the teacher drew mind map according to the key words and phrases of each part. At last, the teacher used the sample mind map to explain the definition, characteristics and functions of mind map. The motivation is that students could understand what mind map is, and how to draw it according to a text vividly.

### **3.4.2** **The Implementation Phase**

This stage was from April 2015 to the end of October 2015, and July and August were summer holidays so experiment did not conduct in these two months. Both the two classes used the same book---New Horizon 2 and 3, Reading and Writing, the second edition, published by Foreign Language Teaching and Research Press. The teaching content and teaching plan were identical except for the teaching method. In the experimental class,

Students were taught by using mind map. While in the control class, students were taught by using the traditional methods. They all had English reading class once a week and learned the identical part in each class. Each class lasted for 90 minutes. In order to avoid the Hawthorne effect, students in EC were not told that they were being studied. Although the students were trained before the experiment, they were not very good at drawing mind maps. At first, students drew mind maps under the teacher's guidance and then they were required to make mind maps by themselves gradually. The detailed implementation procedures will be shown in Chapter 3.4.4.

### **3.4.3** **The Post -implementation Phase**

As soon as the experiment finished, the author held a post-test immediately and issued the post-questionnaire in both classes. The post-test aimed to testify whether there were remarkable changes in EC and CC in their English reading comprehension scores. Apart from the test items, all other procedures were the same with pre-test. As after six mouths' learning, students' English reading proficiency must have enhanced to some extent. For this reason, the difficulty of post-test was improved according to their current condition. The motivation of post-questionnaire is to investigate students' response after using mind map in English reading class. Compared with the pre-questionnaire, a question about students' cognition to mind map is added to post-questionnaire.

### 3.4.4 **English Reading Teaching Cases of EC and CC** Teaching Content: Unit 2 Section A Iron and the Effects of Exercise Teaching Objectives:

1. To distinguish between facts and opinions;

2. To improve the students' reading comprehension;

3. Learn about the relationship between iron and exercise. Teaching Procedures:

（1）Teaching Procedures of EC Step 1 Lead-in

Do you often do exercisesWhatdoyouknowabouttherelationbetweenironandexercise?

Students do brainstorming according to the title of the text and predict the content of text. [Design purposes]: To evoke students' background information which can inspire students' interest and develop their predicting ability.

Step2 Skimming

ⅰ. Students skim the text in ten minutes and find out the main idea of each paragraph by using signal words, first and last sentences.

ⅰⅰ. According to the main idea of each paragraph, the teacher guide students to summarize the structure of the text.

ⅰⅰⅰ. According to the structure of text, students draw the central theme and the first-level branches of the mind map.

[Design purposes]: To train students' skimming ability and develop students understanding the meaning and structure on the textual level.

Step 3 Scanning

ⅰ. Students read the text again for the more detailed information. Give students 15 minutes to search for the following answers individually.



ⅰⅰ. Teacher checks the answers with students.

ⅰⅰⅰ. Guide students to enrich the mind map by transforming these answers into sub-branches.

[Design purposes]: To improve students' ability of obtaining and processing information and students can quickly grasp the main information and remove redundant information.

Step 4 Group discussion

Students discuss in groups, demonstrate and explain their own mind maps to partners. [Design purposes]: Students exchange ideas which can learn from each other and active classroom atmosphere.

Step 5 Language points

Teacher explains the language knowledge points which affect the understanding of text.

Focus on the important points and clarify difficult points.

[Design purposes]: Students learn some basic knowledge points and lay foundation for understanding of the text.

Step 6 Teacher's illustration and students' modification

Teacher displays and illustrates the mind map on projector which she had made before class and then students modify their own mind maps according to teacher's explaining and their new comprehending to the text.

[Design purposes]: Teacher adjusts students' deviation of reading comprehension and makes students have a whole and proper understanding of the text.

Step 7 Topic discussion

Discuss in-depth problems related to the topic.

1. How to remedy or prevent iron deficiency in our daily life?

2. What do you know about the iron?

[Design purposes]: Strengthen students' understanding of the text and further the subject and improve students' cognitive ability.

Step 8 Summary

With the help of mind map, students retell the main information of text and summarize the writing features of the text.

[Design purpose]: Develop students' generalization and organizing ability of language. Step 9 Homework

Do the reading of Section B and draw mind map.

[Design purposes]: The practice of mind map and reading amount in class are far from enough, so the practice after class is necessary.

（2）Teaching Procedures of CC Step 1 Lead-in

Do you often do exercisesWhatdoyouknowabouttherelationbetweenironandexercise?

Step 2 Skimming

ⅰ. Students skim the text in ten minutes and find out the main idea of each paragraph by using signal words, first and last sentences.

ⅰⅰ. According to the main idea of each paragraph, the teacher guide students to summarize the structure of the text.

Step 3 Scanning

ⅰ. Students read the reading passage again and find the answers of these questions.



ⅰⅰ. Teacher checks the answers with students. Step 4 Language points

Teacher explains the language knowledge points which affect the understanding of text.

Focus on the important points and clarify difficult points. Step 5 Topic discussion

Discuss in-depth problems related to the topic.

1. How to remedy or prevent iron deficiency in our daily life?

2. What do you know about the ironStep6Summary

Under the teacher's help, students retell the main information of text and summarize the writing features of the text.

Step 7 Homework

Do the reading of Section B.

# **4.** **Results and Discussion**

In this chapter, the author describes the data of the pre-questionnaire, post-questionnaire and tests in detail and then does some discussion about the results.

