Mind Mapping Technique to Facilitate Writing Performance

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ABSTRACT

The study aimed to identify the perception of six students on the mind mapping technique and how it has facilitated their writing performance. The qualitative data were analysed through descriptive analysis. All the information was assembled through interviews that were conducted in this study. This process involved gathering information, coding, building interpretations, and reporting the feedback. The research findings showed that all six participants had two common perceptions which were establishment of interest and challenging. Besides that, participants also shared a similar response about the selection of keywords, elaboration of ideas and organization of ideas in facilitating their writing performance. The findings showed that the use of the mind-mapping technique improved students' writing performance. Students gave a positive review about the usage of the mind mapping technique in class. The results indicated that the mind-mapping techniques used enhanced the students' writing performance.

INTRODUCTION

Writing, speaking, reading and listening are the four main literacy skills used in the learning and practice of the English language. These skills are interconnected and inter-effective in determining one's language proficiency, thus acts as an important aspect to measure students' English proficiency level. Writing helps to enhance other skills such as listening, speaking and reading as they are all interrelated (Saed & Al-Omari, 2014). Writing is one of the most basic language skills that has never been ignored in the learning process (Harmer, 2002). In fact, writing is the primary basis that helps students enhance their language competency in the teaching and learning process of the English language.

Writing is a framework of communication that can be used to deliver information, opinions and questions. It is evident that writing is a continuously evolving process that involves many stages such as brainstorming, making notes, planning, writing a draft, editing and proofreading (Spratt, Pulverness & Williams, 2005). However, writing is a challenging skill to master especially in the context of higher education. A review of past literature will disclose a number of techniques attempted to improve students' writing process. Among these, the mind mapping technique has been studied extensively in attempts to improve writing skills.

Mind mapping is a pre-writing approach used in the educational context that could enhance the writing process and performance among students. Mind mapping is one of the simplest ways to expand information in a human mind and it is a creative and effective way that plots our ideas (Buzan, 2002). This technique also acts as a key tool to facilitate the learners to gather ideas and apply them in the pre-writing process.

Mind mapping is a great tool to enhance student's ability in recording information and encouraging creative thinking (Buzan, 2005). Considering students are typically visual learners, the mind mapping technique presents an effective alternative for students to organize ideas and generate arguments. Mind maps can be presented using images, keywords, codes, or even different colours. Buzan (2018) argues that mind mapping can increase the brain's ability in connecting numbers with visual representations such as image, colour and it will also enhance memory. It is not only designed for instructors to educate students but also to assist them in linking known

information with previously unknown information. The ideas are interconnected, and minor details are projected during the brainstorming process. Moreover, the use of the mind-mapping technique in identifying keywords and generating ideas relates to the notion of effective information-seeking behaviour (Vighnarajah et al., 2016) and can potentially elevate concerns of academic isolation (Vighnarajah & Lim, 2018).

BACKGROUND OF STUDY

Transitioning from high school to higher education, many students face problems with their writing, especially in academic writing. In fact, writing is considered one of the major and most difficult skills for learners to master compared to any other skill (Leki, 2017). Students generally face problems such as finding and organizing information logically in their writing. Furthermore, students lack clarity and coherence in their writing. Most of the students ignore the writing process and consider one draft enough as a final piece of writing (Byrd, 2011). These mistakes lead to poor elaboration and incoherent writing. This is a concern among undergraduate students who pursue linguistics where basic writing literacy skill is a pre-requisite.

In terms of the Malaysian higher education landscape, Adnan et al. (2014) argue that most Malaysian students are poor in their writing and are yet to master their writing skill despite learning the English Language for a long time. One of the main problems faced by students in writing is their inadequate ability to discover ideas and identify the main points (Firmansyah, 2015). Besides, students are not able to develop a good paragraph and maintain its coherence. Coherence in writing is achieved through the smooth flow of ideas through an organized sentence structure.

