The Needs Analysis in Developing A Teaching Activity Model Using A Thinking Map to Improve Future Thinking Skills in Learning the Malay Language in Secondary Schools

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Abstract
This study aims to identify the needs in developing a teaching activity model using a thinking map to improve the future thinking skills among secondary school students based on the teachers' views. The needs analysis to develop this teaching activity model is based on the Discrepancy Model McKillip (1987). This study employed a quantitative method using a questionnaire as the research instrument to collect the data on the needs of the users. Purposive sampling was used in this needs analysis involving 80 secondary schools Malay language teachers in Miri, Sarawak. The data obtained were analyzed through descriptive statistics using SPSS software and the interpretation of the data was based on the values of percentages, means, and standard deviations. The findings revealed that the level of needs in developing the teaching activity model to improve the future thinking skills is at a high level. In addition, the findings also indicated that the content needs in developing the model and the needs to use the thinking map in developing the model are at a high level. The findings explained that there is a need to develop the teaching activity model using a thinking map to improve the future thinking skills in order to benefit teachers and students. This is in line with the desire to foster and cultivate the higher order thinking skills among students in Malaysia.
Keywords: Needs Analysis, Quantitative, Teaching Activity Model, Thinking Map, Future Thinking Skills

Introduction
In the 21st century learning, learning that can improve the thinking skills of school students is always discussed. Accordingly, learning activities in the 21st century need to be developed and implemented for learning is more meaningful. Strategic planning and learning activities need to be futuristic in order to create a ready and capable society to adapt to the wave of technological change and development. Future thinking is one of the higher order thinking skills (HOTS). Future thinking refers to the imagination of possible future events or the ability of a person to creatively imagine the hypothesis possibilities of future scenarios unlimitedly. Nowadays various challenges and situations require skillfull students to deal with them.

According to Vidergor et al (2018) developing future thinking should involve illustrating the issues by using thinking maps. The paradigm shift of thinking among school students such as future thinking skills is crucial to produce students who are able to think ahead and out of the thinking box. Hence, the teaching activity model for the future thinking skills requires a distinctive model as a guide to fit the needs of the model users themselves. This study aims to identify the needs related to the development of a teaching activity model using a thinking map to improve the future thinking skills of secondary school students. This is based on the research findings from a questionnaire that investigated the teachers' views and was distributed to 80 secondary school Malay language teachers.

Research Background

The quality of education as a whole requires serious transformation and change as this contributes to the development of human capital that is important to the country's economic development. Accordingly, in the National Key Results Areas (NKRA) of Education, it has been established that the educational aspirations in Malaysia are to increase students' success and provide access to quality education to all students throughout the country. An organized formal reformed education system is considered ready to contribute to social and economic (Khatab, 2013). Therefore, effective teaching and learning processes play an important role in the education system in Malaysia to produce human capital that is balanced physically, emotionally, spiritually and intellectually in line with the National Education Philosophy.

The Malaysian Education Blueprint 2013-2025 (PPPM 2013-2025) launched in 2013 gives a clear indication that the government is equipping a generation that can now face any challenges in the 21st century. Through the implementation of this new education plan, efforts taken to improve the effectiveness of the teaching among teachers are to ensure that students can apply the higher order thinking skills in classroom, guide teachers to improve the quality of teaching and learning skills and train teachers in effective pedagogical skills and be able to meet students' needs. According to Mustaffa & Ghani (2020), future thinking was introduced through the implementation of the PPPM 2013-2025. Under the implementation of this plan, MoE has also restructured the format of the examination questions by focusing on higher order thinking skills questions in most of the UPSR, PT3 and SPM questions. This shows that MoE is serious in instilling and developing the 21st century skills such as critical and creative thinking among students, and generating and creating new ideas or knowledge among students.

