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The development and evaluation of the qualities of buzan mind mapping module

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Abstract

Using self-instructional module can be an alternative approach and make significant contributions to overcome note taking problem among students. Thus, the purpose of this research is to develop and evaluate the qualities of Buzan Mind Mapping module. The development of the Buzan Mind Mapping module was based on Meyer Model. Analysis on the qualities' evaluation revealed that eight raters showed an agreement on satisfactory level and above for all 34 items. Meanwhile, 36 students gave positive feedbacks on the format and content of the module except the size of the module.

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Keywords: Buzan mind mapping; development; evaluation; quality; self-instructional module

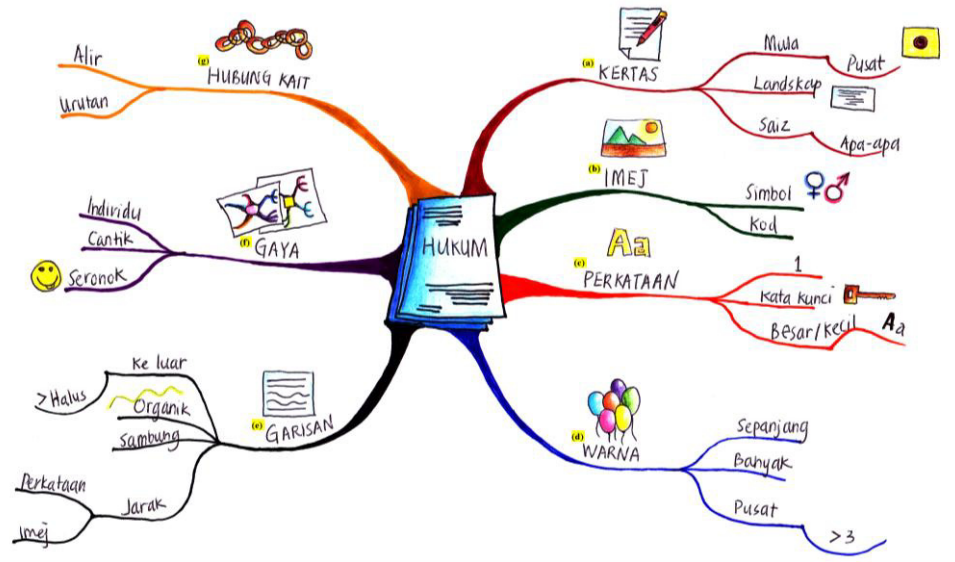
1. Introduction

Caviglioli *et al.* (2002) affirmed that in this rapidly developing knowledge age, the prosperity of our country is dependent on having highly skilled knowledge workers. These workers must be able to think flexibly and creatively and for that they need the knowledge tools. But in most classrooms, students are still locked into the same instructional sequence with the same learning materials (Shaharom and Yap, 1993). Although individualized instruction may appear to be an easy solution, but there are many constraints within the school context. Therefore, using modules as a strategy for teaching and learning within the technical education can be an alternative approach and make significant contributions.

Meyer (1988) had succinctly argued that modules are not just “job sheets” or “old style work units” or “chapters of books” with questions added. Module is a planned series of learning activities designed carefully to assist the

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(Tee, 2009)

Figure 2. Laws of Buzan Mind Mapping

3. Purpose of the Research

The purpose of this research is to develop and evaluate the qualities of Buzan Mind Mapping module. Specifically, the research objectives are:

- i) To develop Buzan Mind Mapping module.
- ii) To evaluate the qualities of Buzan Mind Mapping module.

4. Methodology

This is a quantitative approach research started with the development of Buzan Mind Mapping module using Meyer Model (1988). The Buzan Mind Mapping module was then went through the trial procedures and assessment of the qualities using two set of instruments. Both instruments, “Rating scale for the evaluation of the qualities of a module” and “What you thought of the module” cover two major aspects, content and design for a module. There are 34 items for “Rating scale for the evaluation of the qualities of a module” instrument and 20 items for “What you thought of the module” instrument.

4.1. The sample

Eight evaluators from the field of thinking skills, Buzan Mind Mapping and module design were involved in the evaluation stage. On the other hand, three students (small group) and a class of 36 students (representative group) from one of the secondary schools were also involved in the evaluation stage.

