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Concept Maps: Let's Organize Your Speech

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Abstract- **This research was to observe the effectiveness of concept maps in enhancing Matriculation students' speaking ability in terms of organization and content. The specific objective of this research is to identify if concept maps could be an effective educational tool to improve students' speaking scores according to the Malaysian University English Test (MUET) speaking scoring guideline. Participants of this research consist of 24 one-year Science program students. Data collections were done through pre-test and post-test. Data were analysed using descriptive analysis. Results of the analysis established that all the 24 participants showed an increase in the speaking scores after the intervention using concept maps. The research indicated that concept mapping is effective in supporting the organization of thoughts and content to produce verbal output thus producing a positive correlation between the use of concept maps and scores for participants' speaking assessment.**

Keywords:- **Malaysian University English Test, speaking, concept maps, competent.**

I.INTRODUCTION

Teaching English for assessment purposes differs for students in upper secondary and pre-university students. The assumption that grades achieved for 'Sijil Pelajaran Malaysia' (SPM), reflects the true ability of the students' English proficiency is debatable. In comparison to MUET, the students are not assessed as formally as MUET for their speaking proficiency as part of their SPM English assessment although there is a school based oral assessment. Students are not able to respond verbally to questions in a structured manner within a period allotted as expected in MUET due their inability to construct grammatically correct sentence within 2 minutes. Panic, fear, and non-confidence are some of the reasons for the students not being able to speak.

English teaching and learning have the goal of focusing students so that they are able to use English for communication and as a tool for furthering their studies. In the process of teaching and learning, the four language skills (listening, speaking, reading, and writing) are simultaneously performed. In language teaching and learning, ability to speak is the most essential skill since it is the basic for communication and it is the most difficult skill. To be prepared for tertiary education, matriculations students are exposed to the various educational methodology to improve English language in an integrated approach.

1. Statement of problem:
Matriculation students who have enrolled in the researchers' college have obtained excellent results for their SPM exam. The assumption that good grades in SPM especially English reflect the true proficiency of these students' overall English Language skills should be disregarded. From the researchers' perspective, obstacles in speaking in an academic approach among students with good grades in SPM English are due to over-confidence and lacking in exposure to communicative environment for English usage. The students have pre- conceived opinion that their grades describe their ability of the English language. The researchers tried to stimulate high quality responses from their students by informing them the techniques of speaking but the students were not able to visualise what they want to speak. The students were not able to speak in an organised structure with maturity of thought on a given topic because they lack the capability to compose a verbal response in structured approach for an impromptu response.MUET

Speaking assessment consists of two tasks; Task A and Task B. For task A, the candidate is expected to speak for a full 2 minutes, regardless of how many points he or she delivers. There is no deduction of marks for number of points, as the Malaysian Examination Council does not specify the exact number of points to be delivered. The candidate needs to speak according to the topic confidently, fluently, and accurately based on the task stated. For task B, the candidate is anticipated to speak for a full 10 minutes with three other candidates. Candidates are assessed for good communicative ability and good management of discussion skills.

To solve the problem of not being able to present the ideas for a speaking assessment, the researchers introduced various concept maps for the students to organise their thoughts and write it down so that they will be able to respond to the speaking task. To ensure that their respond

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reflects the expectation of MUET Band 4 scores the researchers disclosed scoring guideline for speaking assessment to enable the students comprehend why the structure of their response is important for task fulfilment.This study aimed to test the appropriateness and feasibility of assessing the effectiveness of concept mapping as an educational strategy to encourage meaningful reflective learning, link theory with practice and enhance speaking self-efficacy in matriculation students.

2. Research questions:

Does concept map improve the students' flow of ideas in an organized manner with maturity of thought to enhance their speaking ability?

3. Research Objectives:

The research objective was to improve students' organization of speech that shows maturity of thought for MUET speaking assessment through concept maps.