## **4.1** **Comparison of Pre-questionnaires in EC and CC**

105 pre-questionnaires were distributed both in EC and CC in the preparation phase and all of them were collected and valid. For the sake of ensuring whether there were obvious differences between the two classes, Independent Samples T- tests were used to analyze the data of two classes' pre-questionnaires based on different dimensions. The pre-questionnaires include three dimensions (the classification of each dimension was described in Chapter 3.3.1). The analysis of each dimension is as follows:

（1）Students' Attitudes to English Reading

This dimension covers the first four questions. As is shown in Table 4-1, the mean values of EC and CC in each question are very close to each other except that the mean score of Question 1 in CC is slightly higher than that of EC. But the P value for each question is respectively 0.085, 0.578, 0.785 and 0.399, they are all higher than 0.05 (P> 0.05), which means there is no evident difference in students' attitudes in pre-questionnaires in the two classes. It can confirm that students' interests and initiative to English reading in the two classes are similar.

**Table** **4-1** **Independent Samples Test for Students’Attitudes of Pre-questionnaire in EC and CC**

Class N Mean Std. Deviation T P

EC 53 2.849 1.133

|  |  |
| --- | --- |
| -1.739 | 0.085 |
| -0.557 | 0.578 |
| -0.273 | 0.785 |
| 0.848 | 0.399 |

Pre-Q 1

Pre-Q 2

Pre-Q 3

Pre-Q 4

CC 52 3.212 0.997

EC 53 2.396 1.149

CC 52 2.519 1.111

EC 53 2.359 1.194

CC 52 2.423 1.226

EC 53 2.811 1.161

CC 52 2.615 1.207

Note: Pre-Q1- Pre-Q4 represent the question numbers in the pre-questionnaire

According to Table 4-1, we can find out that nearly all mean scores of every question in EC and CC are smaller than 3. (" 3“stands for uncertainty. The higher students' score are, the

More students like English reading.) Therefore, we can come to conclusions that most students in both two classes lack of interests in English reading and they do not like current English reading teaching methods, and they seldom do English reading actively and communicate with their peers and the teacher in English reading class. Hence, it is urgent to employ a new method to change students' attitudes to college English reading.

（2）Students' Learning Situation about English Reading

This dimension aims to know about students' present English reading learning situation, including 9 questions from 5 to 13. Table 4-2 displays the results that mean scores of EC and CC in each question are almost similar. The P value of each question is higher than 0.05, which indicates that the difference between EC and CC is not conspicuous in this dimension. **Table** **4-2** Independent Samples **Test** **for** Students' Learning Situation of

**Pre-questionnaire in EC and CC**

Pre-Q 5

Pre-Q 6

Pre-Q 7

Pre-Q 8

Pre-Q 9

Pre-Q 10

Pre-Q 11

Pre-Q 12

Pre-Q 13

Class N Mean Std. Deviation EC 53 3.226 1.235

CC 52 3.423 1.161

|  |  |
| --- | --- |
| T | P |
| -0.841 | 0.403 |
| -0.453 | 0.652 |
| -0.868 | 0.388 |
| -1.167 | 0.246 |
| -0.056 | 0.955 |
| -0.827 | 0.410 |
| -0.665 | 0.507 |
| -0.295 | 0.769 |
| -0.147 | 0.884 |

EC 53 2.849 1.262

CC 52 2.962 1.283

EC 53 2.793 1.215

CC 52 3.000 1.237

EC 53 2.962 1.240

CC 52 3.231 1.113

EC 53 2.642 1.040

CC 52 2.654 1.203

EC 53 2.547 1.170

CC 52 2.731 1.105

EC 53 2.698 1.119

CC 52 2.846 1.161

EC 53 2.340 1.108

CC 52 2.404 1.125

EC 53 2.887 1.266

CC 52 2.923 1.266

Note: Pre-Q5- Pre-Q13 represent the question numbers in the pre-questionnaire

Table 4-2 indicates that the mean scores of Item 5, 6, 7 and 8 both in EC and CC are nearly close to 3, which shows that many students can grasp the theme and main idea, the supporting facts and details of the reading passage, and can understand the logic relationship of the context as well as making some judgments and inference. But as these are the basic requirements for students and nearly all students should get to this level. So some low-achievers still need to improve their ability in these aspects. For the Item 9, 10 and 11, the mean scores are all lower than 3, the results say that students do not do well in these aspects. That is to say, there are a lot of students who have difficulties in appreciating the author's viewpoints, writing intentions and attitudes, as well as organizing and generalizing the content of passages. These aspects are the intermediate requirements for students. Only students get to this level, can they have a good command of the reading passages. However, we can see that most of the students can not reach this level. As for item 12 and 13, we can see that there is a few students who draw the charts and use reading strategies to help them understand the logic and structure of the passages. It is easy to find out that most of the students do not have proper learning methods while reading.

From the Table 4-2, we can see that students' present learning situation is not so good as we imagine. Most students only have a shallow understanding of the passage. Once meeting the subjective questions, they tend to making errors. For the reason, it is urgent to utilize a new method to change this situation.

（3）Students' Cognition to Mind Map of Pre-questionnaires

Item 14 and 15 were only delivered in EC as CC did not use mind map in the English reading class. We can find out that no one has ever known better about mind map. 6.7% of students may have heard about mind map but never use it. Therefore, we can do experiment in EC.

**Table** **4-3** **Statistics of Students’Cognition to Mind Map of Pre-questionnaire in EC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Agree |  |  |  | Disagree |
| Pre-Q14. I know mind map. 0.0% Pre-Q15. I am very willing to accept | 0.0% | 6.7% | 72.4% | 20.9% |
| a novel and interesting teaching  22.5% | 46.9% | 23.6% | 4.2% | 2.8% |

Title

Totally

Agree Not Sure Disagree

Totally

Method used in college English reading class.

