

Improving Semantic Association through Brainstorming Activities

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Abstract—Children with semantic difficulty have a very hard time in understanding logical ideas relating to meaning. Enriching vocabularies to gain better chance of expressing oneself meaningfully in oral and in written forms could be done with brainstorming activities. To understand better, there is a need to improve skills on semantics; the interpretation and meaning of words put together, sentence structures and symbols. The researcher found the use of brainstorming activities a means to improve students' semantic association. Such activities give each group participant to bring out ideas openly with no hesitation to criticisms. These exercises serve as a tool in making students speak before a group to allow wilder ideas be brought into open which unconsciously improve semantic association. The researcher opts for a descriptive method through observation of the brainstorming activities, how students relate to the issues and how they will stand for their individual thoughts depending on their beliefs, educational background, cultural orientation, and social status.

Index Terms—Semantic association, semantic difficulties, brainstorming activities

I. INTRODUCTION

The students acquire knowledge in a procedural way where in every learning is connected to each other. In learning the language, students are exposed to understand the language. More so, in learning the structure of language, semantics is primarily considered for it covers the overall picture in learning the language, and not simply getting the meaning but the unified and comprehensive meaning of a whole part. Furthermore, students are having difficulty to fully grasp certain meaning for there are confusions in the mind of students.

Semantics is one of the important branches of linguistics that deal with interpretation and meaning of the words, sentence structures and symbols, while determining the reading comprehension of the readers how they understand the others and their interpretations. In addition, semantics construct a relation between adjoining words and clarifies the sense of a sentence whether the meanings of words are literal or figurative. To Bowen [1], children with semantic difficulty have very hard time understanding the meaning of a word or sentence. This shows how important it is to learn semantics to complete and to continuously understand the long process of acquisition of learning and studying.

Likewise, the improvement of semantic association of students must be addressed. Semantic association is all about semantic relatedness which deals with connectedness and relationship of a certain thing or idea with another. In psychology, semantic memory refers to a portion of long term memory processing ideas and concepts which are not drawn from personal experience. Common knowledge are included such as the names of colors, the sounds of the letter, capital of countries and other basic facts acquired over a lifetime. To Kihlstrom [2], episodic memory is specific to individual in the recollection of biographical experiences and events in time in a special form, from people to reconstruct the actual events. Semantic memory is generally derived from episodic memory where people learn new facts or concepts from one experiences. Such recall is considered to reinforce semantic memory. These two terminologies are associated to semantic association where students derive their meanings and interpretations about certain idea people have to think, remember, recall and retrieve through the help of the human brain function.

According to Nation [3], semantic elaboration focuses on word meaning association attached on words. Words appear to be organized into semantically related sets in mind and thus the associations attached to a word will affect the way is stored in the brain. Furthermore, knowing a range of association for a word helps understand its full meaning and helps recall the word form or its meaning in appropriate context.

Meaning, according to Sokemen [4], semantic mapping generally refers to brainstorming associations where in a word has and then diagramming the results. Johnson, Pittleman & Heimlich [5] describe semantic mapping as “categorical structuring of information in graphic form.” Semantic mapping is one of the word association techniques to make an arrangement of words into a diagram which has a key concept at the center or at the top and related words by means of lines and arrows.

To Patterson, Nestor & Rogers [6], the anterior temporal lobes might function as a nucleus in the disturbed semantic knowledge might be distributed across cortical association areas some of which assimilate information from information from multiple modalities. The anterior temporal lobes, as corroborated by their connection with all other sensory systems might integrate the information.

To Coronges [7], study word association for 16 targets of 1097 seventh-grade students (aged between 12 and 13

years old) compared wise by only university adults of the study of Wilson *et al.* [1999]. Topological analyses referring to the total number associates in the network shows children have a greater number associates. However, when considering only associates express by two or more people, the adults produced a greater number of associates. Consequently the group of children generated a greater number of idiosyncratic words (produced by only one participant), which led to a greater variability of answers of the group. Coronges [7] believe this situation occurs due to the fact that children are less inhibited and restricted in associating words and/or the fuel that the group being at an earlier language development stage, has more diverging responses between one individual and other.

To Lewis [8], foundational theory of meaning or semantic theory has two sorts. The first is the assignment of content to express oneself using the language divided according to whether people assign propositions to give the meaning of sentences and whether they view correctly the where the proposition is coming from. The second sort is stating facts using expressions to give meaning. The speaker's approaches to give meaning may result to understanding or misunderstanding of the concept. In a group discussion, members of the group express ideas in their frame of mind.