II. LITERATURE REVIEW

Students divide huge volumes of new knowledge into smaller portions and then readjust them as part of the learning process (Novak and Cañas, 2006).

Learners then develop further logical connections between these smaller concepts until knowledge is integrated with their existing understanding (D. Hay et al., 2008; D. B. Hay et al., 2008).

Concept mapping is an approach that can capture a pictorial record of this process, similar to mind mapping (Buzan and Buzan, 2010). It has its basis in constructivist epistemology (Kandiko and Kinchin, 2012) and is concerned with the ways in which people organize and reorder new knowledge based on their past learning and understanding (Von Glasersfeld, 1984).

Concept mapping has been utilised in a range of educational disciplines (Bressington et al.,2011, 2013), as a strategy to promote learners' development of an in-depth understanding (Buzan and Buzan, 1996; Baugh and Mellott, 1998). The process of repeated concept mapping and subsequent reflection on the series of maps are thought to help students reconsider information in order to promote critical analysis (Wheeler and Collins, 2003) and deeper learning.

This cyclical process of reflection on their concept maps helps students engage in further meaning-making by presenting an opportunity to picture the way they have worked through understanding of a complex subject (Gul and Bowman, 2006; Bressington et al., 2011). Within the nursing education, the concept mapping approach has been shown to help effectively link theory and practice (Hicks-Moore, 2005). Helping nursing students to become more effective at reflecting on their understanding is of paramount importance because their abilities to link theory with practice are closely related to their levels of theoretical knowledge and reflective learning skills (Hatlevik, 2012). Other studies have also shown that reflection and associated critical analysis can influence the way health professionals conceptualize their clinical practice and draw attention to related important knowledge or knowledge deficits (Lowe et al., 2007).

Guiding students to reflect in a structured way on a series of concept maps may strengthen the theory practice links because it enables them to visually reorganize, connect, and assimilate knowledge in different ways which promotes the development of an in-depth understanding of important issues (Hicks-Moore, 2005; Kinchin et al., 2008). Using concept mapping to reflect on understanding has also been shown in some studies to improve learning self-ecacy by improving knowledge retention, clarifying concepts and enhancing interest in learning (Nesbit and Adesope, 2006; Chiou, 2008).

Improving learning self-efficacy is important for the enhancement of academic progress because students with high learning self-efficacy generally have good levels of academic achievement and use more effective learning strategies (Chularut and DeBacker, 2004).

The purposeful promotion of meaningful learning and the improvement of learners' self-efficacy may be particularly important in Asian students. Research shows that Asian learners can be comfortable with teaching styles that allow them to become the passive recipient s of knowledge, resulting in superficial rote learning (Baumgart and Halse, 1999; Hsu, 2004

III. METHODOLOGY

The experimental study was done through of a pre-test, which was carried out in week 1, observation, and posttest in week 6 at a Malaysian Matriculation College. The participants were twenty-four students (Table 4.1) from Module 1 of the one-year Science program.

Table 1. Distribution of Participants' SPM English Grades.

Spm English Grade	Gender	
	Male	Female
A+	2	3
A	5	4
A-	1	3
B+	3	2
C+	1	0
	12	12
Total	24	

Research instruments were MUET style speaking assessment questions (appendices D and E) and various

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concept maps. Scores for pre-test was collected in week1 before the introduction of concept maps and after in week 6.

IV.FINDINGS

Based on the pre-test (conducted after first week) scores as in Table 4.2 and Table 4.3 for speaking using the MUET scoring guideline reflect the level of proficiency of the researchers' students as below the expected score of 28 points which the researchers forecast for students with good grades in SPM. The problems that the researchers saw were that the students' inability to organise their thoughts to speak in a structured manner to fulfil the 2-minute time allocation given for Task A and 10-minute for Task B.

Table 2. Distribution of students Pre- Test Task A and B Total Speaking Score (Week 1).