Note: Pre-Q14 and Pre-Q15 represents the question numbers in the pre-questionnaire

On the subject of using a new and interesting method to English reading teaching and learning, 69.4% of students in EC are in favor. There are also 23.6% of students who are not sure, which indicates that they have no confidence in English reading. Thus these students are in need of a new way to improve their confidence in English reading.

According to the results of pre-questionnaires, we can conclude that many students in both classes are not interested in English reading and most of students dislike the traditional teaching method. As is known, interest is one's best teacher. Hence, it is imperative to arouse students' interest in English reading class. Only this can they like and learn English reading. As a result, students seldom do English reading actively and even the preview of the reading lesson. There are few students who often communicate with the teacher and classmates on their learning, which violate the New Curriculum Standard that require to develop students' initiative fully and students are the learning center and teachers are their guiders and facilitators. So it is necessary to change this situation. On the subject of the situation of students' English reading comprehension, nearly a half of them could get the lower level. Therefore, it is easy to find that in the traditional teaching, students' comprehension to English reading passage is shallow and not comprehensive. Taking all these into consideration, it is time to take measures to change the present situation. To our happiness, from students' answers, we learn that no one in EC has ever used mind map and most of them are glad to accept a new teaching method in their learning.

## **4.2** **Comparison of Post-questionnaires in EC and CC**

To find out whether the students of EC and CC showed significant differences after the experiment, Independent Samples Test were used.

（1）Students' Attitudes to English Reading

From Table 4-4, we can see that the mean scores of EC are all higher than that of CC in every question in post-questionnaires. The difference of mean scores in each question in post-questionnaires is respective 0.473, 0.894, 0.763 and 0.838, which are all higher than that of pre-questionnaires. Besides, the results say that the values of std. deviation in EC is all lower than that of CC, which suggests that students' scores in EC are more centralized than that of CC.

**Table** **4-4** **Independent Samples Test for Students’Attitudes of Post-questionnaire in EC and CC**

Class N Mean Std. Deviation

|  |  |
| --- | --- |
| T | P |
| 2.180 | 0.032 |
| 3.852 | 0.000 |
| 3.153 | 0.002 |
| 3.540 | 0.001 |

EC 53 3.434 1.102

Post-Q 1

Post-Q 2

Post-Q 3

Post-Q 4

CC 52 2.961 1.118

EC 53 3.472 1.109

CC 52 2.577 1.265

EC 53 3.321 1.145

CC 52 2.558 1.327

EC 53 3.415 1.161

CC 52 2.577 1.262

Note: Post-Q1-Post-Q4 represent the question numbers in the post-questionnaire

Table 4-4 indicates that the differences are remarkable at the level of 0.032, 0.000, 0.002, 0.001. In other words, compared with the students of CC, students of EC have changed their attitudes to English reading. Combined with the mean scores of each question, we can see that students of EC become interested in English reading and become active in English reading class.

（2）Students' Learning Situation about English Reading

Table 4-5 displays that the mean scores of EC are all higher than that of CC in each question. The P values of all questions are far lower than 0.05, namely, there exist significant differences in the two classes' learning situation after the experiment. Combined with the mean scores of each question, we can see that students' comprehending to the reading passages promoted a lot. It further confirms that the application of mind map in college English reading contributes to students' comprehending to the reading passages.

**Table** **4-5** Independent **Samples Test For Students**’**Learning Situation of Post-questionnaire in EC and CC**

|  |  |  |  |
| --- | --- | --- | --- |
| Class | N | Mean | Std. Deviation T P |
| EC | 53 | 3.901 | 1.024 |
| CC | 53 | 3.462 | 1.111 |
| EC | 53 | 3.660 | 1.159 |
| CC | 53 | 3.058 | 1.243 |

Post-Q5 2.131 0.035

Post-Q 6 2.570 0.012

## Post-Q 7

Post-Q 8

Post-Q 9

Post-Q 10

Post-Q 11

Post-Q 12

Post-Q 13

Class N Mean Std. Deviation EC 53 3.623 1.197

CC 52 3.039 1.171

|  |  |
| --- | --- |
| T | P |
| 2.528 | 0.013 |
| 2.260 | 0.026 |
| 2.533 | 0.013 |
| 2.544 | 0.012 |
| 2.332 | 0.022 |
| 2.904 | 0.005 |
| 2.276 | 0.025 |

EC 53 3.359 1.226

CC 52 2.846 1.092

EC 53 3.359 1.194

CC 52 2.789 1.109

EC 53 3.679 1.156

CC 52 3.096 1.192

EC 53 3.340 1.126

CC 52 2.804 1.217

EC 53 3.189 1.272

CC 52 2.510 1.102

EC 53 3.472 1.187

CC 52 2.922 1.278

Note: Post-Q5-Post-Q13 represent the question numbers in the post-questionnaire

Table 4-4 and Table 4-5 turn out that there exist remarkable differences between the two classes in the first and second dimensions, it can be come to a conclusion that students' attitudes to English reading and learning situation about English reading in EC and in CC are very different.

## **4.3** **Comparison of Pre-questionnaires and Post-questionnaires in EC**

In order to answer the second research question: in which aspects can mind map more efficiently improve students' English reading proficiency, comparisons between pre-questionnaires and post-questionnaires in EC were made.

（1）Students' Attitudes to English Reading

The changes on students' attitudes before and after the experiment are shown in the following figures:

Question 1 and Question 2 are designed to research students' interests in English reading. For Item 1, the proportion of students choosing" Totally agree" and" Agree" increases from 34.4% to 59.5%, and" Disagree" and" Totally disagree" reduces from 32.5% to 18.8%. For Question 2, in the post-questionnaire, the proportion of" Totally agree" and

“Agree" are respectively 22.4% and 35.9%, which is far higher than the pre-questionnaire's 5.5% and 11.4% (See Figure 4-1). It reveals that using mind map in experimental class greatly arouses students' interest in English reading. Besides, it is clear that students like the teaching and learning method of mind map.



