

# Using a Mind Map to Learn English Vocabulary

**Xiaojun Wang**

Palacký University Olomouc  
Zizkovo nám. 5, Olomouc, Czech Republic  
+420 775 630 895  
**d005007@163.com**

**Jiří Dostál**

Palacký University Olomouc  
Zizkovo nám. 5, Olomouc, Czech Republic  
+420 739 249 125  
**j.dostal@upol.cz**

## ABSTRACT

English vocabulary constitutes a challenge for English foreign language teaching and learning. Most students spend a lot of time studying English vocabulary, but the result is often frustrating and unsatisfactory when so many students learn vocabulary by rote memorization, which is boring and dampens students' enthusiasm for learning. Therefore, it is desirable to find an effective tool to help students learn English vocabulary. The Mind Map is a thinking tool that, based on divergent thinking, builds up a structure of knowledge for each target word by associating it with other related words or concepts. Thus, recalling of one vocabulary word will prompt the other related items. It also incorporates words, pictures, color, images and graphics, making learning information a vividly visual format. Using Mind Maps in learning is in conformity with the theory of knowledge of visualization, information processing theory and brain science theory.

This paper analyzes the feasibility of using the Mind Map in teaching and learning English vocabulary theoretically. Prior to any trials or other empirical research, this initial study adopts the qualitative methodology, mainly analyzing the features of the Mind Map and the scientific basis for using the Mind Map in teaching and learning English vocabulary. The goal of this paper is to encourage English foreign language teachers and students to incorporate the Mind Map into their educational process as an effective technique for teaching and learning English vocabulary.

## Keywords

Mind Map; English; vocabulary

## 1. INTRODUCTION

With the coming of the information age in our society and globalization of economic activities, English has become a tool promoting communication and cooperation among countries and it is widely accepted that English has become the language of choice for many international scholarly journals [4]. Governments worldwide have made English education a high priority. English vocabulary learning constitutes an essential and important part of English teaching and learning. It not only influences performance

in reading and writing, but also has an impact on the accuracy and fluency in speaking. However, many students learn vocabulary by rote memorization, which is boring and monotonous. And the outcome of this learning method is not satisfactory. Therefore, it is highly desirable to use a more effective teaching tool to help students learn English vocabulary.

## 2. INTRODUCTION TO THE MIND MAP

The concept of the Mind Maps was put forth for the first time by Tony Buzan, the father of researching effective methods of memorizing, in 1960s, as a tool of note-taking. In the beginning, Tony Buzan used this method to help the students who were failing their studies. He discovered that these students got great improvement in their studies, and their way of thinking changed. Some of them even became excellent students. After that, Tony Buzan compiled his ideas into books. So the concept of the Mind Map was created.

Buzan compared a Mind Map to a city map for convenience of understanding. He said, the center of a city is like the center of a Mind Map. The main road in the city is equal to the main thought in the thinking process, and the secondary road represents the secondary thought, and so on. With the Mind Map, you will know where you are going and where you have been [1].

The Mind Map, based on a hierarchy and classification of information, stretches out branches from a central topic by certain association. It can be seen as a radiating graph composed of a central topic and several branches. The way the brain thinks can be represented by the structure of the Mind Map. In this sense, it can also be considered as a map illustrating the relationships among areas of knowledge. By means of the hierarchy and classification, The Mind Map changes the boring information to be memorized into a colorful and highly organized picture, alleviating the burden of relying on rote memorization. With Mind Maps each new pieces of information you put into your head automatically 'hooks on to' all the information already in there. The more these grappling hooks, the easier you 'hook out' the information you need. Therefore, with Mind Maps, the more you know and learn, the easier it is to learn and know more [1].