S. N.	Pre Test		Total 120	Calculated For Muet Band Criteria45 Points
	Task A	Task B		
1.	29	27	56	21
2.	28	26	54	20.25
3.	30	27	57	21.38
4.	26	24	50	18.75
5.	28	28	56	21
6.	29	27	56	21
7.	29	27	56	21
8.	24	24	48	18
9.	29	29	58	21.75
10.	29	28	57	21.38
11.	26	28	54	20.25
12.	27	25	52	19.5
13.	28	26	54	20.25
14.	28	28	56	21
15.	27	27	54	20.25
16.	29	27	56	21
17.	25	25	50	18.75
18.	23	22	45	16.88
19.	27	25	52	19.5
20.	27	23	50	18.75
21.	23	22	45	16.88
22.	20	21	41	15.38
23.	20	18	38	14.25
24.	22	22	44	16.5

Furthermore, there was no element of maturity in terms of content in an academic argument for Task B. Thus, the researcher applied the intervention method that is the introduction of various concept maps to all students equally, so that it would help to elicit academically mature and organised spoken responses from them.

The mean of the scores obtained by students for the total score is 51.625, which is only 43% of the full score. The mode of the score is 56, which is far below below the competent speaker score, which is about 78 points. Table 4.4 puts forth the scores based on the MUET speaking points that shows the mode of the score as 21 and the largest as 21.75. These scores put the students in modest and marginal proficiency level.

The scores obtained can be interpreted that the students are able to response based on the MUET style speaking assessment, though not being on a desired level, which is the competent speakers level. This finding puts forth that there is an urgent need to improve the students' ability to speak in an organised and structured approach.

Table 3. Arithmetic mean, median , range and mode of the results of the students Pre- Test Task A and B Speaking Assessment Total Scores.

Mean:	**51.625**
Median:	54
Mode:	56
Largest:	58
Smallest:	38

Table 4. Arithmetic mean, median , range and mode of the results of the students Pre- Test Task A and B Speaking Assessment Scores according to MUET Band criteria.

Mean:	19.36
Median:	20.25
Mode:	21
Largest:	21.75
Smallest:	14.25

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After problem identification that was done through a Pre-test observation, the concept maps were introduced to enhance the organization of the students' speech. After 5 weeks, the effectiveness of the method was measured through a post-test.

Findings that put forth the students Post-test Task A and Task B Speaking Assessment as accordance with the task fulfilment, language, and communication ability are displayed in Table 4.5 and 4.6 respectively**.**

Table 5. Distribution of students Post-test Task A and B Total Speaking Scores (Week 6).

S. No.	PRE TEST		Total 120	Calculated for MUET Band Criteria-45 points	POST TEST		Total 120	Calculated for MUET Band Criteria
	Task A	Task B			Task A	Task B		
1	29	27	56	21	40	44	84	31.5
2	28	26	54	20.25	42	43	85	31.88
3	30	27	57	21.38	44	46	90	33.75
4	26	24	50	18.75	39	42	81	30.38
5	28	28	56	21	45	45	90	33.75
6	29	27	56	21	42	47	87	32.63
7	29	27	56	21	42	47	87	32.63
8	24	24	48	18	36	41	76	28.5
9	29	29	58	21.75	44	47	91	34.13
10	29	28	57	21.38	44	47	91	34.13
11	26	28	54	20.25	41	45	86	32.25
12	27	25	52	19.5	42	42	84	31.5
13	28	26	54	20.25	42	44	86	32.25
14	28	28	56	21	42	46	86	32.25
15	27	27	54	20.25	40	45	85	31.88
16	29	27	56	21	40	45	85	31.88
17	25	25	50	18.75	37	43	80	30
18	23	22	45	16.88	36	41	77	28.88
19	27	25	52	19.5	40	44	84	31.5
20	27	23	50	18.75	39	44	83	31.13
21	23	22	45	16.88	36	39	75	28.13
22	20	21	41	15.38	34	41	75	28.13
23	20	18	38	14.25	32	38	70	26.25
24	22	22	44	16.5	35	39	74	27.75

