"Developing self-aware & self-directed students and staff"

Proceedings of the 17th Annual SLAIHEE Conference on Higher Education in Sri Lanka

organised by

Sri Lanka Association for Improving Higher Education Effectiveness (SLAIHEE)

Friday 30 July 2021

9.00 a.m. to 2.45 p.m.

Held online via Zoom

Enhancing students' skills via online mode: Use of mind mapping for paving the way towards active learning

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Abstract

A 'Mind map' is a visual diagram which can be used to organize information on one's mind. It helps students to actively participate in learning while developing their skills. Due to the COVID 19 pandemic, courses are delivered via online and therefore, students find it hard to organize their lessons. Moreover, the majority of students find it difficult to maintain continuous attention on the lesson. During last year's paper marking, it was highlighted that many students were unable to apply sampling methods and due to that they lost marks. In this context, it was explored whether mind mapping can be used as a method to help students to develop skills while ensuring students' attention on the lesson. The activity had been combined with the **S**tructure of the **O**bserved **L**earning **O**utcome (SOLO) taxonomy and was conducted with 33 students in the third year, following the course unit 'Social Research Method' offered in the Demography Special Degree Programme. Initially the lesson on sampling methods was explained to the students and subsequently, they were instructed to draw a mind map based on sampling methods and to present the same. Outcome of this activity was assessed using peer feedback, student feedback and through observations by the teacher. It was observed that 82% of the students had strongly agreed that mind mapping had helped them to grasp lessons better, while all of them had indicated that it enhanced creativity and analytical skills. Furthermore, 86%, 64%, 86% and 88% of students had stated that it improved their time management skills, critical thinking, presentation skills and organization skills respectively. Findings suggested that mind mapping can be successfully implemented in order to enhance skills of students and to maintain continuous attention during virtual lessons.

Background

Mind mapping is considered as one of the information processing strategies in which information is permanently stored in memory by sophisticated processing. Furthermore, mind mapping is a learning technique which uses a non-linear approach that encourages the learner to think and explore concepts using visual-spatial relationships (Arulselvi, 2017). It is a visual diagram used to record and organize information in a way that the brain finds captivating and easy to process. Therefore, the mind map can be identified as a tool for organizing information. In this context, Fadillah (2019) mentioned that the use of mind mapping gives three advantages, namely: (i) encouraging the students to think and organize their ideas before writing something; (ii) facilitating the students to develop their ideas and (iii) helping the students to remember ideas better. On the other hand, by developing the mind map, students can enhance not only the organizational skills but also their critical thinking and in-depth thinking. Pudelko et al. (2012) revealed that one of the key teaching and learning strategies that has recently emerged in higher education as a means to support

student critical thinking, is the nonlinear learning technique of mind mapping. Furthermore, Savich (2009) found that the focus on critical and independent thinking was an effective way for teachers to maximize the engagement of students in the class. On the other hand, Mona & Khalick (2008) stated that the maps have a positive impact on student achievement since they can enhance their deep thinking 'out of the box'. Buzan (1993) mentioned that by using keywords in a mind map, a student stimulates his or her mind to dig deeper and to see greater detail on thoughts that were previously vague. This in turn enhances students' thinking capacity. Al-Jarf (2009) investigated the impact of using mind mapping software on students' acquisition of English writing skills. Furthermore, Goodnough and Woods (2002) discovered that by engaging in mind mapping, students can actively participate in the lecture and perceive mind mapping as a fun, interesting and motivating approach to learning. On account of that, students have always been passionate about using key words in Mind maps rather than phrases or a collection of words (Buzan, 1993). Moreover, Howe (1970) revealed that mind maps help students to maintain continuous attention on the lecture.

Due to the COVID 19 pandemic, lectures are delivered via online for over one year and therefore, students find it hard to organize their lessons. This was exemplified by the section on 'method of sampling' in the course unit 'Social Research Method' offered in the Demography Special Degree Programme, during last year's paper marking. It was highlighted that many students were unable to apply several types of sampling methods. Most students seemed to be confused on random sampling methods and non- random sampling methods frequently and as a result they lost marks at the examination. Moreover, the majority of students found it difficult to maintain continuous attention on the lesson during online delivery and at the end of the session more than half of the students had left the lecture. In this context, the aim of this study is to examine whether mind mapping can be used as a strategy in order to create an active learning environment that helps to develop students' skills via online, while ensuring students' attention on the lesson.