The Mind Map is a much stronger and more interesting method, because it takes advantage of the existing logical relationship between the targeted information. The first step in the creation of a Mind Map is to find the most central or key idea. This will be placed at the center of the Map. From here the other items are placed, visualizing the cognitive proximity as a corresponding physical proximity to the center of the diagram. Each related idea is mapped with a line from an already mapped related idea, and from the new idea to other related ideas. Because the ideas are

2018 2nd International Conference on Education and E-Learning

Bali, Indonesia

November 5-7, 2018

related, this method is particularly useful for logically minded students who have difficulty with simple rote memorization. A Mind Map is the easiest way to put information into your brain and to take information out of your brain [1]. Since most foreign languages are taught using memorization as an integral part of the learning process, students for whom memorization is a problem are traditionally at a great disadvantage when forced to use this learning style (rote memorization). The Mind Mapping method can help present vocabularies learned and to be learnt in a logical and related matrix, so what was once their weakness can become their strength. Buzan summarized the benefits of using the Mind Maps: The Mind Maps can inspire interest in students, make lessons and presentations more spontaneous, flexible, creative and enjoyable, give the students a deeper understanding of the subject. They can help you relate your own knowledge to those expressed in books, lectures and presentations [1]

### **3. METHODOLOGY**

This paper explains that the Mind Map can be an effective technique for teaching and learning English vocabulary. Qualitative methodology [2] is adopted in this study, mainly by analyzing the features of the Mind Map and the feasibility of using the Mind Map in teaching and learning English vocabulary. The adopted analysis procedure includes description of the Mind Map, interpretation of the features of the Mind Map, discovery of the feasibility of using the Mind Map in teaching and learning English vocabulary and summary. The theoretical frameworks suited for the topic under discussion are also chosen for the analysis.

## **4. THEORETICAL FRAMEWORKS**

### **4.1 Information Processing Theory**

Learning is closely related to memory. Forgetting, to some extent, is due to not finding the connections to the information stored somewhere in the mind. If we process information at a deep and meaningful level and then retain it in our cognitive network, it will be much easier to retrieve it when needed, as there are many cues which constitute facilitators for retrieving. The more paths between the ideas, and the more comprehensive the cognitive map of related ideas, the greater the chance of finding one of these relationships, and through this related idea remembering the needed word. With the creation of numerous connections, the likelihood of recalling none of them decreases exponentially. Totally forgetting an item with so many connections becomes quite unlikely. In the levels of processing, the deeper the level at which an item is processed, the better the memory because the memory trace is more ingrained [5]. Take memorizing English vocabulary as an example, if someone with weak memorization ability attempts to process a vocabulary word on the surface level, for instance, by just memorizing its spelling and meaning, it will be forgotten quickly. However, if he processes each word as part of a cognitive network of related ideas at a deep level, then both retention and functionality is greatly enhanced. For instance, suppose we map the word "orange", we can process it by thinking it belongs to the category of fruit, its color, visualizing it in the store and in his meals, and the memory of how it tastes, then the word will become an integral part of his active vocabulary.

In sum, the deeper we process the information we receive through our senses, the longer it will stay in our memory. This can explain why some students can spend a lot of time memorizing vocabulary, but still not have satisfactory results. The Mind Map is a manifestation of processing information at a deep level as it builds up information associated with the key words. Forming associations between bits of knowledge helps to facilitate their

acquisition and storage in memory [5]. In addition, the Mind Map deals with information in a well-organized way. It always stretches out branches from a central topic, and sub-central topics are orderly structured around the central topic. Organized material improves memory because items are linked to one another systematically. Recalling of one item prompts recall of the items linked to it [5].

### **4.2 Knowledge Visualization Theory**

The concept of knowledge visualization was proposed by M.J. Epper & R.A. Burkhard for the first time in 2004. Visualization is a means enabling complicated information and insights to be understood easily and quickly as well as a tool capable of transferring abstract information to concrete content. Knowledge visualization designates all graphic means that can be used to construct and convey complex insights [3]. Beyond the mere transfer of facts, knowledge visualization aims to transform insights, experiences, attitudes, values, expectations, perspectives, opinions and predictions, and this in a way enables someone else to reconstruct, remember and apply these insights correctly [3]. Representations of visualization are various, such as images, graphics, maps, animations, etc. Cognitive psychological studies have indicated that visual representation can help learners obtain and remember information faster and easier. In one study, adults were shown 2,560 photographic slides at the rate of one every 10 seconds. They were then shown 280 pairs of slides, one of which they had already seen, the other of which they had not. The adults had an 85-95 percent success rate of correctly identifying the slides they had already seen [1]. Instructional tools such as manipulations, audiovisual aids, and computer graphics can facilitate learning [5]. Knowledge visualization was initially applied in business management. Later on, it extends to educational field and plays an important role in teaching practice. The Mind Map is a visual representation because it incorporates colorful images, pictures and graphics, enabling the Mind Map to represent knowledge in a visual format. The concept of the Mind Map in teaching and learning is supported by the theory of knowledge visualization.