4.2. Reliability

According to Wood (2007), the Kappa coefficient with the value of 0 indicates agreement due to chance alone and 1 indicates perfect agreement. If the Kappa coefficient is .70 or greater, the rate pairs can be said to exhibit greater reliability; if less than .70, then the rater pairs may be said to exhibit lesser reliability (Landis and Koch, 1977). Fleiss’s Kappa was used to determine the degree to which consensus agreement ratings vary from the rate expected by chance, with values greater than .60 indicating substantial non-chance agreement. Fleiss’s Kappa for the inter-rater reliability score for the instrument “Rating scale for the evaluation of the qualities of a module” was $\kappa = .7167$, S.E. = .0990, 95% C.I. = .5226 to .9107, which can be used to represent constant agreement among the three

ratars. Meanwhile, the internal-consistency reliability value for the instrument “*What you thought of the module*” was $\alpha = .87$.

5. Development of Buzan Mind Mapping Module

The development of Buzan Mind Mapping module was based on Meyer Model (Figure 3).

5.1. Steps in design and development of a module

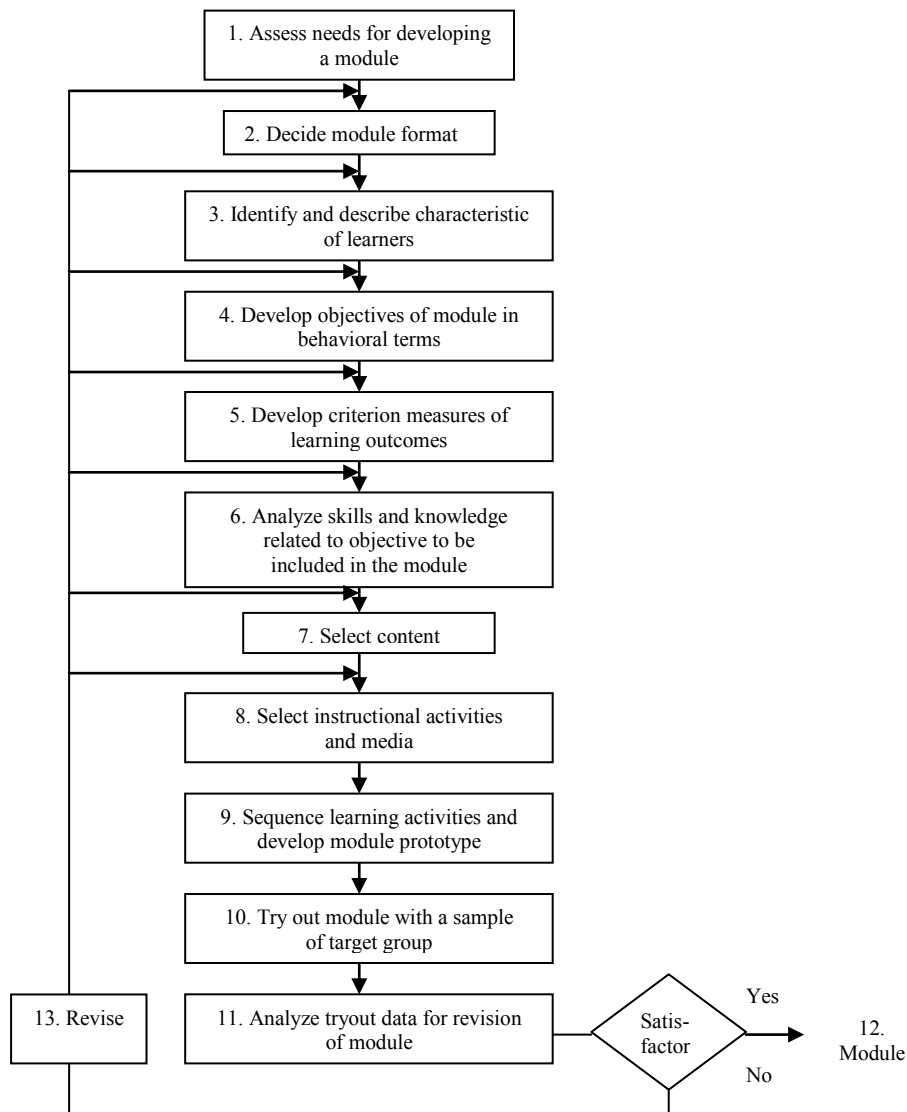


Figure 3. Steps in design and development of a module

5.2. Evaluation, trialling and validation for Buzan Mind Mapping module

Meyer (1988) stressed that no one can be certain of a module’s true educational effectiveness until it has been tried out with representative students.

5.2.1. Overall steps in the trialling procedure

The trialling and validation of the draft module followed a three step process:

- Step 1: Judgment by peers;
- Step 2: Trial with small group of students, and
- Step 3: Trial with a representative class or classes.