Methodology

SOLO taxonomy was combined to this activity with the intention to gradually uplift the students to the pre-structural stage and then to the extended abstract stage. The activity was implemented for third year 33 students in the Demography Special Degree Programme under the course unit 'Social Research Method'. Initially, during the three hours lecture session, the lesson on Sampling Methods was explained for 1-hour and 40 minutes and then students were invited to draw a mind map (on paper or digitally) on random and non-random sampling methods within 15 minutes. Finally, 5 students were selected randomly and invited to present their mind maps by sharing the screen. Outcomes of this activity were assessed by sending google sheet for the peers and students via mails and peer feedback forms, student feedback forms and through teacher's observation.

Results

Based on the presentation on mind map and student feedback, it was observed that students had shown a positive perception on the activity and they could actively participate in the

lecture. Also, 82% of students strongly agreed that the mind map activity helped them to understand the lecture. Furthermore, 68% of students mentioned that this activity was a good opportunity for them to participate actively . In the lecture and 100 percent of all students strongly agreed that they were able to enhance their creativity. Some sample creations are shown in this Figure 1 illustrates few mind maps presented by the students.

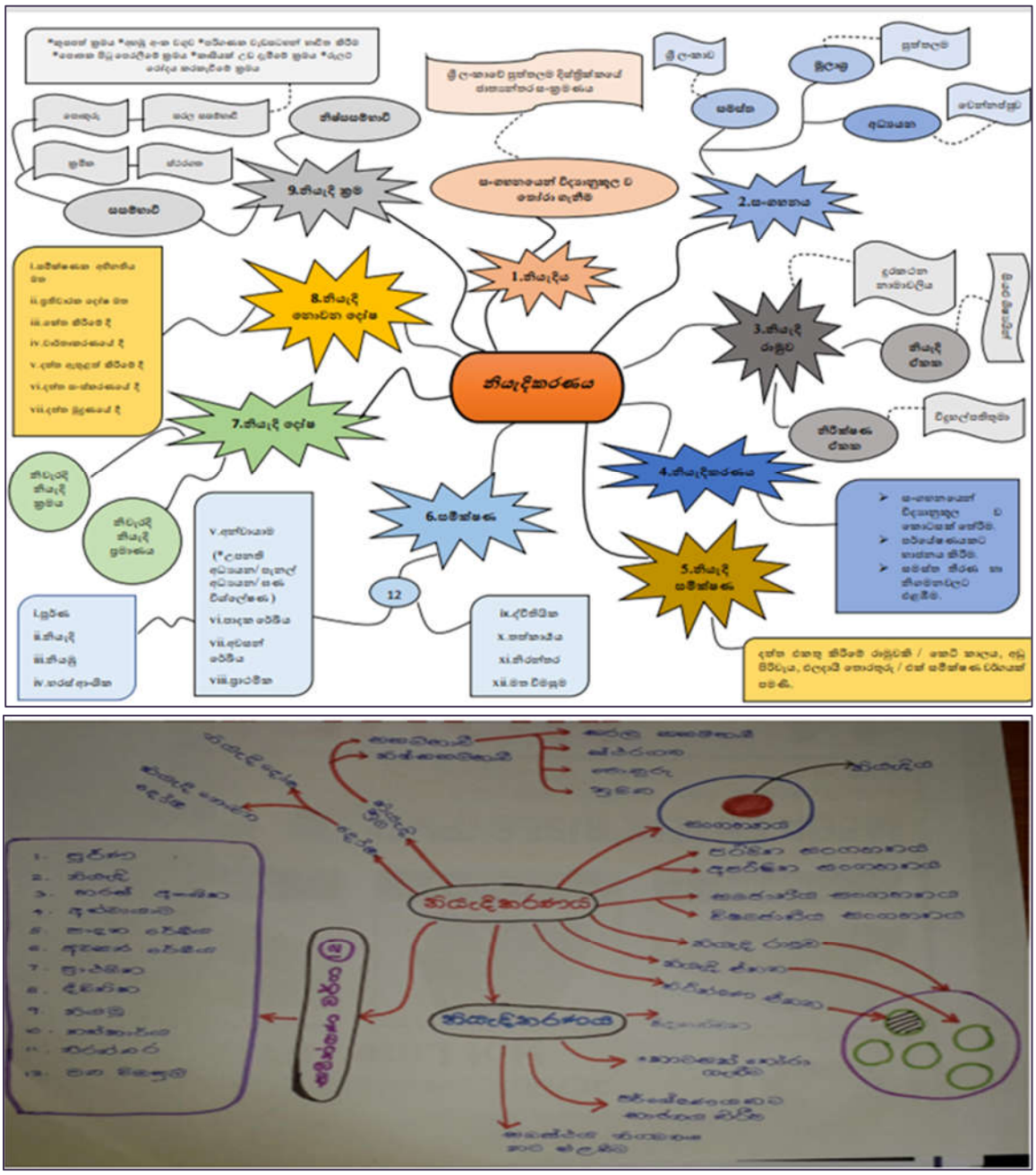

Figure 1. Mind maps presented by the students

It was noted that during the aforesaid task, some students faced difficulties due to lack of communication devices, issues related to network connection caused by lack of infrastructure facilities and financial difficulties. In order to overcome this, they were encouraged to draw a

mind map on a paper and share it using their mobile phones. It was evident that it was possible to observe how this activity supported the students to engage in the lesson ,internalized it and how well they enjoyed the activity. Furthermore, Boyson (2009) asserted that by using mind mapping, students can recall the subject matter. Mento et al. (1999) detected that a mind map method helps to understand the content without taking notes. The aforesaid could be confirmed on completion of the task. Moreover, students mentioned that by engaging in this activity they were able to enhance their presentation skills, time management skills, organization skills, critical thinking etc., as shown in Table 1.

