

Semantic Mapping: A Visual and Structured Pre-writing Strategy in the Process of Essay Writing

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ABSTRACT

Semantic mapping is a kind of graphic organizer. It illustrates a number of approaches designed to demonstrate how key words or concepts are associated to one another through graphic representations. From the previous studies, semantic mapping has demonstrated as a practical teaching and learning technique for students at all grade levels both in regular and remedial classrooms. This method has been identified by researchers as an excellent technique for increasing vocabulary and improving reading comprehension. However, the use of semantic mapping as a writing technique in ESL classroom has been relatively unexplored. The objective of this study is to exemplify the students' feedback during and after the implementation of semantic mapping in the essay writing process. The data was collected via observation and interview. The findings showed positive feedback received from the subjects on the use of semantic mapping in their writing. By using semantic mapping, a slow transition happens from word mapping to sentence production in association with the semantics notions like word association, sense relation, parts of speech, superordination, collocation, and system of logic leading to essay writing.

Keywords: *semantic mapping, graphemic, word association, sense relation, parts of speech, superordination, collocation, system of logic*

Introduction

Semantic mapping, mind map, spidergram, idea mapping, or word webbing is a graphic arrangement of words. It shows how new words and

ideas are related to each other within a text, which can be defined as “*a visual representation of knowledge, a picture of conceptual relationship*” (Antonacci, 1991, p. 174); “*a graphic arrangement showing the major ideas and relationships in text or among word meanings*” (Sinatra, Stahl-Gemake & Berg, 1984, p.22), and “*a categorical structuring of information in graphic form*” (Johnson, Pittelman & Heimlich, 1986, p.779). Mind Mapping® is a popular related technique, invented and copyrighted by Tony Buzan in the United Kingdom. He stated that mind maps consist of a central word or concept, 5 to 10 main ideas that relate to that word, and 5 to 10 main ideas that relate to each of those words.

Semantic mapping is a technique to represent graphical concepts. It is an effective diagnostic tool. It is also a visual and structured strategy for vocabulary development and knowledge expansion displayed in categories of words in relation to other words. It is opposed to an unstructured strategy, which shows the hierarchical relationship of ideas such as brainstorming, in which students are free to generate ideas on paper randomly. Brainstorming is an application of schema theory that explains how people incorporate new information with their existing knowledge.

Schema theory hypothesises that information is stored in the brain in a form of networks called “*schemata*”. When a person receives new information, he or she will be likely to link this new information to his proper schemata (Alvermann & Swafford, 1989). Thus, prior knowledge can serve as the base to acquire new knowledge. The brainstorming phase of semantic mapping gives educators insight into their students’ schemata. Thus, it can show interests, level of readiness, gaps, misconceptions, and errors (Pearson & Johnson, 1978). Ideas from one student will trigger ideas from the other students “*in a chain reaction thought process*” (Heimlich & Pittelman, 1986, p. 34).

Semantic mapping portrays the schematic relations that compose a concept. It assumes that there are multiple relations between a concept and knowledge that are related with the concept. Thus, for any concept, there are at least three types of association such as association of class – the order of things that the concept falls into; association of property – the attributes that define the concept; and association of example – exemplars of the concept.

Literature Review

Historical Background of Semantic Mapping

Hanf (1971) is the pioneer who led the way to develop the mapping procedure. Initially, it was designed to improve the teaching of study skills. In 1963, Ausubel claimed that when individuals are presented with new concepts, these concepts will not be explicitly understood until they are linked in a meaningful way to pre-existing concepts or what we call as “*schemata*”. Ausubel’s notion is: Prior knowledge is a prerequisite to the addition of new concepts and vocabulary. Prof. Joseph D. Novak at Cornell University in the 1960s had developed the concept mapping technique. His work was based on the theories of David Ausubel, who stressed on the importance of background information in being able to learn about new concepts.