**Figure 4-1 Questionnaire Statistical Results of Students’ Attitudes in EC (I)**

In order to confirm the changes of students’ interests in English reading, the author deals with the questionnaire data with Paired Samples Test of SPSS 17.0. From Table 4-6, we know that the P values of Question 1 and 2 are respectively 0.006 and 0.000, both are smaller than 0.05. Combined with the results in Figure 4-1, it is easy to find out that students in experimental class enhance their interests in English reading after the experiment.

|  |  |  |  |
| --- | --- | --- | --- |
|  | N | Mean | Std. Deviation T P |
| Pair 1: Pre- Q1 | 53 | 2.849 | 1.133 |
| Post- Q1 | 53 | 3.434 | 1.118 |
| Pair 2: Pre- Q2 | 53 | 2.396 | 1.149 |
| Post- Q2 | 53 | 3.472 | 1.109 |

**Table 4-6 Paired Samples Test For Students’ Attitudes in EC (I)**

-2.840 0.006

-4.646 0.000

Question 3 and Question 4 are designed to investigate students’ initiative in English reading. As for Question 3, comparing to the pre-questionnaire’s 20.4% of “Totally agree” and “Agree”, the proportion of “Totally agree” and “Agree” in post-questionnaire is much higher and is 56.3%. In the post-questionnaire, the option of “Disagree” and “Totally disagree” take

up 30.1% while 61.8% in pre-questionnaire, which decreases nearly a half. As for the Question 4, 57% of students can communicate with their English teacher and classmates actively in English reading class after experiment. While 25.2 % of students could actively communicate with their teacher and classmates before experiment, which indicates that using mind map in college English reading could improve students’ initiative and enable most students do English reading actively instead of passively.



**Figure** **4-2** **Questionnaire Statistical Results of Students’Attitudes in EC (II)**

In order to confirm the above results further, Paired Samples Tests were adopted. The P values of Pair 1 and 2 are respectively 0.001 (P<0.05) and 0.010 (P<0.05), which shows there are striking differences between pre-questionnaires and post-questionnaires in the experimental class (See Table 4-7). That is to say, students are more likely to do English reading and communicate with their teacher and peers actively in class after experiment.

|  |  |  |  |
| --- | --- | --- | --- |
|  | N | Mean | Std. Deviation T P |
| Pair 1: Pre- Q3 | 53 | 2.359 | 1.194 |
| Post- Q3 | 53 | 3.321 | 1.145 |
| Pair 2: Pre- Q4 | 53 | 2.811 | 1.161 |
| Post- Q4 | 53 | 3.415 | 1.161 |

**Table** **4-7** **Paired Samples Test for Students’Attitudes in EC (II)**

-3.591 0.001

-2.692 0.010

Compared with pre-questionnaire, from the results of post-questionnaire, we can conclude that more than 50% of students in experimental class think they are interested in

English reading and they prefer to the teacher using mind map in English reading. The application of mind map inspires students' interests and enables them to do more English reading actively. It also makes students do more communication with their teacher and partners when drawing mind map. As students need to explain their mind maps to partners and the teacher also need to know about students' mind map so that she can monitor the whole class. This enhances students' initiative greatly and makes students participate in classroom more. Only in this way can students experience the joy of learning, can they like learning English reading. Therefore, the results of post-questionnaire can answer the third research question putting forward in Chapter 3.1.

（2）Students' Learning Situation about English Reading

The changes on students' learning situation before and after the experiment are shown in the following figures:

Question 6 and 7 are set to know about students' comprehending level to the reading passages before and after the experiment. For the Question 6, we can learn that in the post-questionnaire, the proportion of students choosing" Totally agree" and" Agree" add up to 68.4%, which is significantly higher than that of 33.4% in pre-questionnaire. The proportion of" Disagree" and" Totally disagree" cut down 20.3%. So we can reach a conclusion that the application of mind map to college English reading contributes to the deeper comprehension to the passages.



**Figure** **4-3** **Questionnaire Statistical Results of Students’Learning Situation in EC (I)**

On the subject of logic relationship of context (Question 7), 42% of students can not make themselves clear in the traditional teaching, while after using mind map, 67.7% of

Students think they could clear their thoughts when reading, which reveals that under the guiding of mind map, students have a full understanding to the writing structure of passages.

In order to make the results be more persuasive, Paired Samples Test of EC in pre-questionnaire and post-questionnaire was employed. The following Table 4-8 is the statistical results. We can see that the differences between the pre-questionnaire and post-questionnaire of Question 6 and 7 are respectively 0.811 and 0.830 on mean scores. The P values of Question 6 and 7 are respectively 0.001 and 0.000, both of them are far smaller than 0.05. Therefore, we can conclude that students in the experimental class have a great progress in their comprehending level to the reading passages by using mind map in their English reading.

**Table** **4-8** **Paired Samples Test for Students’Learning Situation in EC (I)**

N Mean Std. Deviation T P

|  |  |  |  |
| --- | --- | --- | --- |
| Pair 1: Pre- Q6 | 53 | 2.849 | 1.262 |
| Post- Q6 | 53 | 3.660 | 1.159 |
| Pair 2: Pre- Q7 | 53 | 2.793 | 1.215 |
| Post- Q7 | 53 | 3.623 | 1.197 |

-3.573 0.001

-4.285 0.000

Question 9 and 11 are set to survey students' comprehending level to the reading passages before and after the experiment.