The teaching profession in the 21st century demands knowledgeable teachers in terms of skills in using effective teaching and learning methods, especially to improve the future thinking skills among school children. This is because the future thinking skills will allow students to think at a higher level. According to Sualman (2018), productive teachers should have future thinking in applying cognitive, critical and futuristic teaching and learning to secondary school students. Therefore, in order to equip futuristic-minded students, teaching activities using thinking tools in schools by educators should be given continuous attention. In addition, educators must also be knowledgeable in delivering the teaching content so that meaningful learning exists. The integration between the 21st century skills and future thinking is interlinked with the development and progress of science and technology in the future. Thus, this can meet the needs of students in every matters as well as the ability to access information from various sources (Anjuman & Hussin, 2013).

Research Objective

Generally, the objective of this study is to identify the needs related to the development of a teaching activity model using a thinking map to improve the future thinking skills of secondary school students based on the teachers' views.

Research Questions

Based on the research objective above, this study will answer the following questions.
a) Is there a need to develop a teaching activity model using a thinking map to improve the future thinking skills of secondary school students based on the teachers' views?
b) What are the content needs in developing a teaching activity model using a thinking map to improve the future thinking skills of secondary school students based on the teachers' views?
c) Are thinking maps suitable to be used in developing a teaching activity model using a thinking map to improve the future thinking skills of secondary school students based on the teachers' views?

Needs Analysis

Needs analysis is to identify the needs to use thinking maps to improve the students' future thinking skills and develop the teaching activity model. The needs analysis to develop the teaching activity model is based on the Discrepancy Model by McKillip (1987). According to McKillip (1987), the analysis phase involves the phase of identifying and evaluating the needs that will determine the results to be achieved (Mustapha, 2017). This model is a model used by researchers especially in the field of education such as a study conducted by Mustapha (2017) in the development of a model entitled 'The Design of the Academic Integrity Model Based on the Spiritual Appreciation". According to Mustapha (2017), the only element emphasized in this model is firstly, expectation, that is the process of setting goals and setting what should be done. Next, a performance measurement process that involves identifying what should be done. Finally, is the process of identifying an irregularity that should happen and what the exact problem is. In this study, there are three sections on needs in developing the model that can be identified: the needs to develop the model, the content needs in developing the model and the needs to use the thinking map in the model.

Methodology

According to Yahaya (2015), research methodology is a method of designing, collecting and analyzing data so that it can produce evidence to support the research conducted. To answer the research questions, selecting the research methodology is important so that the research conducted employs an effective method. This study employed a quantitative method using a questionnaire as the instrument to collect data on the users needs. The purposive sampling was used to select the research sample because the information about the needs to design and the content needs of the teaching activity model developed can only be obtained from secondary school Malay language teachers. The sample in this study involved 80 secondary school Malay language teachers because according to Cohen, Manion and Morrison (2007), the total study sample of 30 or more is appropriate in the statistical analysis used in a study. According to statistical practitioners, the calculation of a statistic will apply if the research sample(n) exceeds 30 people. The needs analysis questionnaire developed consists of several parts. The items of the questionnaire were adapted and modified from a study conducted by Ariffin (2018) that examined the development of a

teaching activity model using traditional children's songs to improve children's creative imagination at preschool level. The questionnaire used was divided into four parts: Part A: Teacher Demographic Information, Part B: Level of Needs to Develop the Model, Part C: the Content Needs for the Model and Part D: the Use of I-Think Map in the Model. The data obtained were analyzed through descriptive statistics using SPSS software and the data was interpreted based on the values of percentages, means, and standard deviations.

Pilot Study
The pilot study was a survey before the data collection began. Before the actual study was conducted, a pilot study was conducted to verify the respondents' understanding of the questionnaire items and test the reliability and validity of the questionnaire. In addition, the pilot study is important to identify the respondent's understanding of each statement and the questions asked. This study was also able to find out the time frame required by the respondents to answer all the items of the questionnaire.