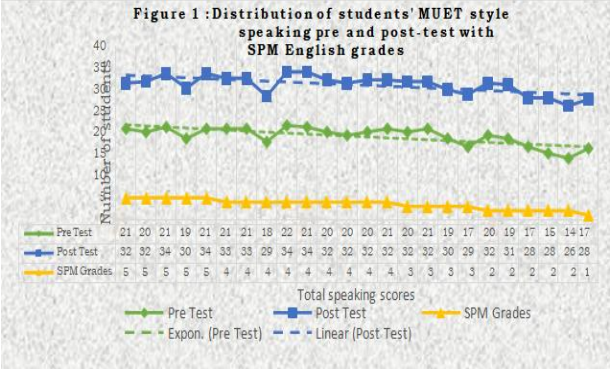

Table 6. Arithmetic mean, median , range and mode of the results of the students Post- Test Task A and B Speaking Assessment Scores.

Mean	83
Median:	84.5
Mode:	84, 85, 86,
Largest:	91
Smallest:	70

The mean of the scores obtained by students for the total score after the introduction of concept maps as illustrated in Table 4.7 is 83 compared to 51.625 during the pre-test, which shows an increase of 31 points. The mode of the post-test score was 84,85 and 86 , which reflects the participants as competent speaker compared to 56 points in pre-test which shows their proficiency as only modest and marginal speakers.

The scores obtained can be inferred that the students are able to response based on the MUET style speaking assessment, being on a anticipated level which is in Band 4 that is a score of 30 and above as shown in Table 4.8. These scores reflect that of a competent speaker compared to the mean during pre-test which was 19 points, reflecting the students as only of modest and marginal speakers based on MUET scoring band.

Table 7. Arithmetic mean, median, range and mode of the results of the students Pre and Post-Test Task A and B Speaking Assessment Scores.

	Pre-Test	Post- Test
Mean:	51.625	83
Median:	54	84.5
Mode:	56	84, 85, 86,
Largest:	58	91
Smallest:	38	70

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Table 8. Arithmetic mean, median , range and mode of the results of the students Pre- Test and post-test Speaking Assessment Scores according to MUET Band criteria.

Mean:	19.36	31.1275
Median:	20.25	31.69
Mode:	21	31.5, 31.88, 32.25, each appeared 3 times
Largest:	21.75	34.13
Smallest:	14.25	26.25

This finding puts forth that there is a relationship between the use of concept maps and participants'' speaking ability speak in an organised and structured approach.

V. CONCLUSION

Overall, the findings from this study provide preliminary evidence that the concept mapping approach may be useful to help students evaluate their spoken English Language, promote reflective learning, and encourage the integration of theoretical knowledge with language proficiency to develop a deeper understanding for communicative interaction. Concept mapping may be most eff ective if used immediately for all integrated skills in the English Language class.

VI. FUTURE RESEARCH

The implementation of concept maps in a larger scale in all Matriculation Colleges and identify the most appropriate concept map which could elicit immediate reaction from students should be researched .The identification of appropriate concept maps for quick mapping of response will ease the lecturers teaching process.