**Figure** **4-4** **Questionnaire Statistical Results of Students’Learning Situation in EC (II)**

From the results of the survey, we can learn that students who can better know the

Author's viewpoints, intentions and attitudes account for 54.3% in post-questionnaire and while it is 31.3% in pre-questionnaire. After the experiment, the proportion of students who can organize the words and sentences to summarize what they have learned increases from 25.8% to 50.1%. Only 23.1% of students have difficulty in generalizing and organizing the passages.

In order to make sure whether there are obvious changes in students' comprehending level, the author conducted Paired Samples Test on the pre-questionnaire and post-questionnaire of EC. The following Table 4-9 is the statistical results. We can see that the differences between pre-questionnaire and post-questionnaire on the mean scores of Question

9 and 11 are respectively 0.7170 and 0.6415. The P values of Question 9 and 11 are respectively 0.002 and 0.004, both of them are far smaller than 0.05. Therefore, we can draw a conclusion that the application of mind map to college English reading enable students to grasp the author's writing intention and attitude better and students could have a good generalizing and organizing ability and then improve their comprehending level to the reading passages.

**Table** **4-9** **Paired Samples Test for Students’Learning Situation in EC (II)**

N Mean Std. Deviation T P

|  |  |  |  |
| --- | --- | --- | --- |
| Pair 1: Pre- Q9 | 53 | 2.642 | 1.040 |
| Post- Q9 | 53 | 3.359 | 1.194 |
| Pair2: Pre- Q11 | 53 | 2.698 | 1.119 |
| Post- Q11 | 53 | 3.340 | 1.126 |

-3.242 0.002

-3.022 0.004

Question 12 and 13 are set to investigate students' learning habits after using mind map. Figure 4-5 shows that 49.3% of students would use mind map actively to help them understand in their spare English reading, while there are only 17.4% of students adopting other ways to help them understand the reading passage in pre-questionnaire. On the topic of reading strategies, the proportion of students choosing" Totally agree" and" Agree" is as high as 58.3% in post-questionnaire and it increases 22.5% than that of pre-questionnaires. It demonstrates the process of drawing mind map urges students develop a good reading habit of adopting effective reading strategies and using mind maps.



**Figure** **4-5** **Questionnaire Statistical Results of Students’Learning Situation in EC (III)**

In order to confirm the changes of students' learning habit in English reading, the questionnaire data was processed by SPSS 17.0 with Paired Samples Test. From Table 4-10, we know that the P values of Question 12 and 13 are respective 0.001 and 0.027, both are smaller than 0.05. Therefore, there are conspicuous changes after the experiment. Combined with the results in Figure 4-5, it is easy to find out that students think mind map is a good learning method and they prefer to use it in their English reading.

**Table** **4-10** **Paired Samples Test for Students’Learning Situation in EC (III)**

N Mean Std. Deviation T P

|  |  |  |  |
| --- | --- | --- | --- |
| Pair 1: Pre- Q12 | 53 | 2.340 | 1.108 |
| Post- Q12 | 53 | 3.189 | 1.272 |
| Pair 2: Pre- Q13 | 53 | 2.887 | 1.266 |
| Post- Q13 | 53 | 3.472 | 1.187 |

-3.704 0.001

-2.271 0.027

From the results of item 5, 6,7,8,9,10,11,12 and 13, we learn that through the guidance of mind map, there are more students in experimental class who can have a good command of the theme, main ideas and supporting details and facts of the reading passage. In the process of making mind map, more than 60% of students could master clearly the logic relationship of the context and do some judgments and inference based on their understanding to the passage. Nearly 50% of students think they could grasp the author's opinions, writing intention and attitude as well as writing features, which are the intermediate requirements of English reading. It also indicates that the application of mind map in English reading enhances

Students' reading depth and validity. Before the experiment, most students think they do not know clearly what they have learned, while after the experiment, after finishing a reading passage, nearly 50% of students think they can organize the words and sentences to generalize what they have learned. What's more, many think they develop a good habit of drawing mind map and adopt effective learning strategies in their other English reading. As an old saying goes," To teach one how to fish rather than just giving one a fish". So mind map is turned out to be a good learning and teaching method. These results can answer the second research question putting forward in Chapter 3.1.

（3）Students' Cognition to Mind Map of Post-questionnaires

Question 14 and 15 were designed to investigate students' opinions on mind map after using it for a period of time. From the results of the survey, we can see that 47.9% of students think making mind map easy, while 25.3% of students think it is a little difficult for them to draw mind map. Although there are 21.0% of students who dislike using mind map in English reading, 43.9% of students hope the teacher continue to use mind map in later teaching, which shows mind map do play an important role in the teaching and learning of English reading.



**Figure** **4-6** **Questionnaire Statistical Results for Students’Cognition in EC**

Question 16 is an open-ended question aiming to survey students' opinions and suggestions on mind map in College English reading. The author does some qualitative analysis to students' answers. We can learn that most students in experimental class think they prefer to mind map than the traditional teaching method. They want to learn more about mind map so that they could use it into their other classes. While some students think making mind map spend their much time in class and a few students think they can not draw a mind map without the teacher's help. Others hope the teacher could spend more time on the explaining

Of new words, sentences and some difficult grammars.

On the subject of the mind map itself, most of students think it is easy to make English reading mind maps, but a few think they have difficulty in it. Although several students do not agree, more than a half students hope the teacher continues to use mind map in English reading. As for the advice, some students put forward that it costs them a lot time drawing mind map in class and others think they need the help of teacher to finish their mind maps. Some hope the teacher would explain more grammar and vocabularies. If we take all students' learning condition into consideration, it is impossible. As we all know, students draw mind map on their own, so there is a little difficulty for the students whose English foundation is not good. Besides, in the traditional teaching, students get used to listening teachers' explaining and seldom do it by themselves, so at the beginning of the new method, they would feel hard to finish the mind map by themselves. Apart from this, to some students, their foundation is not so good that they can not read the reading passage without the teacher's help. So they demand the teacher to teach more basic knowledge.