Locke [1975] on the other hand views semantic theory to associationism; perception or impression and determination of trains of thought or succession of ideas. To him, there are no ideas in the mind that were not first experienced, the Copy Principle. For Hume [1980], ideas arise from copied impressions associated and connected to other people's perception.

Tarski [9] asserts the theory of truth. His theory views truth as both formally correct and materially adequate. Truth is formally correct if it does not contradict the rules of the language in which it is given (themeta language describing the object language) while materially adequate if it entails all equivalences in the object form. "X" is true if, and only if "P" where p is an arbitrary sentence in object language and x is the name of that sentence in themeta language. Tarski [9] emphasizes the meaning of truth as in a sentence is true if it is satisfied by all objects, and false otherwise.

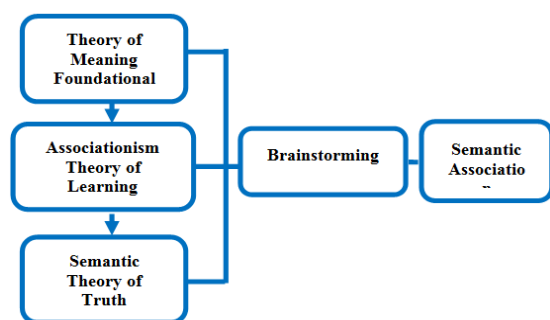


Figure 1. Conceptual framework

The researcher presents in Fig. 1, conceptual framework according to its connection. First on the top most part is about the 'Foundational Theory of Meaning'

this states the founding of certain idea or meaning on something based on facts in relation on the forming of the prior knowledge or schemata in the brain of a person. Then having a foundation or prior knowledge in mind over something the person now can has the means to connect or associate regarding as based on the next theory, the Associationism Theory of Learning' in here it states that a person can only associate or connects things when there is prior knowledge on certain topic or issue and lastly the 'Semantic Theory of Truth' which strengthens the association of meaning being been done for in this theory it states that conforming of such statement and association of meaning are relevantly and formally correct and accepted in satisfying what it is. The sequence of these three theories shows interconnection in order to come up with a brainstorming activity.

Brainstorming is a process for generating creative ideas and solutions through intensive and freewheeling group discussion, Diehl & Stroebe, [10]. Every participant is encouraged to think aloud and suggest as many ideas as possible, no matter seemingly how outlandish or bizarre. Analysis, discussion, or criticism of the aired ideas is allowed only when the brainstorming session is over and evaluation session begins. Such is a group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group; the mulling over of ideas by one or more individuals in an attempt to devise or find a solution to a problem. It is a group creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.

Brainstorming is used to solve all kinds of problems to include business, public administration, military, family and even personal. Brainstorming is used when each group member search for ideas and discover possibilities that may be found in problems. Activity as such is considered a conference technique of solving specific problems, amassing information, stimulating creative thinking, and developing new ideas among others by unrestrained and spontaneous participation in discussion, Henningsen, [11]. This exercise combines a relaxed, informal approach to problem solving with lateral thinking. It encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be crafted into original, creative solutions to a problem, while others can spark even more ideas. This process helps to get people unstuck by "jolting" them out of their normal ways of thinking. Therefore, during brainstorming sessions, students in the group should avoid criticizing or rewarding ideas to invite members to open up possibilities and break down incorrect assumptions about the problem's limits. Judgment and analysis during the sharing stunts idea generation and limits creativity.

Brainstorming is not about reaching results, but it is about going beyond operational thinking and move onto creative thinking. Thinking creatively is about finding potential in ideas for a problem in which its solution is in a blur. Brainstorming requires a great deal of open-

mindfulness from each part of the group. One who is bad at being open-minded should have to keep going with this mental exercise to force to become creative later.

In brainstorming activities, it is important to have a specific problem which can be made into a question. This activity could be done to a group with members between five (5) to ten (10) people, regardless of the gender and knowledge on the topic, and with few rules to follow.

Brainstorming activity is fun. It encourages creativity and discourages criticism during the idea finding phase. The evaluation of ideas is separated from the creation. Ideas by one group member are used by other group members to come up with more ideas (associations) which Osborn [12] calls "contagion" and "chain reaction". The more associations are produced within the group when each member contributes.