Isaac & Michael (1995) and Hill (1998) stated that the appropriate sample size for a pilot study is between 10 to 30 samples while Connelly (2008) and Treece & Treece (2005) proposed a sample number for a pilot study is 10% of the actual sample size of a study. Based on these recommendations, a pilot study was conducted with 30 secondary school Malay language teachers in Miri District, Sarawak. This group was used only as a pilot study and was not involved in the actual study. The alpha coefficient values are illustrated in Table 1.

Table 1
Alpha α Coefficient Values

Part	Item	Statements / Perceptions	Alpha α Coefficient (*Correlation coefficient cronbach*)
B	1 – 7	The level of needs to develop the Model	.837
C	1 – 10	The content needs for the Model	.934
D	1 - 8	The Use of I-Think Maps in the Model	.958

Based on Table 1, the findings from the pilot study revealed that the alpha value of the level of needs to develop the model is α = .837, as well as the content needs for the model is alpha α value = .934, and the use of the thinking map in the model is alpha α value = .958. The findings of this pilot study revealed the degree of understanding of secondary school teachers in Miri on the items is within the range of 83.7 to 95.8 percent (.837 x 100, .934 x 100 and .958 x 100). Based on the cronbach index alpha value (a) above, the value of alpha α = .837 to .958 means normal or sufficient according to Borg & Gall (1979) and the value of this alpha coefficient if acceptable according to (Vierra & Pollock, 1992; Darusalam & Hussin, 2018). From the findings of this pilot study, it can be concluded that the questionnaire constructed can be administered to the real sample because the entire items tested through the pilot study passed the alpha coefficient value α = .60.

Research Findings and Discussions
The data obtained were analyzed through descriptive statistics using SPSS software and the data was interpreted based on the values of percentages, means, and standard

deviations. Part B of the questionnaire is the level of needs to develop the model. The aim is to obtain the teachers' views on the level of needs to develop a teaching activity model to improve the future thinking skills of secondary school students. This part also aims to answer the research question in the first phase of the needs analysis, that is '*Does a teaching activity model need to be built using thinking maps to improve the futuristic thinking skills of secondary school students based on the teacher's views?*' The analysis of the findings is illustrated in Table 2.

Table 2
Research Findings Analysis on the Level of Needs in Developing a Model

ITEM	FREQUENCY	MEAN	STANDARD DEVIATION
B1. Teachers understand that students need to be guided in the right way of thinking to improve their future thinking skills.	80	4.6375	0.5092
B2. Teachers understand that improving students' future thinking skills has a certain learning process.	80	4.5375	0.5498
B3. Teacher agrees that guidance is needed in the learning process to improve the future thinking skills among students.	80	4.4000	0.6862
B4. Teachers agree they need a learning activity guide to improve the future thinking skills among students	80	4.3750	0.7356
B5. Teachers agree that to improve the future thinking skills of secondary school students, they need a complete teaching activity model as a guide.	80	4.5375	0.6150
B6. Teachers agree that the process to improve the students' future thinking skills should be based on an appropriate teaching activity model.	80	4.4500	0.6731
B7. Teachers agree that a teaching activity model should be developed to improve students' future thinking skills to assist them in teaching.	80	4.5250	0.6157
Average	**80**	**4.4946**	**0.6263**

The statistics in Table 2 show the summary of the needs analysis level for developing the teaching activity model. Overall, it revelas the mean value of 4.4946 and the standard deviation value of 0.6263. This shows that the level of needs to build a teaching activity model to improve the future thinking skills is at a high level.

Next, Part C in the questionnaire constructed is the content needs of the model. The aim is to gain the teachers' views of the content needs in developing the teaching activity model to improve the students' future thinking skills. This part also aims to answer the research question in the first phase of the needs analysis study, namely 'What are the content needs to develop the teaching activity model using the I-Think map to improve the future thinking skills of secondary school students based on the teachers' views?' The analysis of the findings for this part is illustrated in Table 3.