Similarly, reading theorists have shown the resemblance of reading comprehension process to the building of bridges between the new and the unknown (Pearson & Johnson, 1978). Since the 1970s, a number of schema researchers have exposed that having background knowledge of text structure facilitates comprehension building (Carrell, Pharis, & Liberto, 1989). During the 1980s, there was a great explosion in research related to semantic mapping that indeed increased the knowledge of wide applications of mapping strategies (Carrell et al., 1989; Heimlich & Pittleman, 1986; Johnson & Pearson, 1984; Sinatra et al., 1984).

Semantic mapping has been used in various ways to enhance the teaching and learning processes; for example, a technique for vocabulary building and improving reading comprehension (Carrell et al., 1989; Heimlich & Pittleman, 1986; Johnson & Pearson, 1984); a means of improving the teaching of study skills (Hanf, 1971; Heimlich & Pittleman, 1986); and a visuospatial strategy to promote the reading comprehension of teaching disabled students (Sinatra et al., 1984). Besides the application of mind map in the brainstorming stage for writing, the use of semantic mapping as a writing technique in classroom is still lacking of exploration.

How Far Is Semantic Mapping Associated with Semantics?

The early research done by cognitive psychologists on meaning networks pointed out that links between words were formed by habits and the

frequently associated items were thought to form stronger ties. Word association, one of the most significant features of semantics, underlies the construction of semantic mapping. This is supported by empirical data, which provides strong support for the notion that the lexicon is organised by linking groups of words together or word association in the semantics field. Firstly, in forming semantic mapping, researchers found that subjects almost selected items from the semantics field of the original word such as sense relations. Secondly, subjects always chose the partners of paired items like *sugar* and *salt* and antonyms like *tall* and *short*. Thirdly, adults showed considerable tendency to respond to words in the same grammatical classes or parts of speech; for example, verbs elicited verb responses or nouns elicited nouns.

Perhaps, in particular, the most vital finding from the word association tasks is the strongest links found among co-ordinates, which are words that cluster together on the same level of detail; for example, *coffee* and *tea*; *black* and *white*. The second strongest links were among paired antonyms such as *up* and *down* and collocations, words that are likely to be found together such as *tea* and *milk*. Superordination, which is also called as categorisation, cover term or stimulus word, was found to have weaker association links, and synonymy was the weakest of them all. Thus, it seems that teaching students to associate co-ordinates is a good starting point in the writing skill.

Besides word associations, “*sense relations*” is playing the momentous role in semantic mapping process, especially the sense relations of hyperonymy and hyponymy. Culyer (1978) in her guidelines for skill development suggested that vocabulary development was related to a particular topic in thematic terms. As suggested by Fry (1987), words related to a topic can be generated. Thus, from the word “*computer*”, it might include: “*scanner*”, “*CD-ROM*”, “*monitor*”, “*mouse*”, “*mouse pad*”, “*diskette drive*”, “*keyboard*”, “*floppy*”, “*modem*”, and “*printer*”. These are called “*hyponym*”, words that are more specific related to the general term “*computer*”. Conversely, the word “*computer*” is something in general that is called “*hyperonymy*” of “*monitor*”, “*scanner*”, and so on. This shows how students can acquire specific terms or ideas based on given general topic in semantic mapping.

The mapping procedure has its roots in Hanf’s (1971) original mapping technique and use “*sense relations*” as the basis of semantic mapping. First, a core concept of a text is chosen by teacher. The core concept is displayed visually by writing on a blackboard, overhead transparency, a large sheet of paper, or even displayed through a computer

with an overhead projection system. Next, students are encouraged to write down a series of words or phrases associated with the core concept. After brainstorming and generating lists of words or phrases relevant to the topic, students are asked to compare their lists with their peers. Lastly, students need to illustrate the sense relationships between each word on their list by linking the words or phrases together with the lines.

Semantic mapping activity used as the pre-writing phase of a lesson can activate learners' schemata by introducing them to the relevant key words. As a pre-writing activity, educators can use core questions to enhance the comprehension of key words. More important, the connection between the main ideas and supporting details is based on a system of logic. This system describes about logical thinking. It contains a notion representing propositions and rules of inference on how propositions are going together to form valid arguments.