5.2.2 Steps in trialling a draft module

At each stage data were collected and used to modify the draft module. Figure 4 shows the steps in trialling a draft module.

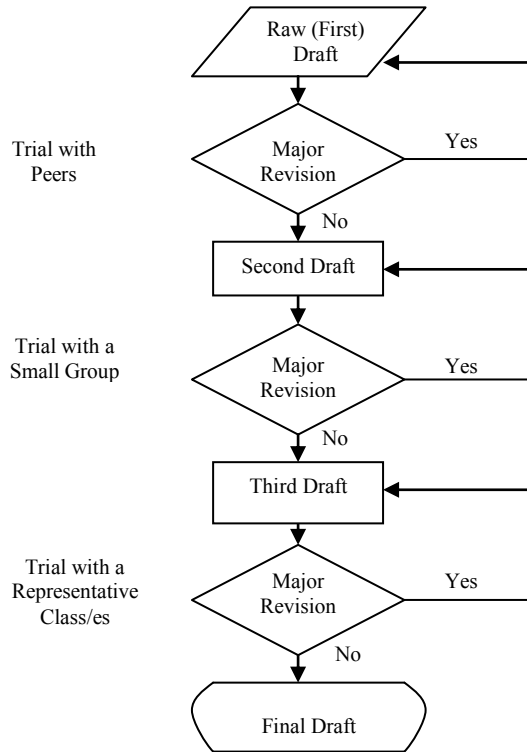


Figure 4. Steps in trialling a draft module

6. Findings and Discussions

Eight raters (content and design experts) used the instrument to rate the qualities of the Buzan Mind Mapping module. Analysis of the raters showed an agreement on satisfactory level and above on all 34 items (Table 1). Based on the results, it shows that a good quality module could be produced by using Meyer Model. Anyway, time constraint as reported in Shaharom (1993) study is one of the main factors to be considered as the whole process on developing the draft module consists of 60 small steps. Besides that, there are three steps to be followed in the trialling procedure. Trialling with small group and representative group using students as samples in the research could be difficult if it is not well planned. Module developer also needs to assure that the time allocated for the samples to go through the module is sufficient.

Table 1. Rating scale for the evaluation of the qualities of Buzan Mind Mapping module (Experts)

Title: Buzan Mind Mapping module				
QUALITY	Rating			
3 = VS = Very Satisfactory	VS	S	U	VU
2 = S = Satisfactory	(3)	(2)	(1)	(0)
1 = U = Unsatisfactory				
0 = VU = Very Unsatisfactory				
Need	6	2		
Purpose	6	1	1	
Introduction	6	2		
Knowledge and skills required	5	3		
General aims	5	3		
General objectives	5	3		
Specific objectives	5	3		
Content is directly relevant	6	2		
Logical learning sequence	5	2	1	
Defined category	5	3		
Units	5	3		
Activities are appropriate	1	6	1	
Active participation and response	1	7		
Learning activity into small steps	4	4		
Input-process-output cycles	5	3		
Feedback questions and answer	4	4		
Feedback questions answered clearly	4	4		
Feedback questions interpreted	5	3		
Feedback statements.	5	3		
Reinforcement statements	3	4	1	
Visual elements	2	6		
Bridge passages	2	6		
Instructions	3	5		
Layout	2	6		
Humour	3	5		
Consolidation passages	2	6		
overview of all main points	5	3		
Post test includes at least one item for each specific objective	4	4		
Form and wording	4	4		
Post test questions answered	5	3		
Results of the post test interpreted	5	2	1	
Motivate	3	5		
Length of time	5	3		
Well integrated	4	4		

After the experts (peers) have evaluated the draft module, corrections were made upon recommendations. Some input from the module were removed as the experts identified it is not suitable for the samples level. Meanwhile, typing errors and content ambiguity were also been changed. The trialling moved on to the second step after the peers evaluated and corrections had been made. Three students (small group) were involved in this step. Responses on the module were collected using “*Sheet I – comment on general aspect*” and “*Sheet II – comment on the tasks*” in the module. Generally, samples highlighted typing errors and minor content ambiguity in the module.

Corrections and improvements were made based on the second trialling and a newer version of the module was published and distributed to 36 secondary school students in a class. Table 2 and 3 show the students’ opinion on the module for format and content aspect.

Based on Table 2, more than 89.5% of the samples gave positive feedbacks on the format aspect, except for item 1 – about half of the samples do not like the size of the module. The samples preferred a smaller size of the module. They stressed that it would be easier for them to carry along the module if the size is smaller.