## **4.4** **Comparison of Pre-test in EC and CC**

In the preparation phase, a reading comprehension test was done in EC and CC. The purpose of this test was to confirm whether the two classes had the same academic level in English reading. All test scores were processed by SPSS 17.0. The following table is the statistic results.



**Figure** **4-7** **Score Distribution of Pre-test in EC and CC**

In Figure 4-7, the vertical axis represents the number of students and the horizontal axis

Represents the reading scores. We can learn that the number of students in EC whose score is between 14 and 18 is one more than it in CC. Two students in each class got a score above 32. Nearly a third of students' scores are between 20 and 24, the score between 26 and 30 takes up a third (the total score is 40). It can be seen that students' foundation in English reading in both classes is not so good as the cut-off score is 24. There is no significant difference in the distribution of students' score in the two classes.

**Table** **4-11** **Independent Samples Test of the Pre-test in EC and CC**

Class N Mean Std. Deviation T P

|  |  |  |  |
| --- | --- | --- | --- |
| EC | 53 | 24.302 | 4.029 |
| CC | 52 | 24.923 | 3.910 |

-0.802 0.425

In order to ensure the experiment carrying out under a equal prerequisite, Independent Samples Test was used to testify if there existed differences between the two classes. According to Table 4-11, the mean score of EC is 24.302, which is approximate to 24.923, the one in CC. Standard deviation in EC is 4.029, whereas it is 3.910 in CC. We can see that the degree of dispersion in EC is bigger than that in CC. P value is 0.425, which is higher than

0.05. Therefore, there is no remarkable difference in the reading proficiency of the two classes before the experiment. It shows that the reading proficiency of the two classes before experiment is on the similar level.

## **4.5** **Comparison of Post-test in EC and CC**

As soon as the experiment was finished, a reading post-text was conducted, which aimed to check whether there were significant changes in the two classes' reading scores after using mind map for a period of time.

From Figure 4-8, we can see that there are respectively 2 and 4 students in EC and CC whose scores are under18. 4 students in EC and 2 students in CC got scores above 32. For the low scores and higher scores, there is little difference in EC and CC. But the number of students whose score are between 20 and 24 is 19 in EC and 25 in CC. The number of students whose score are between 26 and 30 is 28 in EC and 21 in CC. It indicates that in EC students' scores are mainly centralized in the section of 26 and 30, while in CC students' scores are mainly distributed in the phase of 20 and 24.



**Figure** **4-8** **Score Distribution of Pre-test in EC and CC**

In order to make the results be more persuasive, Independent Samples Test of the post test in EC and CC is necessary and important.

**Table** **4-12** **Independent Samples Test of the Post-test in EC and CC**

Class N Mean Std. Deviation T P

|  |  |  |  |
| --- | --- | --- | --- |
| EC | 53 | 27.170 | 2.335 |
| CC | 52 | 24.154 | 3.670 |

5.034 0.000

From Table 4-12, we can see that the mean score of EC is 27.170, which is higher 3.016 than that of CC. Standard deviation of EC is 2.335 while 3.670 in CC, which indicates that the degree of dispersion is larger in CC. The P value is 0.000, which is far much smaller than 0.05. Hence, there are conspicuous differences in two classes' reading proficiency. Combined with the mean score, we can conclude that the application of mind map in English reading class is helpful in promoting students' reading ability.

The two tests have proved that students in EC had a better performance in the reading comprehension than the students of CC after the application of Mind Map. This result can answer the first research question in chapter 3.1. From the Figure 4-8, we can find that the change in the low phase (scores are between 14 and 18) and high phase (scores are between 32 and 34) is not obvious in EC and CC. While the change is remarkable in the intermediate phase (scores are between 20 and 30), which means mind map has a great influence on the average students. To those low-achievers, there is also progress, as the lowest score is 14 in

Pre-test and whereas in post-test there is only one student getting a score of 16. It should make great progress after using mind map for a long time. After all, not all students learn efficiently. To the top students, the progress is a little as they can understand the passage well without the application of mind map and some of them think it would be a waste of time in making mind map. While some students think they spend plenty of time in drawing mind maps. Therefore, teachers can make the top students help the students who have difficulty in making mind maps.

## **4.6** **Pedagogical Implications**

Through six-month experiment, the researcher, also the teacher of EC and CC, gains some implications which are helpful to further college English reading teaching and learning.

First, the teacher should respect students' individual difference. When making mind maps, students are likely to draw different mind maps although the reading passage is the same. Taking students' personality differences and cognitive differences into consideration, the teacher should allow and encourage different mind maps. As the mind map can reflect one's own unique thinking mode, the more personalized one's mind map is, the more it is likely to be remembered by students. Furthermore, students' differences contribute to the development of creativity.

Second, students are encouraged to do more English reading after class. Although the study proved that the application of mind map could improve students' reading comprehension ability, it still needs more practice. English reading is an input process, which can not make great progress without long time learning and practice, so teachers should request students do more English reading by employing mind maps so that they could have a solid foundation for further learning.

Third, the teacher should bear in mind that students are the learning centers and teachers play a role of instructor and facilitator. In the process of teaching, students are required to draw mind maps by themselves instead that teachers draw the mind maps on the blackboard while students look at the teacher. Only students do it on their own, can they master the reading passage more deeply and comprehensively. Then they would not think the reading difficult and then become interested in English reading.