Mind mapping is a writing strategy that could help to overcome the writing block, as well as thread ideas together to form cohesive writing. However, people often find difficulties understanding the difference between mind mapping and concept maps. These two concepts are nearly similar but each of it has different structures and unique characteristics. Mind maps are diagrams that are utilized to generate and brainstorm ideas, creative thinking and organising information. Whereas, concept maps are used for forming and visualizing knowledge, interpreting complex problems, identifying solutions and taking action. In light of these aforementioned gaps, this study was conducted to explore how the mind-mapping technique can be used to facilitate students' writing performance. Specifically, this study aims to explore what are the students' perceptions of the mind-mapping technique, and how has mind mapping technique facilitated students' writing performance.

Writing Performance and Elements of Good Writing

According to Durga and Rao (2018), writing is a system of written symbols with different mechanisms to form words, sentences, sounds and syllables according to certain conventions. Besides that, they also noted that a sequence of sentences is organized in a particular order and it is interrelated in a few ways. From the statement, it can be said that writing is not only an act of arranging graphic symbols, but it is a process that follows gradual writing procedures based on the information obtained. Writing is a significant part of communication and it is a creative piece of written work. From the previous elaboration, it can be concluded that writing is a way of expressing our ideas and thoughts in a written form.

Writing is a method of expressing thoughts through letters, words, art or media, and it involves a mental process to execute these ideas (Uusen, 2009). In a nutshell, writing can be considered a significant language ability that is required in educational contexts and many aspects of life. Writing is also an essential communication ability that is required to carry out duties in our daily routines. There are a few elements of writing such as sharing experiences, informing, and entertaining (Clouse, 2006). We can express our feelings about the experience we have been through by sharing it with others. Knowledge is delivered to the audience during the act of informing and it will enhance the learner's knowledge, creates a record, and supplies help.

Writing is a skill that is needed in our daily lives in many different contexts (Bowker, 2007). It is considered an act of conveying a message and it is significant in our daily life. For example, writing an email or a letter is also an act of communication. Anthony (2007) notes that writing is a dynamic tool that helps students to control their minds and have different perceptions. Students usually practise the writing process almost every day in their respective institutions and it aids them to contribute views from many different angles. Writing is one of the best ways to take accountability for your own learning (Ahangari and Behzady, 2011).

Understanding the Mind Mapping Technique

Mind mapping is an image-centred diagram used to represent thoughts, keywords, words and other relevant things connected to the main idea (Buzan, 1991). The main idea is situated in the middle of a diagram and it generates, visualise, constructs and organises ideas. It graphically shows ideas in a relational framework and represents the meanings of the keywords provided. Buzan (2018) states that mind mapping is an efficient tool to generate an idea and sketch it into a paper or express it with words.

Mind mapping is a technique that involves thinking and drafting. Dawson (2005) posited that prewriting supports us to explore ideas and brainstorm thoughts that will help in our writing process. The mind-mapping technique helps students in organizing their ideas before getting started (Firmansyah, 2015). Further, the mind mapping technique encourages students to write without any pressure and resistance and is a suitable prewriting activity as it does not follow a rigid fixed linear. Ideas are arranged sequentially through the mind mapping technique and the elements are organized according to the significance of concepts. Besides that, it is also classified into branches with objectives of other connections between all the information collected.

According to Buzan (2018), there are several principles in creating a mind map as follows:

1) Draw or write the main idea in the middle of the paper. Positioning the paper in landscape orientation makes it easier for participants to draw a mind map.

2) There are lines, branches and arrows created from the main idea. Different colours portray different ideas and all the connection leads to the central theme. The ideas should be relevant and related to maintain the relationship of the main topic.

3) The main branches should not be interconnected and avoid creating artwork.

4) Every idea is important no matter how big or trivial it may appear to be.

5) Different colour symbolizes different thoughts. We should maintain the consistency of the drawing to avoid errors or mistakes.

METHOD

This study employs the qualitative approach. A basic qualitative research design was used to obtain an in-depth and detailed findings through the interview processes. This design also explains the "why" and "how" questions which makes it easier to analyse and elaborate on the thoughts of every participant (Hennink, Hutter, & Bailey, 2011; Kielmann, Cataldo, & Seeley, 2012). The qualitative design also allows participants to share their perceptions freely. Furthermore, the qualitative design also allows the researcher to interpret the analysis through responses and feedback received from participants (Kielmann et al., 2012).