Table 1. Student perception on their skills enhancement through Mind-Mapping activity

Key areas of skill enhancement	Student feedback (%)				
At the end, activities with Mind mapping activity:	Strongly disagree	Disagree	Somewhat agree	Agree	Strongly agree
helped to understand the today's lecture	-	-	17.9	28.6	53.6
helped to actively participate in the lesson	-	-	32.2	32.1	35.7
promoted creativity when designing the Mind map	-	-		50.0	50.0
enhanced the knowledge	-	-	14.3	64.3	35.7
enhanced time management skills	-	-	14.0	50.3	35.7
helped to keep my continuous attention on the lesson	-	-		50.0	50.0
stimulated my critical thinking	-	-	36.0	28.3	35.7
developed my presentation skills	-	-	14.3	53.6	32.1
enhanced my analytical skills	-	-		64.3	35.7
developed my organizational skills	-	-	6.0	23.7	64.3

As per Table 1, 86%, 64%, 86% and 88% of students stated that mind mapping had improved their time management skills, critical thinking, presentation skills and organization skills respectively. Peer comments suggested that this activity helped students to become well organized in learning sampling methods. According to the lecturer's reflection, the activity, helped students to grasp the content of the lesson. It was observed that the students gradually enhanced their organizational skills as the definitions, their importance, types and application of different sampling methods as they were discussed through the mind map. Students used various symbols and colours to highlight different themes and key factors respectively in an organized manner with confidence.

Discussion and Conclusion

It is evident that students' engagement by engaging in the mind mapping activity seems to develop their organizational skills in particular. Furthermore, students' responses provide evidence that mind map activity encouraged them to find new ways of summarizing what they have learnt. The results further suggested that the mind map had stimulated students to actively and continuously participate in the lecture until the end of the session. It had also helped them to improve creativity, time management, and presentation skills. It in conclusion, reveals mind mapping can be strategy for enhancing skills through active learning helps students' ideas/concept effectively while ensuring continuous attention during virtual lessons.

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