Finally, "*word meaning*" is another concept in semantics that is widely utilised. Before going to the writing phase, based on the semantic maps, students are asked to compare, discuss, and add in any new information onto their pre-existing maps. They can add new words, concepts and even categories to their semantic maps with the help of dictionaries. This is a good opportunity for educators to help students to be more familiar with the use of dictionaries. If any new keywords or concepts are generated during this process, it is suggested that students and educators use different colours on the new input for better effect. This can differentiate and highlight the new lexical items to the students.

Methodology

This is a case study involving an English tutorial class in one of the Malaysian higher learning institutions in Kedah Darul Aman, Malaysia. The subjects were taken from an English tutorial group who possessed lower level of proficiency in the English language based on the SPM results. They were all Malaysian students and consisted of a mix of boys and girls aged between 18 and 19 years old. The study employed a qualitative design using observation and interview methods to collect data. In order to incorporate semantic mapping with essay writing in the classroom, nine stages of semantic mapping implementation that focus on the lower proficiency level of the English as a Second Language (ESL) students had been executed.

Stage 1: Introducing the Topic

A unit from the syllabus was identified to determine a topic suitable for semantic mapping. As set induction, a picture relating to the topic was displayed to stimulate students' thoughts and get the brainstorming procedure going. Then, a large circle was drawn on the blackboard with the target topic inside it, for example "*The Unsuccessful Burglary*". However, students were allowed to suggest the topic by themselves as this can lead to greater interest in the task for the students as well as greater knowledge of the topic under study.

Stage 2: Brainstorming

By using the parts of speech schema in semantics, the students were encouraged to close their eyes and think about the nouns that might be related to the topic for one to two minutes in silence. Then, they were given three to four minutes in which to jot down the related nouns. If they did not know a word in English, they could write it in their first language (L1). Students were not encouraged to use dictionaries or ask for any explanation since too much lecturer intervention tends to halt and inhibit the creative flow. This brainstorming phase allows students to make use of their mental lexicon to write the common or proper names about people, things, places and animals.

Stage 3: Note Making

When students wrote down the words in their maps, the word "Nouns" was written in an oval as the topic and the related examples were written under the category of "Nouns". As "*category clusters*" were formed by different parts of speech, different coloured chalks were employed for word classes written in ovals during the brainstorming stage, and recorded in nodes connected by spoke-like straight lines leading from the central node. Besides using different colours for the purpose of distinctiveness, the nodes at this secondary level have a different shape from that at the primary level. Different shapes and colours allow these aspects of the "*visual*" or "*graphic*" to reinforce the "*verbal*" or "*graphemic*". It serves as a visual representation of the knowledge they had gained from the semantic mapping task. In the brainstorming phase, it is crucial that all responses were accepted as long as they were related to the topic. Once the noun list had been

exhausted, the students brainstormed verbs related to the topic. The lexical items were written on the board. Once all or most of the verbs had been elicited and written on the board, brainstorming was done for adjectives. The last brainstorming session was adverbs related to the verbs or adjectives given on board. The semantic map for “*The Unsuccessful Burglary*” is shown in Figure 1.

The Semantic Map for “The Unsuccessful Burglary”