### **4.3 Brain Science Theory**

Roger Wolcott Sperry [6], an American neuropsychologist, who won Nobel Prize in Physiology and Medicine in 1981 for split-brain research substantiated that the human brain includes the left hemisphere of the brain and the right hemisphere of the brain. The left hemisphere of the brain is in charge of logic, language, judgement, reasoning, etc. And the right hemisphere of the brain is responsible for images, color, space, music, etc. The functions of the two hemispheres are different [8]. The left hemisphere of the brain undertakes logical thinking while the right hemisphere of the brain takes up thinking in terms of images or symbols. The right hemisphere of the brain is said to be able to store much more information than the left hemisphere of the brain does. Along with its powerful capacity, the right hemisphere of the brain is the source of creativity [7]. However, the majority of people are accustomed to logical thinking instead of thinking in images. Thus, for most people, the potentialities of the right hemisphere of the brain are not fully exploited. The Mind Map is a visual Map composed of line, color and graphics, which help activate the right hemisphere of the brain and bring the power of the two hemispheres into full play. The synergy of the two hemispheres in learning can improve learning efficiency.

## 5. APPLICATION OF THE MIND MAP IN LEARNING ENGLISH VOCABULARY

Figure 1 is a Map about “weather”. The first level of branches radiated from the central word “weather” are different kinds of weather. The second level of branches are description of character of the sunny weather and the snowy weather. This Map illustrates the process of thinking. When it comes to weather, we will easily associate it with different kinds of weather. The sunny weather brings us to recall hot or warm weather and the snowy weather makes us associate it with cold weather. From Figure 1, we can see some features of the Mind Maps:

First, a Mind Map contains a central word, nodes and line. The main word, which is positioned at the center of the whole Mind Map, is the topic being discussed and learnt. By associating topics related to the central word, the first level of subordinate words are introduced, which surround the central word. By linking the central word and the first level of subordinate words, several branches are formed. Then, from the first level of subordinate topics, the second level of topics are introduced, and so forth. In this way, a Mind Map can contain a central word and infinite sub-centered words. The sub-central words, other than the central word, are called nodes. The process of presenting the associated words put on the branches in the Mind Map is similar to the process of our brain thinking. In this sense, a Mind Map is like a tool recording the process of thinking.

Secondly, a Mind Map usually incorporates words, color, images and graphs, which make words easy to be remembered. It is a visual map as well as a thinking tool. The color, images and graphs can activate the right hemisphere of the brain, thus improving memory. Meanwhile, the color, images and graphs can vividly convey the meaning of the words. On top of that, they together constitute an effective means to differentiate the subtle distinction of meaning between two words.

Thirdly, Mind Maps are characterized by hierarchical structure, which is consistent with the character of logical thinking. In the process of constructing a Mind Map, we use divergent thinking to induce subtopics. This process enables the Mind Map to present things logically and structurally. It is in accordance with the way our brain accepts and assimilates that which surrounds us. By contrast, using linear notes (in the form of a list) is against the natural way of thinking, as it generates an idea, but then deliberately cuts it off from the ideas preceding and following it [1]. The continuous disassociation of each idea from its context hinders the natural thinking process, and increasingly reduces the probability of creativity and recall [1].

From the Mind Map of “weather”, we can see that the Mind Map is characterized by a hierarchical (although not vertical) structure. In the process of constructing a Mind Map, we proceed with divergent thinking and rearrange the unorganized knowledge in our brain in order to facilitate understanding and memorizing. With regard to English vocabulary acquisition, teachers can use the Mind Map to assist instruction. Vocabulary constitutes a challenge for students in English learning. By classifying vocabulary words, teachers help students get a deeper understanding of the meaning of words and the relationship among the words. This helps teachers save a lot of time and energy spent in explaining the words, and get twice the result with half the effort. Compared to rote memorization, this strategy of instruction improves teaching and learning efficiency. In addition, the Mind Map can also be used as a tool for assessment, helping teachers identify areas of strength and weakness in a student’s knowledge. By asking students to make

a Mind Map about a certain topic, teachers will understand their grasp of the vocabulary. Meanwhile, teachers can also use the production of students’ Mind Maps to promote classroom discussion, facilitating active learning.