A research instrument is a tool utilized by the researcher to collect data in a complete and systematic order to process the data easily (Arikunto, 2010). In this study, the interview protocol was used as the instrument to direct the interview process through which the participants were asked about their perception, knowledge and experience on the mind mapping technique usinan g interview questionnaire. The interview questions were proposed based on questions that are related to this study. There were three sections in this interview protocol. The first section enquired about the participants' demographic information. The second section underlined the participant's concerns about the writing process, and the third section aimed to elicit information regarding the use of the mind-mapping technique for writing purposes. These interview questions are validated for content and construct validity by three experts from the pedagogical field. Amendments to the items were done accordingly, where relevant.

A total of six (6) students were selected in this study to participate using purposeful sampling. This was a necessary sampling measure to ensure the students selected were those who have experienced the use of the mind mapping technique for engaging in the writing activities. Purposeful sampling is a non-random technique that does require theories, or a set number of informants and the researcher decides to find people who can and are willing to give information by experience of knowledge (Bernard, 2002). The researcher selected all the students in the class to participate in this study to avoid possible obligation bias i.e. students providing responses that aim to satisfy the researcher who is also the course instructor. The planning and conduct of the interview process followed the required ethics approval exercise. This included requesting permission to conduct the study from the Dean and department head. Students' permission was also sought before their participation was included in this study. As a

further measure, the students were assured of their anonymity and pseudonyms were used to ensure confidentiality. This is to encourage honest feedback from the students.

The data obtained from the interviews were subjected to thematic analysis to disclose the emerging themes. This data analysis process was conducted in two stages. The first stage looked into identifying the themes emerged from the analysis, and the second stage looked into merging the themes for consolidated themes that better reflect the outcome of the research questions.

FINDINGS AND DISCUSSION
Students' Perception of the Mind Mapping Technique
To reiterate, the aim of this study was to identify the students' perception of the mind-mapping technique and to investigate how the mind-mapping technique has facilitated students' writing performance. The two research questions were formed to achieve the main objective of this study. The finding in this section aims to address the first research question, "What are the students' perceptions of the mind mapping technique?" Perceptions vary individually based on the scope of acceptance. However, in this situation, the researcher has specified the feedback according to suitable themes obtained from the data analysis. Two important themes were formulated from the findings which is the establishment of interest and the challenging approach.

Establishment of Interest
This subsection describes the meaning of the establishment of interest among participants that aims in building an acceptance of the perception towards the mind mapping technique. The establishment of interest aims to accommodate the commitment and demand of every individual. Students can produce creative and interesting texts when teachers allow their students time and opportunity (Widiati & Widayati, 1997). Every participant has a different perspective on how they acquire knowledge through the mind mapping technique. In fact, participants also have different learning preferences in class. A few of the findings emerged during data analysis as participants expressed their interest when engaging and utilizing the mind map. The approach of invoking interest refers to the participants expanding their interest towards using the mind mapping technique and all these starts with a spark of interest that is ignited among individuals:

> *"I find it more interesting compared to when I heard about it [mind mapping] in the first time, when I was still in like primary to secondary school..."* - Ivana

> *"I was not interested at first, but now when I learn it, I was like OMG it's very good... This can help me a lot and improve me a lot... it's very helpful for me... I like and it is also interesting..."* -Carl

Ivana stated that her interest in utilizing mind maps was invoked recently after using them. She further mentioned that she heard about mind maps during primary and secondary education levels but never knew the main purpose of using them. Similarly, Carl mentioned that he was not interested at first; but after learning the mind-mapping technique, his perceptions of the approach changed positively. Furthermore, he said that the mind mapping technique was interesting to learn because it caters to the needs of students. Mind mapping is taught using words, images, and lines and this may be a new way of learning besides the normal ways that are conducted in a classroom environment. Buzan (2006) argues that mind mapping is a main tool used for stimulating ideas and thoughts which are created around a central theme and it is interlinked. It is a creative way of thinking among students, which is a new way of learning by mapping out their ideas:

> *"I was very interested in the sense that it is another way of learning which we wouldn't be able to learn in other lecturers' class..."* - Rebecca

Rebecca mentioned that the mind mapping technique was interesting in a different way of amplification of their existing learning skills. Mind mapping plays an important role in exploring various opportunities and ideas in class which students require necessary learning skills based on prior knowledge. However, in the findings, there was also another participant with a different opinion about the mind-mapping technique. She said:

> *"I'm not interested... But, I'm enjoying using that [Mind Mapping]..."* - Cing Cing

In her case, Cing Cing enjoyed using and applying the mind mapping technique but at the same time, she was not interested in using it. She further elaborated by stating that it is enjoyable because it improves her writing and it is a technique that helps her personally. However, she does not favour the challenge of using the mind mapping technique, even though she finds it interesting to use it to improve her writing performance. This is mostly because

effective use of the mind maps requires students to closely follow the principles of the technique such as the branching of the stems. In some cases, students (or general users) who cheat on adhering to the underlined techniques tend to confuse mind maps with concept maps – though these two forwards different purposes and outcomes of use.

Challenging Approach

For beginners, learning about the mind mapping technique might be an intimidating method but it is also a very useful tool to learn and apply. Students take more effort and concentration in improving their writing skills through the mind-mapping technique. One of the perceptions of participants towards the mind mapping technique was that they find it challenging:

> *"I think my main issue in that class [Linguistics] would have to be like making a mind map. I have problems like thinking the main points..."* - Lisa

> *"Definitely it's [Mind Mapping] challenging because... With the mind map, at first, I have to make sure the curves are in their certain curve... so that the mind map is correct like how the standard mind map is drawn..."* -Ivana

When asked about the challenges they faced while using the mind mapping technique, some participants mentioned that it was hard to construct a mind map in a correct way. Lisa mentioned that she encountered problems while creating the mind map and it was the main issue in the class. Ivana has stated that mind mapping was challenging because of the challenge to illustrate principles addressed by Tony Buzan's mind mapping technique. Mind maps usually begin with one main idea or point, and the rest of the map revolves around it. Branches are formed from the main idea and each of them represents a keyword that relates to the topic. This might be hard for students to keep up with due to the constraints of word choices:

> *"I have a problem forming keywords so the question may be, you know, something you understand straight away but when you have to put it into keywords that's when it is kind of difficult for me... Well it's hard for me to create keywords so the main thing of syllabus design is keywords, so I had a hard time with that... The mind map is fun to draw but the keywords part..."* - Lisa

> *"It [Mind Mapping] was challenging because we can write only one keyword each to represent the idea of what we want to present... so that we understand what we are writing... It is also challenging in order to find the right words..."* - Rebecca

It can be concluded that most of the participant's feedback on the interest and challenges are the main perception of mind mapping. Most of the results were positive and it gave a big impact on the students. Thus, the findings showed that participants found the practice of mind mapping technique to be challenging when it comes to facilitating their writing performance.

Findings on How Has Mind Mapping Technique Facilitated Students' Writing Performance

The results of this section enlighten the answer to the second research question. The researcher developed three important themes in the following discussion. Three of the themes are selection of keywords, elaboration and organization of ideas.

Selection of Keywords

This subsection describes how the mind-mapping technique facilitates students' writing performance according to their selection of keywords. Mind mapping basically represents ideas and concepts to summarize information. Keywords play an important role in the mind mapping technique and it is a great challenge to identify and choose the suitable word to represent an idea. A single keyword is used in the mind-mapping technique to provide more freedom, creativity and clarity. Keywords help participants to develop and recall ideas based on their prior knowledge through the mind mapping technique:

> *"I think it comes easily because your main idea and the keyword, it's quite easy to pick up which is the keyword, which one you want the reader to know..."* - Lisa

> *"With mind map, I easily identify the keywords and I can focus on the points that I want to include in my writing so that my writing is more structured..."* - Ivana

In the context of this study, the students were required to perform writing for the course focused on the principles and practices of English language teaching. While the students did not face challenges in understanding the intended learning of the course, the students did face some serious challenges to convey their understanding in a written form. To this, the mind mapping technique proved to be useful for students to identify useful keywords to construct elaboration. Such keywords include characteristics of student-centred learning, principles of learning theories and aspects of classroom practices. This measure allowed the students to be effective with the arguments presented in the writing.