While originally brainstorming is devised as a group technique, there is nothing that keeps the teacher from using the mental exercise solo. Anyway, each member does an individual brainstorming within the group. This most common brainstorming exercise is to simply write down one's ideas on a sheet of paper. Individual brainstorming is the use of brainstorming in solitary. It typically includes such techniques as free writing, free speaking, word association, and drawing a mind map, which is a visual note taking technique in which an individual diagrams their thoughts. Individual brainstorming is a useful method in creative writing and has been shown to be superior to traditional group brainstorming. It is an informal way of generating topics to write about, or points to make about a particular topic. A student can brainstorm the topics for a sheet of paper. The important point about brainstorming is that there should be no pressure to be "brilliant." Student should simply open his mind (mind map) to draw a little picture to whatever pops into him, a kind of free association.

Brainstorming to Brown & Paulus [13] are activities which may be in the form of games and are well known as ways to break up old ways of thinking, get the team into a creative mode, and come up with some new and useful ideas. However, most people cannot just jump into it cold, without any kind of structure. If one had been in a brainstorming session where everyone just waits for someone else to speak, one is just like seen as starting without a framework. Exchange of ideas during the buzzes may be generated using brainstorming games.

Evaluating ideas at the end of the group session is the time to explore further and find out which brainstorming activity best fits the need of the teacher in the class.

II. METHODOLOGY

The study aimed at using group brainstorming activities in the class hoped to improve semantic association of students. Using purposive sampling technique Palys [14] had utilized four (4) sections with a total of 200 students; two (2) sections with fifty (50) students each employed three (3) brainstorming exercises, while the remaining sections had the regular classroom discussion.

The teacher conceptualized the procedures to employ. On a separate day, the sample classes were observed. In one (1) sample class, the teacher-researcher grouped the students into five with ten (10) members each. A general topic was given then the brainstorming activity began. The teacher did the 3 activities using the same sample class for three meetings discussing 3 selected topics from the course outline. Lessons were chosen to fit the need to the objective of the study.

Here were the general procedures followed in the use of brainstorming in the class. The time was set to a limit. One hour was given to the students. The leader or another member introduced the problem. The problem was expressed as a question (this could be done before the meeting or as a first step in the meeting). The problem was explained in a way that all group members understood the problem. Some facts / details of the problem were provided before the beginning of the brainstorming activity. A field trip or visit to the place where the problem happened could help the group members to see and understand the nature of the problem. The group met in a half circle and started to storm the problem. Everyone just shared out his/her ideas. All ideas were welcomed from simple to crazy ideas to generate as many ideas as possible. Crazy ideas were welcomed. Many times the craziest ideas turned out to be the best ones. No group member, including the leader was allowed to criticize any idea. Everyone was encouraged to use other group members' ideas to come up with yet another idea.

Figure 2 presented the brainstorming activities employed to verify the effect of the techniques to the semantic association of the sample classes.

1. Problem Description: When I was a child, our home phone used to be in the hallway. The phone was connected via a 30 cm fixed line. Every time the phone rang, or you wanted to make a phone call, you had to go to the hallway and pick up the phone. There was only a hard wooden bench to sit. It was very difficult for more than one person to sit there, and uncomfortable for elderly people to always walk to the phone.

We wanted the phone to come to the people.

Problem as a question: How can we make the phone movable?

2. What Can You See? Show the shapes to the team, and ask them to individually write down what they can see. Members may find descriptions such as; three colored shapes, or a green circle with a diagonal line, a red hexagon and a yellow thought bubble etc.

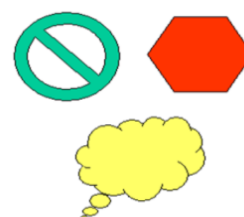


Figure 2. Brainstorming activities diagram

Some may have made a small creative leap and seen the top left figure as a green "forbidden" road sign. These

may have taken bigger creative leaps and see a winking, bearded face or an imminent solar eclipse on a cloudy day. It doesn't matter if the group members can or cannot see these more outlandish images. There is no right or wrong answer anyway. Looking at things in a fresh, new way can trigger a whole train-load of thoughts, and that is the essence of effective brainstorming. Get the team to look at the shapes again and see how they describe them differently the second time round. After the second round, focus on the problem and encourage the team to look at it with fresh eyes or "in a different light". How would they describe the problem (in the study, as math majoring students)? Use this process to encourage objectivity and distance from a problem, and start a more creative problem solving process.

3. Whose Line Is It Anyway. Just like the TV show, the principle of this brainstorming exercise is simple – improvisation. Collect 5 random props from home, the office or from the problem solving team e.g. belt, toy dog, post-it notes, lunch box and paper clip. Leave these props in the middle of the room and encourage people to come up with different uses for the props e.g. the belt could become a Japanese warrior's head-band or the toy dog is hidden from the group and is "dog-gone". You get the drift! Give this exercise a time limit of 10-15 minutes and encourage all team members to take part. Even the shyest will have some creative use for the props!