Table 3

Research Findings Analysis on the Content Needs of the Model

ITEM	FREQUENCY	MEAN	STANDARD DEVIATION
C1. Teachers agree that creativity is important in students learning.	80	4.5125	0.6161
C2. Teacher agree that critical thinking is important in students learning.	80	4.5000	0.6364
C3. Teachers agree that collaborative learning is important in students learning.	80	4.4625	0.6549
C4. Teachers agree that communication is important in students learning.	80	4.6375	0.5335
C5. Teachers agree that good values and ethics are important in students learning.	80	4.7750	0.4202
C6. Teachers are convinced that presentation (communication) activities can improve students' future thinking skills.	80	4.5000	0.6364
C7. Teachers are convinced that creating activities (creativity) improves students' future thinking skills.	80	4.5375	0.5263
C8. Teachers are convinced that group activities (collaborative) improve students' future thinking skills.	80	4.5125	0.5735
C9. Teachers are convinced that evaluating certain things and information received activities (critical thinking) improve students' future thinking skills.	80	4.5000	0.5736
C10. Teachers are convinced that good value and ethics in learning activities help to improve students' future thinking skills.	80	4.6000	0.4929
Average	**80**	**4.5538**	**0.5664**

The statistics displayed in Table 3 show a summary of the content needs analysis of the model in the development of the teaching activity model. Overall it shows the mean value of 4.5538 and the standard deviation value of 0.5664. This indicates the model content needs in developing the teaching activity models improve the future thinking skills is at a high level.

Part D of the questionnaire is related to the use of a thinking map in the model. The purpose was to obtain the teachers' views on the use of a thinking map in the teaching activity model to improve students' future thinking skills. This part also aims to answer the first phase research question in the needs analysis study that is 'Are thinking maps suitable to be used in developing a teaching activity model to improve the future thinking skills of secondary school students based on teachers' views?'. The findings of this part are shown in Table 4.

Table 4

Research Findings Analysis on the Suitability Needs of Using Thinking Maps

ITEM	FREQUENCY	MEAN	STANDARD DEVIATION
D1. Teachers believe that thinking maps are suitable to be used to improve students' future thinking skills.	80	3.9875	0.9069
D2. Teachers understand that *I-Think* map have features that can improve students' future thinking skills.	80	4.0625	0.8010
D3. Teachers believe that various learning activities can be conducted using *I-Think* map to improve students' future thinking skills.	80	4.1375	0.7419
D4. Teachers believe that communication skills can be improved through the use of *I-Think* map.	80	4.0375	0.7866
D5. Teachers believe that collaborative skills can be improved through the use of *I-Think* map.	80	4.0500	0.7446
D6. Teachers believe that critical thinking skills can be improved through the use of *I-Think* map.	80	4.0250	0.7790
D7. Teachers believe that creativity can be improved through the use of *I-Think* map.	80	4.0875	0.7495
D8. Teachers believe that good values and ethics can be improved through the use of *I-Think* map.	80	3.9125	0.8886
AVERAGE	**80**	**4.0375**	**0.7998**

The statistics in Table 4 show the findings of the needs analysis on the use of a thinking map in developing the teaching activity model. Overall it shows the mean value of 4.0375 and the standard deviation value of 0.7998. This indicates the needs of using a thinking map in the development of the teaching activity models to improve future thinking skills is at a high level.

Conclusion

Overall, the findings reveal the teachers' agreement as the research sample in the needs analysis to develop the teaching activity model using the thinking map to improve future thinking skills of secondary school students in learning the Malay language. These findings have indicated and provided an explanation that the development of the teaching activity model using the thinking map is needed by teachers to improve the future thinking skills of secondary school students in learning the Malay language. In addition, the research findings also provide the information on the content needs in the model and the needs of the suitability of using the thinking map in developing the teaching activity model to improve the future thinking skills. This will benefit teachers and students in line with the desire to foster and cultivate the high order thinking skills.

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