

A Teacher's Experience of Using Critical Thinking in Classroom Teaching

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Abstract: Malaysia's education is focusing on exam oriented. The students always refer to books and depend on teachers because they want to achieve good marks in the examination. Teachers need to change this phenomenal by letting the students think critically without depending on books and teachers. However, teachers need to know how they are going to apply critical thinking in their teaching and also need to know the best methods to apply it in their teaching especially for Science subject. An observation was conducted for this study with an excellent Science's teacher at a particular secondary school in Ipoh. She had been working as a teacher for twenty six years. This study was to observe an experience Science's teacher in applying critical thinking in her teaching and also to identify the methods that she used to encourage her students to think critically. The findings for this study were the ten themes of critical thinking. The ten themes are stimulus, comparing, encouragements, motivation, reasoning, discussion, facilitate, justification of own understanding, categorizing, and conclude. The students were being able to think critically because of the stimulus, teacher's encouragement, motivation and also the willingness of the students to think critically. Therefore, critical thinking it is not only focusing on the teacher methods of teaching but also the initiative of the students to think by themselves.

Keywords: Critical Thinking, Classroom Teaching and Teacher's Experience

1. Introduction

During Renaissance, people at that time knew that knowledge is very important and the best method to understand the knowledge is by asking 'why'. Questioning and answering is a way to think critically. Critical thinking was being an important issue since 19th century. The philosophers realized that critical thinking is very important in education but they taught the students about critical thinking out of the lessons in the classroom. In 20th century, the philosophers realized that it is very important to teach critical thinking by including it in every subject in the schools in order to make the students will be able to understand the lesson better.

Malaysia's education has been using exam oriented system since Malaysia became an independent country. The latest Ministry of Education, Tan Sri Muhyiddin Yassin said that it was important to change the curriculum from exam oriented to analyze the students normatively and formatively based on their attitudes and ability to understand the topics and also hands on. This new curriculum was launched in the year 2010 under the National Key Area Result (NKRA) for education after the sixth Prime Minister of Malaysia, Dato' Seri Najib Bin Tun Abdul Razak had announced and introduced this new curriculum in 2009.

The aims of the new curriculum are to close the gap between students in the city and the students in the village, give opportunity for all citizens to learn by taking seriously focus on students in the preschools and want all of the students in the schools being able to read and write well by introducing LINUS in the schools and also give reward for the excellent schools with high grades. This new curriculum was introduced to reduce the focus on exam oriented in the schools and want the students being able to think, know, understand and act like what they have learn based on the new curriculum's module. It is also to let the students to think critically. It will take times to see the result because this curriculum is still new. Parents need to understand about the aims of this new curriculum and teachers need to be committed in order to teach this new curriculum. Teachers are the main indicators who are responsible to make the objectives become realistic. Therefore, teachers play an important role in Malaysia's education.

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2. Problem Statements

Malaysia's education used exam oriented system in the schools for 53 years. Students are stereotype to focus on finding answers for the questions that will appeal in the examination papers in the national examination. They always read books and depend on teachers to give them the ways to answer the questions. Apart from that, according to the Ministry of Education, there are 70 percent of students in Malaysia cannot answer the questions outer from the textbook.

The students in the classroom are not able to answer the questions if the teachers ask an arguing question based on my own experience as a teacher. They are not being train to think critically. The teachers need to finish the syllabus and time constrain are the problems that appear because the teachers want to finish the syllabus and also want to teach the students for the important examination by focusing on the questions and answers. Answers are provided by the teachers in the classroom. Science is one of the important subjects in the school. Science is also one of the papers that are listed in the national examination. Science subject needs the scientific explanation about the experiment.

The scientific explanation is related to critical thinking. Science's teacher needs to relate the topic with the experiment or method that she used in the lab or classroom by using critical thinking. This study is focusing on Science subject. Science subject is a hands on subject in the school because the students need to understand and do the practical and also relate the formula or hypothesis with the result. The main issue is how the Science's teacher is going to implement critical thinking in her teaching.