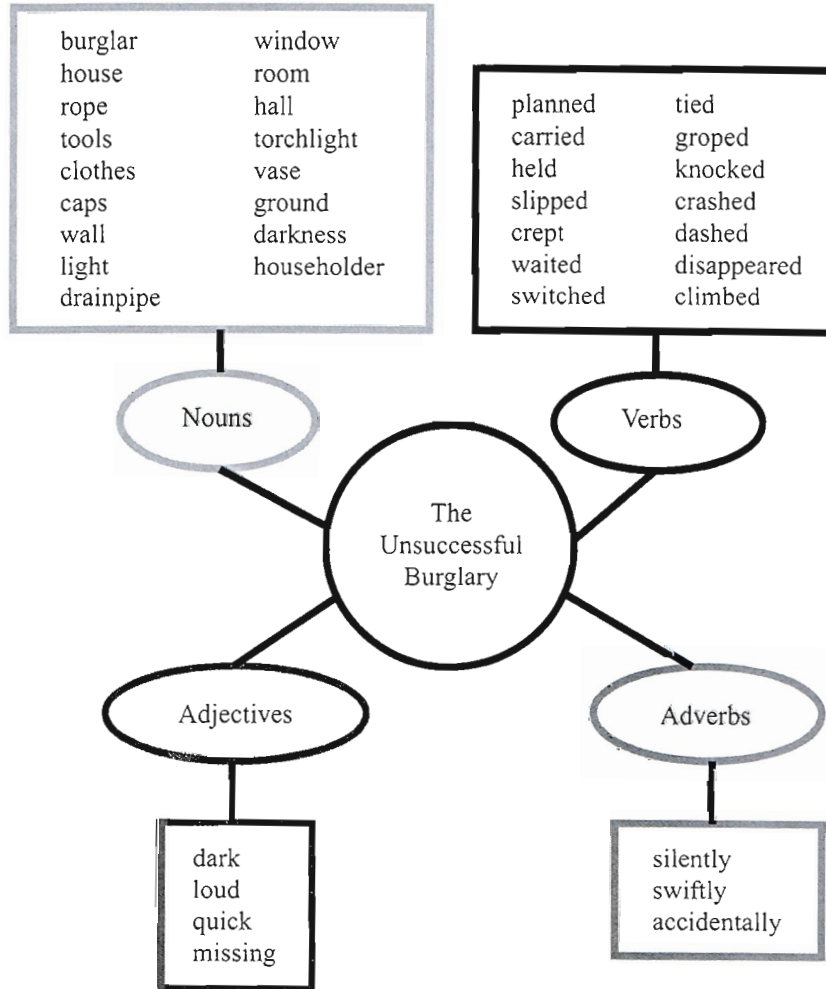


Figure 1: *The Semantic Map for “The Unsuccessful Burglary”.*

Stage 4: Feedback

The next stage – optional – involved a collective feedback from the students for additional lexical items based on the map on the board. This was useful for students who were new to the idea of mind maps or for weak classes. It was also in this feedback stage that any remaining language problems could be settled. This stage is trying to elicit students' ideas, reformulate expressions, and discreetly add in any new vocabulary that students wished to use in their essays or add to their collection. After that, students were asked to work in groups. They compared their maps and discussed their ideas, which could be added on to their semantic maps. This stage could provide opportunity for peer teaching, as other students may be available to provide the English words to the idea that was noted down in L1. They might use dictionaries as well to enrich the lexical input and identify the words' meanings or their syntactical categories.

Stage 5: Organising Semantic Maps

In this stage, students were asked to organise their semantic maps into a linear format to present their points in simple sentences using the listed words from the map. They were encouraged to form simple sentences of the “*subject + verb + object*” pattern in order to prevent subordinate clauses at this stage. The original 15 to 20 sentences given by the students were written at random on the blackboard. No correction of errors was made at this stage.

Stage 6: Correction of Sentences

There were 18 sentences collected from students' opinions written on the blackboard as follows. Each sentence was examined to correct the errors.

1. *Two burglars planned to brake into a house.*
2. *One burglar carried a length of rope.*
3. *The other one held a box of tools.*
4. *They wore dark clothes and caps.*
5. *They slipped over the garden wall.*
6. *They crept silently along the side of the house.*
7. *They waited until the light switched off.*
8. *One burglar swiftly climbed up a drainpipe.*
9. *He tied the rope to the window.*

10. *They opened the window of the room.*
11. *They crept silently into the hall.*
12. *They groped in the dark with torchlight.*
13. *One burglar accidentally knocked over a vase.*
14. *The vase crashed to the ground with a loud noise.*
15. *They dashed for the window.*
16. *They disappeared into the darkness.*
17. *The householder made a quick search.*
18. *Nothing was missing.*

Stage 7: Organising Sentences

The students read through all the sentences. About 10 to 15 minutes were given to the students to rearrange the jumbled up sentences. They learnt that in a composition of chronological order, the verbs are all in the same tense. Since it was a narration of events, students were given some of the devices used to convey chronological order. The chronological order devices given to them include: first, second, third, then, next, after that, finally, which could be used to clarify the sequence of events.