REFERENCE

[1] Baugh, N.G., Mellott, K.G., 1998. Clinical concept mapping as preparation for student nurses' clinical experiences. J. Nurs. Educ. 37 (6), 253–256.
[2] Baumgart, N., Halse, C., 1999. Approaches to learning across cultures: the role of assessment. Assess. Educ. Princ. Policy Pract. 6 (3), 321–339.
[3] Buzan, T., Buzan, B., 1996. The Concept Map Book: How to Use Radiant Thinking to Maximize your brain's Untapped Potential. Plume, New York.
[4] Buzan, T., Buzan, B., 2010. The Concept Map Book: Unlock your Creativity, Boost your Memory, Change your Life. Pearson Education Ltd., London.
[5] Chiou, C.C., 2008. The eff ect of concept mapping on students' learning achievements and interests. Innov.Educ. Teach. Int. 45 (4), 375–387.
[6] Chularut, P., DeBacker, T.K., 2004. The influence of concept mapping on achievement, self-regulation, and self-efficacy in students of English as a second language. Contemp. Educ. Psychol. 29 (3), 248–263.
[7] Gul, R., Bowman, J., 2006. Concept mapping: a strategy for teaching and evaluation in nursing education. Nurse Educ. Pract. 6, 199–206. http://dx.doi.org/10.1016/j.nepr. 2006.01.001.
[8] Hatlevik, I.K.R., 2012. The theory-practice relationship: reflective skills and theoretical knowledge as key factors in bridging the gap between theory and practice in initial nursing education. J. Adv. Nurs. 68 (4), 868–877.
[9] Hay, D., Wells, H., Kinchin, I., 2008b. Quantitative and qualitative measures of student learning at university level. High. Educ. 56, 221–239. http://dx.doi.org/10.1007/ s10734-007-9099-8.
[10] Hay, D.B., Kinchin, I.M., Lygo-Baker, S., 2008a. Making learning visible: the role of concept mapping in higher education. Stud. High. Educ. 33 (3), 295–311. http://dx. doi.org/10.1080/03075070802049251.
[11] Hicks-Moore, S., 2005. Clinical concept maps in nursing education: an eff ective way to link theory and practice. Nurse Educ. Pract. 5 (6), 348–352.
[12] Hsu, L., Hsieh, S.I., 2005. Concept maps as an assessment tool in a nursing course. J. Prof. Nurs. 21 (3), 141– 149.
[13] Hsu, L.L., 2004. Developing concept maps from problem-based learning scenario discussions. J. Adv. Nurs. 48 (5), 510–518.http:// www.mpm.edu.my/
[14] Jankowska, M., 2010. Concept mapping-a reflective tool in personal development planning. Assess. Teach.Learn. J. 10, 14–17.
[15] Kandiko, C.B., Kinchin, I.M., 2012. What is a doctorate? A concept-mapping analysis of process versus product in the supervision of lab-based PhDs. Educ. Res. 54 (1), 3–16.
[16] Kinchin, I., Cabot, L., Hay, D., 2008. Using concept mapping to locate the tacit dimension of clinical expertise: towards a theoretical framework to support critical reflection on teaching. Learn. Health Soc. Care 7 (2), 93–104.
[17] Kinchin, I.M., Hay, D.B., Adams, A., 2000. How a qualitative approach to concept map analysis can be used to aid learning by illustrating patterns of conceptual development. Educ. Res. 42 (1), 43–57.
[18] Lowe, M., Rappolt, S., Jaglal, S., Macdonald, G., 2007. The role of reflection in implementing learning from continuing education into practice. J. Contin. Educ. Heal. Prof. 27 (3), 143–148.
[19] Nesbit, J.C., Adesope, O.O., 2006. Learning with concept and knowledge maps: a metaanalysis. Rev. Educ. Res. 76 (3), 413–448.

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[20] Novak, J.D., Cañas, A.J., 2006. The origins of the concept mapping tool and the continuing evolution of the tool. Inf. Vis. 5 (3), 175–184.
[21] Von Glasersfeld, E., 1984. An introduction to radical constructivism. In: Watzlanick, P. (Ed.), The Invented Reality. Norton, New York, pp. 17–40.
[22] Wells, H.R., Bernal, C., Bressington, D., 2015. Becoming a mental health nurse: a three year longitudinal study.Knowl. Manag. e-Learn. 7 (1), 100–118 (ISSN 2073-7904).
[23] Wheeler, L.A., Collins, S.K., 2003. The influence of concept mapping on critical thinking in baccalaureate nursing student..

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