3. Objective of the Study

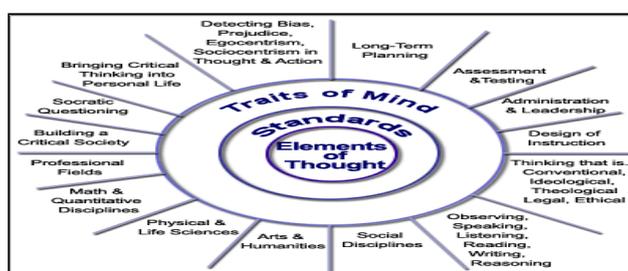
The main objective for this study was to explore the experience of a Science's teacher in using her own methods in applying critical thinking in the classroom. The methods that she used will be useful for other Science's teachers in other schools.

4. Methodology

The method that had been used for this study was an observation. The sample was a Science's teacher in a particular secondary school in Ipoh. The Science's teacher is an excellent Science's teacher. She had been teaching Science subject for twenty six years. She is an experienced teacher. Most of her students got good result for Science subject in the Lower Secondary Assessment (PMR) in 2000 until 2011. The PMR result for Science subject for that school in 2011 was the good result in twelve years of her teaching in that school. Therefore, this study used her as the sample in order to know the methods that she used based on her experience and see whether how the way she applied critical thinking in the classroom teaching. Pictures and video were recorded during the teaching process.

5. Theoretical Framework

Table 1: A Model of Traits of Mind Standards and Element of Thought



William Graham Sumner (1906) made a model of thoughts which was called as Traits of Mind Standards which contained fifth teen elements of thought but for this study, it used only five elements. There were design of instruction, professional fields, physical and life science, thinking that is conventional, ideological, theological, legal and ethical and bringing critical thinking into personal life. These five elements of thoughts was used to observe the science's teacher and explore what are the methods that she used in her teaching in the classroom and also identify how the teacher encourage his student to think critically.

6. Previous Research

Critical thinking is to think the way you are thinking (Alec Fisher, 2001). Thinking is an important skill to be learned because no one will be able to think without knowing to think. The philosophers realized about the important to learn the skills to think since 19th century. They started to make a research about the function of human brain and investigate how the human think in various situations.

During 20th century, philosophers mentioned that critical thinking is important in education because when the teachers applied critical thinking in the classroom, they will born many thinkers. However, at that time there was no directly teaching about critical thinking. Teachers taught their students to think indirectly during the activities in the classroom and because of this problem, the philosophers said that it is important to teach critical thinking directly in the classroom. Critical thinking comes in many forms, but all possess a single core feature. They presume that human arguments require evaluation if they are to be worthy of widespread respect (Browne M. N. & Freeman K., 2000).

Moreover, critical thinking is the way for the students to understand what they had learned in the classroom and can relate the lesson with their life and also adapt what they had understand in their daily life. Critical thinking is very important in classroom teaching (Semih, R. 2006). Browne M.N. & Freeman, K. (2000) mentioned that critical thinking is an active learning and the class's environment also plays an important role to motivate the students to think critically. He added that teachers need to use a stimulus in order to stimulate the students to think critically. However, it is depends on teachers and students willingness to apply critical thinking in the classroom. Therefore, teachers need to play their role to ensure that critical thinking being applied in the classroom.

7. Findings and Discussion

7.1. Findings

Ten themes emerged based on the observation with the Science's teacher during her teaching in the lab. The ten themes are:-

7.2. Stimulus

Stimulus is very important because it can stimulate the students' mind to think critically. Stimulus enhanced critical thinking among the students (Browne, M.N. 2000). Stimulus can be a video, picture or an audio. Stimulus can reflects the following attributes: frequent questions, developmental tension, and fascination with the contingency of conclusions and active learning (Browne, M.N. 2000). It shows that stimulus is the main stimulator that stimulates the mind to think critically.

7.3. Comparing

The students compared the four options of living thing and selected only one option that showed growth. The answer that they got was a kitten becomes a cat because it showed growth. Then, the teacher used the answer to relate with the main topic. Chance (1986) says critical thinking is "the ability to analyze facts, generate and organize ideas, defend opinions, make comparisons, draw inferences, evaluate arguments and solve problems." Therefore, comparison is one way of critical thinking.

7.4. Encouragement

The Science's teacher encouraged her students to think critically by asking her students with arguing questions. The students answer the questions. Carr, K.S.(1998) stress on the methods on how to teach critical thinking. Carr, K.S.(1998) says that teachers need to give wide variety materials to encourage the students to think. The Science's teacher used the audio visual to encourage the students to think.