# **5.** **Conclusion**

Based on the above data collection and analysis, it can be summed up that the research aims have been basically achieved and the three research questions have been answered with satisfaction. In this part, the research conclusions are presented and the author also puts forward some limitations of the study and suggestions for further studies.

## **5.1** **Major Findings**

First, the application of mind map to college English reading can improve students' reading comprehension ability. From the data of post-test, it is evident that the reading score of EC is higher than that of CC. Mind map presents the knowledge by a structure of graphics, key words, branches and colors. It turns boring information into a colorful, easy to remember, highly organized diagram, which is in line with the working principle of the human brain. With mind map, students can build the original monochrome plane information into colorful, three-dimensional graphics, which contributes to better understanding the deep content and structure of reading material.

Second, the application of mind map to college English reading can deepen students' comprehending to the reading passages and make students develop a good reading habit. Through mind map, students can comprehend the text in a whole and their understanding of the text more deep and comprehensive. The mind map of a reading passage can clearly show the theme in the center and main ideas in the first-level branches, then presenting the supporting details and facts in sub-branches. Once a mind map finishes, the logic relationship of the context is so clear that students can do some judgments and inference according to it. Then adding to the teacher's explaining to the important and difficult knowledge points, under the guidance of teacher, students can have a good command of the author's viewpoints, writing intention, attitudes and writing features instead of focusing on the translation of long sentences. Besides, it could make students develop a good reading habit by adopting effective reading strategies and using mind map in usual English reading.

Third, mind map in college English reading can promote students' interests and initiative to English reading. According to the comparison results of pre-questionnaires and post-questionnaires and students' classroom performance, it can be proved that students' attitudes to English reading have changed a lot. Some students do not think English reading sophisticated, they become interested in English reading. Furthermore, it is not difficult to find that in EC, students' learning initiative has improved much. Most students begin to do reading actively and they interact with their teacher and peers in class much more than what

They did before. After six-month experiment, the majority of students in EC think mind map is easy to use and they hope the teacher could continue to apply mind map in the English reading class. Some students have formed a habit of consciously using mind map in the later English reading.

## **5.2** **Limitations**

Although this paper is a more comprehensive and in-depth study and the author put much effort on it, there exist some problems to be further improved, due to the limited time, energy and capacity.

First, the experimental duration is too short. The experiment lasts for only six months. It needs a long-term process to receive and get familiar with mind map for students. So it is a little hasty to make students freely use mind map in a short time. Apart from this, English reading is an input process, which can not make great progress without long time learning, so mind map may not exert effect on students immediately.

Second, the range and the number of subjects are narrow. The experiment is just tested on two parallel classes in the major of Chinese Language and Literature in Shanxi Normal University of Modern Arts and Sciences. It fails to test on students of other majors, grades and different universities. There is only 105 subjects in this study, and the number of subjects is too small. They do not represent all college students in China, so the mobility of the research conclusions remains to be further studied and verified.

Third, drawing mind maps is time-consuming, it would likely to influence the effectiveness of English reading teaching. Due to the restriction of teaching period and teaching task, students can not spend much time in making mind maps. Sometimes the teacher has to present the previously setting mind map. Besides, some students are rarely able to consciously use mind map in their reading and quite a few consider making mind maps a bit difficult.

Fourth, the evaluation methods are not comprehensive. Questionnaires and reading tests are used to evaluate students' performance. However, mind map drawn by students can present the process of thinking and exhibit their thinking trace. Therefore, mind maps drawn by students in class should be considered as an evaluation means. Formative assessment and summative assessment should be combined to test the validity of experiment.

## **5.3** **Suggestions**

According to the author's experience, there are some points to be noted by later researchers:

First, the reading mode of mind map can not be stereotyped. Mind maps should be made based on the genre and content of the text, students' age and personality. For lower grade students, more graphics should be adopt to make mind maps so that students can understand better and enhance their interests. For senior students, they can use the key words more to make a mind map, which conform to their thinking characteristics and also can save time. In class, students' individual differences should be respected, and teachers should encourage students to develop their brain and participate in making mind map actively. It is helpful to demonstrate the role of mind map flexibly and fully and also can change the traditional reading teaching, which really realizes the interaction between students and the reading texts, teachers and students.

Second, the evaluation methods should be diverse and summative assessment and formative assessment should be combined. In the application of mind map to English reading teaching, except the reading test scores, mind maps drawn by students in class should be regarded as an important evaluation method. Besides, if a teaching method is long-term used, students are likely to lose interest, so mind map should be used combining with other teaching approaches.

Third, mind map software should be more used in future researches. With the popularity of mind map at home, lots of mind map software have been developed and brought into China, such as Mind Mapper, iMindMap, Mind Manager, and Inspiration. These software are easy to operate, time-saving and vivid, which can arouse students' interest. Hence, in the future studies, mind map software should be combined with the mind maps drawn by hand.

Fourth, the study only relates to mind map in college English reading, and for the application of mind map to vocabularies, grammars, writing teaching and other subjects teaching and learning are still to be further studied. In addition, the experimental duration hope to be longer and the subjects can cover more students in other majors and different grades and universities. It is better to reduce the influence of some control variables to a minimum level as far as possible.