On the other hand, students can also use the Mind Map to summarize individual structure of knowledge. With the upgrade of learning, the volume of their vocabulary expands. It is beneficial to vocabulary learning to review the old and the new vocabulary and find out their relationship, which helps the disorganized knowledge to be formed into a knowledge network and makes structure of the knowledge simplified and systematic. The knowledge network bears practical results because it is in harmony with our cognitive functionality. It is reasonable to say that the Mind Map is a powerful tool that can help students’ learning of vocabulary.

With the development of information technology, there are many Mind Map software programs available on the internet, such as freeMind, Mindmanager, XMind, MindMaple, etc. And even some of them allow free use. There are various formats of Mind Maps included in the software. Thus, teachers can download the software and create a Mind Map easily.

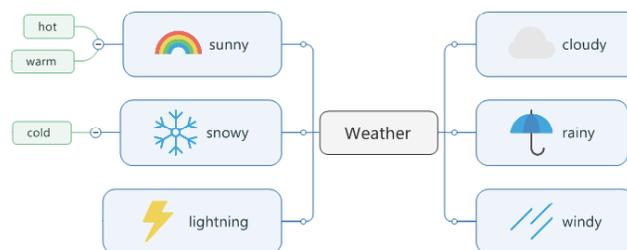


Figure 1. Map about “weather”.

## 6. CONCLUSION

From the above discussion, the Mind Map should play an important role in teaching practices. The main function of a Mind Map is that it can help create interconnectedness among isolated units or items. In this way, it can help learners organize and manage knowledge learned. By connecting the old knowledge and the new, the Mind Map helps students achieve a deeper understanding of their knowledge. During this process, a new and extensive system of knowledge is built up. Therefore, in teaching practice, teachers can use the Mind Map to transfer and help students create knowledge, facilitating communication between teachers and students. In addition, the usage of color and graphics in the Mind Map can facilitate learning. Based on this, the Mind Map can be considered as a teaching strategy used to present teaching content and courseware and construct a knowledge network, which can help enhance the effectiveness of teaching. The application of the Mind Map is not limited to learning English vocabulary. It can also be utilized in other aspects of English education such as grammar, reading and writing. The application of the Mind Map in education will expand with future studies.

## 7. ACKNOWLEDGMENTS

This article was created with the financial support from the project “Teachers’ Attitudes towards Innovations in the Curriculum of Informatics and Professional Preparation of EFL Teachers in Using Information Technologies in Class”.

## 8. REFERENCES

- [1] Buzan, T. and Buzan, B. 1993. *The Mind Mapbook: How to Use Radiant Thinking to Maximize Your Brain’s Untapped Potential*. New York.

- [2] Cohen, L., Manion, L., and Morrison, K. 2007. *Research Methods in Education*. Routledge. London and New York.
- [3] Eppler, M. J. and Burkard, R.A. 2004. *Knowledge Visualization: Towards a New Discipline and its Fields of Application*. ICA Working Paper, University of Lugano
- [4] Genç, B. and Erdoğan, B. 2010. English as a world language in academic writing. *The Reading Matrix* 10 (2), 142–151.
- [5] Schunk, D.H. 2012. *Learning Theories: An Educational Perspective*. Upper Saddle River: Pearson education
- [6] Sperry, R.W. 1961. Cerebral organization and behavior. *Science* 133 : 1749- 1957.
- [7] Sperry, R. W. 1967. Split-brain approach to learning problems. In *Neurosciences: A Study Program*, G. C. Quarton, T. Melnechuk, and F. O. Schmitt, Eds. New York: Rockefeller University Press.
- [8] Ziganshina, D. 2017. Roger Sperry's split brain experiments. *Embryo Project Encyclopedia*. ISSN: 1940-5030 <http://embryo.asu.edu/handle/10776/13035>.