7.5. Motivation

The Science's teacher motivated her students to think critically by remind them about their own experiences when they were small and grown up and reached adolescence. The Science's teacher gave the extrinsic motivation for the students to think critically. Students also have their own motivation to think critically. It is called as intrinsic motivation.

7.6. Reasoning

The Science's teacher let the students give their answers without mentioning the answers were wrong or not. Then, the Science's teacher gave reasons for each answer that the students given. It is important to distinguish mere thinking, i.e. a sequence of unrelated thoughts, from reasoning, in which case one thought directly leads to another.

7.7. Discussion

The students discussed among the group members. Discussion will allow students to think critically.

Teachers who are working in the field of education have also participated in discussions about critical thinking. Benjamin Bloom and his associates are included in this category. Their taxonomy for information processing skills (1956) is one of the most widely cited sources for educational practitioners when it comes to teaching and assessing higher-order thinking skills. Bloom's taxonomy is hierarchical, with "comprehension" at the bottom and "evaluation" at the top. The three highest levels (analysis, synthesis, and evaluation) are frequently said to represent critical thinking (Kennedy et al., 1991).

7.8. Facilitating

The Science's teacher facilitated her students in the group. She let her students to be independent to think among themselves in the lab. Carr, K.S. (1998) says that teachers need to let the students to think independently and facilitate them when they do not know something.

7.9. Justification of Own Understanding

The students from two groups presented their group work in the front of the lab. They presented the graph of human growth. They presented the graph with their own understanding after the discussion in the group. They presented the graph exactly like the teacher were presented before in the front of the lab.

7.10. Categorizing

The students categorized the nutrition into carbohydrate, mineral, protein and fat. Categorizing is to make something become more specific. Ennis (1989) identifies a range of assumptions regarding domain specificity held by various theorists. For example, most researchers view background knowledge as a necessary but not sufficient condition for critical thinking. In addition, some researchers see the transfer of critical thinking skills across domains as unlikely unless students are provided with sufficient opportunities to practice these skills in a variety of domains and the students are explicitly taught to transfer.

7.11. Conclude

The teacher made a conclusion for the topic and sub topic. She concluded the topic and she asked her students to repeat again the conclusion for two times. This was because to make the students will understand better about the whole topic that they had learned.

7.12. Discussions

The teacher was able to observe critically on the learning style and ability of the students in the lab. She knew that her students like to watch and listen. Therefore, she used an audio-visual to make the learning becomes an interesting and active learning. This means that the teacher is able to use her experience to observe and understand the behaviors of the students in the lab.

Apart from that, the teacher was able to incorporate various teaching styles in her classroom teaching. She used visual and audio in her teaching in the lab. The teacher was also able to maintain conducive classroom environment continuously. It means that her students can concentrate and listen to her teaching from the beginning until the end of her teaching. A teacher will be proud if he or she can keep her students pay attention and listen to him or her during his or her teaching in the classroom.

The learning process was divided into three stages. The first stage is pre-learning. During pre-learning, the Science's teacher used the audio-visual technique to enhance the understanding of the students. Next is the learning stage. During the learning stage, the teacher facilitated the students while they practiced the exercise given. The last stage is the post-learning stage. During this stage, the teacher asked some group of students to present the graph based on the exercises given.

8. Limitations and Further Research

This study was limited for Science subject and for the students in the particular secondary school in Ipoh, Malaysia. Apart from that, this study can be conducted by other researchers for any type of subject in the school and can develop a module for teachers as a guide to teach critical thinking directly in the classrooms for Asian students because critical thinking is really important in education in order to make the learning and teaching process is effective in the classroom and enhance the students' mind.

9. Conclusion

This study is about the experience of applying critical thinking in the classroom. The Science's teacher was able to apply critical thinking in her teaching. The students listened and followed her instructions. She managed to control the students very well. She used the stimulus to enhance the students to think critically. Stimulus is the main theme. This study emerged with ten themes during her teaching in the lab. These ten themes can be used in other teachers teaching in the classroom in order to apply critical thinking in the classroom and let the students think critically without depending on the teachers. To conclude, critical thinking is greatly in the teaching of Science subject because the Science's teacher was truly applying critical thinking in her teaching by using an audio-visual as her method to teach and enhance the students to think critically.

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