Stage 8: Writing

Students started their writing of the whole essay in paragraph form, keeping to the limit of 200-250 words. After completing two paragraphs, they were required to exchange their essays, so they became readers of each other's work. This allowed for feedback and possible re-writing. Once they had finished, they exchanged again their texts. This approach gave their texts a communicative purpose, as well as developing an awareness of the fact that a writer is always producing something to be read by someone else, rather than for the display of writing alone.

Stage 9: Follow-up Activities

This lesson was meant to be a prewriting activity. Therefore, the students were required to write another topic in the following writing lesson. The reason is that students remember and learn better as they use the same words again and again. Raimes (1983, p. 14) says:

"... the longer the students grapple with the subject, the more their command of the necessary vocabulary and idioms develops....the more they discuss a topic, the more ideas they develop".

However, students were stopped at the semantic mapping stage and instructed to construct the sentences individually on their papers. It is because the students had involved themselves in the pre-writing lesson. Therefore, to ensure that the students explored the topic as fully as possible, a few related topics of interest and whole series of tasks were given to them such as reading comprehension, vocabulary dictation, role-play and so on.

Findings and Discussion

As stated earlier, semantic mapping helps to elicit a list of words related to the given topic. The above activity on the use of semantic mapping as a prewriting technique has been found to be successful among the subjects in the study in the following ways:

1. There were a lot of words voiced out in class.
2. Everyone came up with a word at least.
3. Even weak and shy students uttered a word or two.
4. As the lecturer wrote on the board, some students spelt out the words.
5. They were actively involved in the session because the brainstorming warmed up and comforted their friends around them to encourage the very weak and shy suggesting words and sentences.
6. The class atmosphere become lively and small group discussions were formed.
7. Towards the end, students become enthusiastic about putting the parts together, like a jig saw puzzle.
8. The lecturer was a facilitator here by writing the words and sentences on the board, then corrected errors in the end.
9. Lecturer was also an adviser by giving hints on certain words.

The map, either in its final chalkboard form after discussing with the lecturer or in the personalised version, can serve as a springboard for other language activities. The map, besides being used as the outline for the writing of a narrative essay based on the topic, one segment of the map can be used in the writing of a paragraph. Some high level ESL students may want to enlarge the map further by doing research on the topic in the library. If the semantic mapping activity has been valuable for the students, they themselves will want to make the decision of what they wish to initiate as a follow-up.

There are some hiccups during the implementation of semantic mapping. Students failed to recall the technical terms in the categories of nouns, verbs, adjectives and adverbs. Sometimes, they might know the spelling of the words but forgot their syntactical categories. Since this lesson dealt with the linguistic aspect of writing, non-linguistic factors such as organisation, thesis statement, and topic sentences might hinder the essay writing process. In this situation, the lecturer is the one who determines the necessary steps to train the students in the non-linguistic aspect directly or indirectly.

Finally, it is important to provide a context and audience (readers) to the students. The students who wrote about burglary have been informed that they were writing for their college bulletin. Having readers in mind helps students to decide their ideas, and most important, it also helps students to choose the appropriate style of writing.

Conclusion

Semantic mapping strategy can be used to explore almost any topic. It works indeed well though in discussive and narrative essays as it activates students' schemata and lead them to discuss ideas in groups. There are various forms of semantic maps that can be created for different types of writing activities. In the study, the research has attempted to draw attention on how semantic mapping can become an effective technique for writing in the Communicative Language Teaching (CLT) classroom. A map, like a picture, can be worth a thousand words. It can stimulate students to express themselves in words and encourage them to think critically and broadly. To complete the learning circle, if students are able to be more creative, they can in turn make the map talk even more. This technique of teaching essay writing is more useful for lower-level ESL learners who are still struggling with shortage of vocabulary and ideas in writing. Complaints like lack of ideas and words have met the practical solutions through this technique. Finally, through this session of brainstorming and semantic mapping, essay writing can become more lively and interesting.

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