

Chapter 73

Enhancing Student's Higher Order Thinking Skills (HOTS) through the Socratic Method Approach with Technology

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ABSTRACT

Technologies have a potential to make learning more dynamic and capable of going conventional learning limits. With the utilization of online technologies for example, students can interact with teachers and other students, regardless of time and distance. The learning process can likewise happen in synchronize or asynchronies. Meaningful interaction is required in the Socratic method of learning because this is the concept of learning through question after question to build knowledge. The dialog collaboration, inquiries are either verbal or non-verbal. So this is where online innovation comes into the picture and allows students to always dialogue with certain individuals to construct new knowledge. Next, by using the Socratic method of learning, the high level of thinking can be increased which is emphasized in the field of education in Malaysia nowadays. This paper will discuss previous studies about the potential of technology in Socratic Methods to improve student's level of thinking.

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INTRODUCTION

Technology nowadays can assist and support the activities of teaching and learning in order to make it more interesting and meaningful (Schwier, 2012 ; Dillenbourg & Sanna, 2009). In Reference to the Malaysia Education Blueprint (MEB) (2013-2025), Higher Order Thinking Skills (HOTS) is an element that is being emphasized. In order to achieve it, a learning method that is suitable for implementation to attract students and increase student involvement, understanding and to enable students to adapt the content of the lessons that have been learned. An appropriate learning methods used in improving the Higher Order Thinking Skills (HOTS) is the Socratic Learning Method. This was supported by Chesters (2012) in his book states that this method can build a Higher Order Thinking Skills (HOTS) . When the student has mastered the content of the lesson, they will be able to diversify methods for finding the solution of a problem in line with the requirements of Higher Order Thinking Skills (HOTS). Therefore, the role of technology in achieving the learning method is greatly needed because according to van Bruggen, (2005), the learning environment will be even more fun and interesting with the use of technology. The widespread use of technology can now have an impact on the learning process. This is because the students; whom are from the generation Z, can now easier to do things with cutting-edge technology in its environment. For example, with presence of computer technology, students can complete assignments given by teachers and also make presentations with the aid of a computer. Computer is a technology that can help humans perform more efficiently and systematically; this allows work to be produced that will provide its own charm to attract or make it a better quality performance. Online learning technology is said to be able to improve students' critical thinking. As is well known, critical thinking is a big part of the necessary elements for a student to master the control of higher-order thinking. Bloom's Taxonomy in 1956, which was revised by Krathwohl and Anderson 2001 states that students are able to assess and create a problem or a solution of the problem is said to have reached a high level with a good idea. Figure 1 shows the level of cognitive processes that have been reviewed by Krathwohl and Anderson 2001. According to Anderson & Krathwohl again, there are 4 different types of knowledge to be mastered by students to achieve higher-order thinking, namely:

1. **Factual Knowledge:** Knowledge of the basic elements for students to understand the workings of problem solving
2. **Conceptual Knowledge:** Incorporate some basic elements to allow the elements used together for basic troubleshooting
3. **Procedural Knowledge:** Creating a rule, inquiry, skills and techniques to the solution a problem
4. **Metacognitive Knowledge:** Mastering the knowledge to build a thought in accordance with their own solutions to problems faced

When students are able to master the procedure and metacognitive thinking, they are said to have reached a level of critical thinking, parallel with the concept of critical thinking as shown in Figure 2. The concept of critical thinking that is equivalent to the concept of cognitive levels analyze and evaluate. These two concepts are very important elements for solving a problem and so dominate higher-order thinking skills (HOTS). Cognitive achievement to master the higher-order thinking will thus be easier with the advent of technology such as online learning online learning application that could be applied to facilitate the learning process. Technology has the potential to improve the performance of students when they use it.

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