The mind mapping technique is challenging because learners describe that they need to learn how to use the correct and suitable keywords to express their thoughts or perspective. When asked about the ways mind map has facilitated the writing process, most of the students agreed that the selection of keywords plays a vital role in facilitating their writing performance. Ivana mentioned that keywords can be effortlessly identified with the use of mind maps in the writing process. Besides that, Rebecca has said that figuring out the selection of keywords through mind mapping technique was a good habit to enhance in their writing performance such as essays and text. Carl has also mentioned that the usage of keywords in the mind mapping technique expresses his thoughts and opinions which made everything easy for him.

> *"Maybe like, when it comes to picking out the main ideas and keywords, I think that helps too. Because, last time I really couldn't figure out the keywords at all. I thought everything was the keyword..."* -Lisa

> *"With the mind map, all the ideas are clearly there so we just have to write it down in a paragraph that includes all the keywords and all the main ideas that we have already included in our map."*
> - Ivana

> *"For the mind mapping, the main point is you just use a keyword... Because you should use one keyword to express the whole thing..."* - Carl

> *"With a mind map, we are able to write our text or our essay or even any writing related materials in a more coherent way because we will be asked to draw a mind map and pick out the keywords and... Link the connections between the keywords to form a whole idea of what we want to present..."* - Rebecca

Most of the participants mentioned that keywords helped in recalling information that would generate and expand ideas through the mind-mapping technique. This is achieved by expanding the elaboration breadth and depth of supporting paragraphs by threading relevant keywords together. Such writing demonstrates the student's understanding of the main idea. In fact, Fotheringham (2012) argues that mind maps help to present the main idea by filling out details of supporting paragraphs that is relevant to the topic.

Elaboration of Ideas

This subsection describes the facilitation of writing through the mind-mapping technique in terms of the elaboration of ideas. Elaboration is the process of developing an idea or a concept to prove an explanation by adding more detail which consists of an essay or a write-up. Participants have responded according to their perspective on the elaboration of their ideas through the mind mapping technique:

> *"Basically, elaboration is just like what you want the reader to know. So, whenever you draw the mind map, you can just elaborate. I mean it focuses on keywords and ideas, so they are interrelated. So basically, the keywords help is that whatever you want to elaborate, if it includes that and it gets the message across then I think it helps..."* - Rebecca

> *"We can elaborate our ideas more and we can organize them, like the main point is this, the second point is this, and also to identify the keywords in the mind map..."* - Ivana

Rebecca stated that elaboration and keywords are interrelated which helped her to focus on her writing activities. It also helped her in delivering the intended message to her readers. In this course, students are subjected to a series of assessed writing activities as part of the course assessment. The rubrics for these writing activities require students to provide answers that demonstrate effective use of keywords substantiated with ample elaboration. This act of associating relevant keywords to the elaboration was a challenging development for these students as they were not appropriately exposed to proper writing processes. Besides that, Ivana has also mentioned that, with

mind map, she can elaborate more ideas. Elaboration of ideas is a part of mind mapping and it is significant in students' writing performance.

> *"Keywords are actually used in our elaboration... where with that one word itself it can represent what we want to elaborate... so with the mind mapping technique, I think it helps a lot in elaboration and we already have the keywords needed..."* - Rebecca

Rebecca mentioned that mind mapping helped her writing performance through the process of elaboration. She also said that it requires only one word to elaborate the whole idea or concept. In a nutshell, elaboration plays an important role in facilitating students' writing performance and this was significantly evident in the practices of the mind-mapping technique by the participants.