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**Appendix A**

**英语阅读学习状况调查问卷**

亲爱的同学：

你好！本问卷旨在了解目前你大学英语阅读的学习状况，你的回答对我们的研究工作具有重要的参考价值，所以请你认真回答每一个问题，问卷中所有的选项没有正误之分，请根据自己的实际情况在代表答案的选项上打“√”。

班级：性别：姓名：

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 题目 | 非常同意 | 同意 | 不确定 | 不同意 | 非  常不同意 |
| 1.我喜欢英语阅读。 |  |  |  |  |  |
| 2.我很喜欢目前的英语阅读教学方法。 |  |  |  |  |  |
| 3.我经常主动阅读英语文章。 |  |  |  |  |  |
| 4.在英语阅读课堂上，我经常与老师、同学沟通交流。 |  |  |  |  |  |
| 5.阅读英语文章时，我能掌握所阅读材料的主旨和大意。 |  |  |  |  |  |
| 6.阅读英语文章时，我能了解阐述主旨的事实和细节。 |  |  |  |  |  |
| 7.阅读英语文章时，我能理解上下文的逻辑关系。 |  |  |  |  |  |
| 8.阅读英语文章时，我能根据所读材料进行一定的判断和推  论。 |  |  |  |  |  |
| 9.阅读英语文章时，我能领会作者的观点、意图和态度。 |  |  |  |  |  |
| 10.阅读英语文章时，我能很好地了解文章的写作特点。 |  |  |  |  |  |
| 11.阅读英语文章时，我能对文章内容进行很好地组织和概  括。 |  |  |  |  |  |
| 12.阅读英语文章时，我会采取有效的阅读策略。 |  |  |  |  |  |
| 13.阅读英语文章时，我会通过列图表的方式来帮助理解文章  的逻辑关系、篇章结构。 |  |  |  |  |  |
| 14.我非常了解思维导图。 |  |  |  |  |  |
| 15.如果英语阅读课采用一种新颖而有趣的教学方式，我非常  乐意接受。 |  |  |  |  |  |

**Appendix B**

**英语阅读学习状况调查问卷**

亲爱的同学：

你好！本问卷旨在了解你目前大学英语阅读的学习状况，你的回答对我们的研究工作具有重要的参考价值，所以请你认真回答每一个问题，问卷中所有的选项没有正误之分，请根据自己的实际情况在代表答案的选项上打“√”。

班级：性别：姓名：

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 题目 | 非常同意 | 同意 | 不确定 | 不同意 | 非  常不同意 |
| 1.我喜欢英语阅读。 |  |  |  |  |  |
| 2.我很喜欢目前的英语阅读教学方法。 |  |  |  |  |  |
| 3.我经常主动阅读英语文章。 |  |  |  |  |  |
| 4.在英语阅读课堂上，我经常与老师、同学沟通交流。 |  |  |  |  |  |
| 5.阅读英语文章时，我能掌握所阅读材料的主旨和大意。 |  |  |  |  |  |
| 6.阅读英语文章时，我能了解阐述主旨的事实和细节。 |  |  |  |  |  |
| 7.阅读英语文章时，我能理解上下文的逻辑关系。 |  |  |  |  |  |
| 8.阅读英语文章时，我能根据所读材料进行一定的判断和推  论。 |  |  |  |  |  |
| 9.阅读英语文章时，我能领会作者的观点、意图和态度。 |  |  |  |  |  |
| 10.阅读英语文章时，我能很好地了解文章的写作特点。 |  |  |  |  |  |
| 11.阅读英语文章时，我能对文章内容进行很好地组织和概  括。 |  |  |  |  |  |
| 12.阅读英语文章时，我会采取有效的阅读策略。 |  |  |  |  |  |
| 13.阅读英语文章时，我会通过列图表的方式来帮助理解文章  的逻辑关系、篇章结构。 |  |  |  |  |  |
| 14.我觉得绘制思维导图非常容易。 |  |  |  |  |  |
| 15.在英语阅读课教学中应用思维导图很有效，希望教师继续  使用这一方法。 |  |  |  |  |  |

16. 我对思维导图在英语阅读课中应用的意见和建议：

**Appendix C**

**Pre-test Paper**

**2009年3月PETS 2真题**







a

By age four, the number of words a child understands tells us how easily that a child will learn to read in school. It even tells us how well she'll be able to understand what she reads, and to express her ideas in writing later on.

So, how do you give your child this wonderful giftFirstofall, talkalot. Talkwhenyou'refeedingorpreparingabottle; talkwhenyou'redoingthedishesorwalkingdownthestreet. Second, doalotoflistening. Evenbeforeyourchildcanspeakclearly, askquestionsandlistenforanswers. Assume(设想) thatyourchildhasideas, andtrytofigureoutwhat they

Are. Researchers have found a direct connection between the number of words a child knows and the number of words he hears, and especially the number of questions he is invited to answer.

Third, read aloud every day. There are many reasons for reading aloud, but maybe the best is that books contain words; lots of new, different, interestil1g words. Here's an exciting thing that happens when you read aloud every day: You begin to hear" book words" in your child's speech. You're walking down the street, and you see a pretty flower." Look," you say," a pretty flower."" Actually," your child corrects," it's beautiful." ActuallyBeautifulThat's when you know you've truly given your child a love ofwords.

9. A two-year-old child uses the word" Hot, hot" (line 4-5, Para. I) A to prevent herself from being hurt

B to learn a new word

C to warn her parents of the danger

D to show her large collection of words

10. In the author's opinion, who should do a lot of listeningAThebookwriters

B The researchers C The parents

D The child

11. What is the main subject discussed in the textAValueofreadingaloudchildren

B Power of words in children's growth C Mind development of young children

D Ways to develop a love of reading in children

12. When the child uses" beautiful" to respond to the mother, it shows that A the child loves certain words better than others







**Appendix D**

**Post-test Paper**

**2009年6月CET4大学英语**

















**Appendix E**

**Samples of Students' Mind Maps**



**A Mind Map of" Iron and the Effects of Exercise”**



**A Mind Map of" Lighten Your Load and Save Your Life”**

# **Publications**

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