If one aims to develop a new solution, take existing product or process and see how one can make use the idea looking at it in a different way. The wackier the ideas the better since brainstorming activities aim for quantity not quality. It is only later that members would put critical hats back on, and rate the ideas and assess generated ideas' suitability.

III. FINDINGS

Based from the researcher's observations being the teacher-researcher, what contributed to the ideative efficacy of the respondent classes, were their aim to reach for quantity. Hurrying to generate ideas for an hour-session with a group of 10 members seemed to be a problem. Filipino students in the class are generally hesitant to express ideas especially in the use of English because they are afraid to commit mistakes and become laughing stuff. So, when they were grouped, critics were lessened and judgment was deferred that gave a way to share ideas at unlimited time. Brainstorming reduced inhibitions, stimulated idea generation and increased overall creativity among group members. By withholding judgment, participants felt freely the generation of unusual ideas. Facilitating problem solving exercise enhanced divergent production of radical and effective solutions thus, maximum quantity has led to breeding of quality.

Brainstorming generated more ideas than individuals working alone. Groups brainstorming together produce fewer ideas than individuals working separately. But, it was observed that because only one participant gave an idea at any one time, other participants forgot the idea they wanted to share. "Blocking was a fact seen to have

had hindered the sharing. Brainstorming is a cognitive process in which "a participant generates ideas (generation process) and stores them in short-term memory (memorization process) and then eventually extracts some of them from its short-term memory to express them (output process)", then blocking is an even more critical challenge because it may also inhibit a person's train of thought in generating their own ideas and remembering them.

There was collaboration fixation with the expressions, "What I want to share was already mentioned" and, "My answer is the same with him/her". This conforming tactic decreased the possibility for novelty or variety of ideas. Collaborative fixation hindered exchange of ideas on the number of domains and reduced the chance of exploring additional insights. Evaluation apprehension was determined to occur only in instances of personal evaluation. If the assumption of collective assessment were in place, real-time judgment of ideas, ostensibly an induction of evaluation apprehension, failed to induce significant variance.

There was 'free-riding. Other members of the group felt that their ideas were less valuable when combined with the ideas of the group at large. Diehl & Stroebe [10] observed that even when individuals worked alone, they produced fewer ideas if told that their output would be judged in a group with others than if told that their output would be judged individually. However, experimentation revealed free riding was only a marginal contributor to productivity loss, and type of session contributed much more.

As expected, extrovert students outperformed the introverts. Showy students generated more unique and diverse ideas than shy students. But what was surprising to the teacher was that, when the introverts joined the class, they were the ones chosen to lead some groups. The trust and confidence or the 'will power of the members in 'pushing' the introverts made an impact on the introverts most probably was because of social matching. Social matching tends to lessen ideas in attempt to alter or match others' productivity rate in a group. Matching within the group members can lead to participants generating fewer ideas in a group setting than they would individually because they will decrease their own contributions if they perceive themselves to be more productive than the group average. But in the case of the respondents, generation of ideas increased and each member was productive. The researcher-teacher saw the phenomenon to have occurred due to the group incentives.

Some research indicates that incentives can augment creative processes. Rewards in the study were in the form of group points for every unique idea they shared. The results demonstrated that participants were willing to work far longer to achieve unique results in the expectation of compensation.

IV. RECOMMENDATIONS

It is important that the facilitator be trained in this process before attempting to facilitate this technique. Language teachers or not should be primed and

encouraged to embrace the process. Like all team efforts, it may take a few practice sessions to train the team in the method before tackling the important ideas.

Although the brainstorming can take place online through commonly available technologies such as email or interactive web sites, and the possible customization of computer software that can either replace or enhance one or more manual elements of the brainstorming process, there is no substitute for face-to-face brainstorming for it is human interaction. Although the brainstorming can take place online through commonly available technologies such as email or interactive web sites, positive interaction attitudes should also be enhanced together with the course lesson; patience, sensitivity, courtesy, and language skills.

If working with the group, it is also recommended that groupings take turns to have new members to develop class not only group rapport. The outmost important thing to remember here is not to become the "I-know-it-all" victim. It is about not knowing, but instead looking at one problem from multiple perspectives and experimenting with opportunities. Continuous brainstorming exercises in the class will not only improve skills but also personality.

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