Table 2. What you thought of the module (students - representative group) format aspect

No.	ITEM	AGREE		DISAGREE	
		SA (3)	A (2)	D (1)	SD (0)
1	Size.	2 5.3%	20 52.6%	14 36.8%	2 5.3%
		22 57.9%		16 42.1%	
2	Layout.	30 78.9%	7 18.4%	1 2.6%	0 0%
		37 97.4%		1 2.6%	
3	Font.	27 71.1%	6 15.8%	4 10.5%	1 2.6%
		33 86.9%		5 13.1%	
4	Propotion of diagrams and photos.	22 57.9%	16 42.1%	0 0%	0 0%
		38 100%		0 0%	
5	Location of diagrams and photos.	31 81.6%	5 13.2%	2 5.3%	0 0%
		36 94.7%		2 5.3%	
6	Tables.	22 57.9%	11 28.9%	4 10.5%	1 2.6%
		33 86.9%		5 13.1%	
7	Text arrangement.	26 68.4%	9 23.7%	2 5.3%	1 2.6%
		35 92.1%		3 7.9%	
8	Instructions.	20 52.6%	15 39.5%	3 7.9%	0 %
		35 92.1%		3 7.9%	
	Avarage	34 89.5%		4 10.5%	

Based on Table 3, more than 86.3% of the samples gave positive feedbacks on all items for content aspect. Samples could understand the whole idea of the module and able to learn the Buzan Mind Mapping technique with minimum assistance from others. They also found that using this technique to learn a new topic is easier and more interesting. This finding is significant as Henry (2006) reported students learn and memorize better up to 32% using Buzan Mind Mapping technique. Besides that, Brikman (2003) also stressed that this technique could be used as a memory aid.

7. Suggestions

Based on the positive feedbacks on the qualities of the module, we recommend that the module to be tested on the effectiveness (Wong and Ong, 2007; Farrand *et al.*, 2002) for note taking among secondary school students. An experimental or quasi-experimental design research should be carried out to affirm the effectiveness of this module in both aspects, the design of the module and the Buzan Mind Mapping technique for note taking. Besides that, this self-instructional module also has a potential to be converted into teaching module or electronic module (Meyer, 1988) to be used by educators and students.

Table 3. What you thought of the module (students - representative group) content aspect

No.	ITEM	AGREE		DISAGREE	
		SA (3)	A (2)	D (1)	SD (0)
9	Objectives.	17 44.7%	20 52.6%	1 2.6%	0 %
		37 97.4%		1 2.6%	
10	Easy to understand what expected to do.	19 50.0%	17 44.7%	1 2.6%	1 2.6%
		36 94.8%		2 5.2%	
11	Work through without much difficulty.	16 42.1%	16 42.1%	6 15.8%	0 0%
		32 84.2%		6 15.8%	
12	Understand the ideas.	21 55.3%	16 42.1%	1 2.6%	0 0%
		37 97.4%		1 2.6%	
13	Able to answer quiz questions.	19 50.0%	15 39.5%	4 10.5%	0 %
		34 89.5%		4 10.5%	
14	Able to response on the requested tasks.	9 23.7%	22 57.9%	7 18.4%	0 0%
		31 81.6%		7 18.4%	
15	The ideas were interesting.	30 78.9%	8 21.1%	0 0%	0 0%
		38 100%		0 0%	
16	Words were easy to understand.	19 50.0%	15 39.5%	3 7.9%	1 2.6%
		34 89.5%		4 10.5%	
17	Writing style.	26 68.4%	11 28.9%	1 2.6%	0 0%
		37 97.4%		1 2.6%	
18	Free with unfamiliar words.	14 36.8%	20 52.6%	4 10.5%	0 0%
		34 89.5%		4 10.5%	
19	Made it easy for me to study this topic.	26 68.4%	12 31.6%	0 0%	0 0%
		38 100%		0 0%	
20	Enjoy.	33 86.8%	3 7.9%	2 5.3%	0 0%
		36 94.7%		2 5.3%	
	Avarage	35 92.1%		3 7.9%	
	Overall Average (Format and Content)	34 89.5%		4 10.5%	

8. Conclusion

Overall, the findings showed a positive response to the qualities of the Buzan Mind Mapping module for both aspects, format and content. However, the student samples preferred a smaller size of module. Generally, self-instructional module is very useful to students. With this module, the students are able to learn the Buzan Mind Mapping technique and apply it directly on study especially for note taking and revision. Moreover, students could learn at their own pace by using this self-instructional module. It is hoped that by having this Buzan Mind Mapping module as an alternative approach on learning note taking, it could benefits the students.

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