Organisation of Ideas

This subsection describes how the organisation of ideas through mind-mapping can facilitate students' writing performance. Organisation refers to how ideas are presented in writing. The mind mapping technique is seen as a powerful tool to help students overcome problems with the organization of their ideas and thoughts (McGriff, 2007). Organisation of ideas also involves the approach of how paragraphs and sentences are written. An organised writing is readable, and it attracts readers to search for the information they need. Mind maps help students to organize their ideas in a proper manner:

> *"Well I do think it [Mind mapping] helps because like it is really structured and you know how to start and where to end. You won't let your ideas run around too much though... I think it does help you organize better... Mind map teaches you to be more structured..."* - Lisa

Lisa and Ivana mentioned that the mind mapping technique supports their writing and it helps them to be more structured with their ideas:

> *"The organization of ideas, it does help because it gives you like a place to, well to structure your ideas like where to start and where to end... Because if I start writing and I start thinking on the spot how to write the ending, the whole essay is going to turn out weird because there was no proper structure in the first place. So, I think mind maps can help in that..."* - Lisa

> *"Well, in my opinion I think that mind maps definitely play a role in the organization of our ideas and we can write better with it... Because we can organize them, like the main point is this, the second point is this... I'll normally map out my ideas first so that the organization of ideas is better compared to just writing out free flow without a plan."* - Ivana

Ivana mentioned that mind-mapping technique helped in organizing ideas and her write-ups are well structured. Mapping out ideas is also a good way to deliver a decent write-up and it will enhance their writing performance. She was able to differentiate between the main points or concepts. She further elaborated that:

> *"My ideas will be more organized compared to if I don't use a mind map... Last time, without using the mind map, my ideas are all over the place but with the mind map, I can say that the ideas are more organised, and I can further branch out the points that I want to elaborate on and give examples..."* - Ivana

Similarly, Carl mentioned that:

> *"Before this I know what I want to write but I couldn't organize it like how to put A,B,C,D together.. Mind mapping taught me how to organize ideas and write step by step..."* -Carl

Previously, Carl did not know how to organize his ideas although he knew what was intended to write. After learning the mind mapping technique, Carl also believed that was interesting because it caters to the needs during his writing activity:

> *"Sometimes I can't organize my ideas in my head but in writing, the mind mapping can give me organization of ideas. When I write down the sentence, I organize my ideas and write it out... It looks more logical... Almost all the writing task you can use mind mapping to organize your ideas..."* - Carl

> *"Mind mapping should be taught to not only English students but other students as well regardless of education level are they in because... It actually helps to organize ideas, helps to prepare better... If the correct way of mind mapping is introduced at an early age, I'm pretty sure they wouldn't face much trouble in their tertiary education in writing..."* - Rebecca

In other words, Rebecca indicated that mind mapping should be taught regardless of age because it helps in organizing ideas before preparing for a writing activity. Besides that, it can also avoid problems and obstacles in the future. Buzan (2010) states that mind mapping assists students to associate thoughts, thinking creatively, and making connections between ideas. The technique is applicable to language classes that consist of individual or large groups. In a nutshell, most of the participants identified the benefits such as selection of keywords, elaboration and organizing ideas using mind mapping in facilitating their writing performance.

Conclusion and Implications for Practice

Mind maps are developed in a radiant structure which is exactly how the human brain naturally works. Students can
learn to activate prior knowledge based on the accommodation of schema. Students will be way more creative and active to express their opinions than usual through the mind-mapping technique. Mind maps are created on a blank space to encourage students to represent their thoughts through keywords and lines that connect diagrams from the central topic. This allows the establishment of links between solutions to the ideas developed by the students. This will enhance students' creativity and logical thinking based on the mind-mapping technique. The mind-mapping technique stimulates motivation and it helps students in their brainstorming activity. It retrieves existing knowledge and allows students to identify concepts that creates the relationship among other components.

Mind mapping is usually assigned based on a topic and students can list down everything they know which relates to the topic. The mind mapping technique encourages students to classify words into categories and it is built based on schema (Johnson, 2000). Besides that, the mind mapping technique also helps students to organize ideas in correct sequential order. Mind mapping can help students to maintain the relevance of the topic by writing the important points (Meyer, 1995). Overall, mind mapping is credited as a technique that guides guide students through the writing process which includes prewriting, drafting, editing, and revising.

DECLARATION STATEMENT

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest in this study.

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