



Using Socratic Questioning to Promote Students' Critical Thinking Skills

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Abstract

Learning only the basic English knowledge and skills through textbooks and workbooks makes students lack of critical thinking skills. The art of Socratic questioning is important for the critical thinker because the art of questioning is important to excellence of thought. The objective was to study the development of students' critical thinking skills by using Socratic questioning. The target group consisted of 10 students in 8th grade of Khon Kaen Wittayayon School enrolling in Fundamental English course. The research instruments developed and selected by researchers included 1) 6 lesson plans of teaching, 2) 2 short stories, and 3) 6 questions by applying Socratic questioning for assessing and evaluating students' critical thinking. The interview was administered with students for 5 minutes. The quantitative data was analyzed by average score and percentage. The content analysis was used to analyze qualitative data.

The result was found that after using Socratic questioning, students' critical thinking skills develop significantly. There were 9 students who passed the criteria 70 percent considered as 90 percent. Also, the average score of students' answering through 6 questions based on Socratic questioning was 83.85 percent. That is, over 70 percent of students had passed the criteria set by researchers. With the interview, it was found that students had good attitude towards learning English, especially reading section. They like to read short stories and answer the questions. They said that the questions made them think and focus on the stories. Therefore, Socratic questioning could support 8th grade students to think critically.

Keywords: Teaching methods, think critically, short stories, learning English, secondary level, questioning techniques

Introduction

Critical Thinking is one of the most lauded goals in education today. Many countries place the importance on promoting their students' critical thinking skills. Paul Ramsden, a leading voice in UK education, concludes that teachers from every subject, though they may use varying language,

seek to foster the development of critical thinking (Ramsden, 2003). This view is supported by [1] and [10] Reports, which suggest that students should develop skills such as “learning how to learn” and “critical analysis.” In a meta-analysis focused on student indicated the most important goal of education is to foster students’ ability to think

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critically. Therefore, several teaching strategies such as classroom assessment techniques, cooperative learning strategies, and case study pedagogy should have been proposed to help promote critical thinking. [7] and [14] suggested that the level of thinking that occurs is influenced by the level of questions asked. Asking thoughtful questions plays an important role in inducing students' higher-level cognitive processes, such as self-reflection, revision, social negotiation, and conceptual change of student misconceptions, all of which are integral to critical thinking. In addition, when students are asked to generate questions on their own, factual rather than thought-provoking questions are generally posed ([2]; [3]; [5]; [6]).

Thailand, one of developing countries, also emphasizes on fostering students to think critically to develop its potential to be equivalent to other countries. However, with taught by textbook and workbooks in school, Thai students, especially in secondary level, cannot think critically because they have learned only the basic knowledge and skills such as vocabulary, grammar, tense, listening, reading and the like. Also, Khon Kaen Wittayayon School, one of the famous schools in Khon Kaen, tries to solve this issue and want its students to have critical thinking while studying in the school. To address this concern, using thoughtful questioning is one way to generate students' ability to think critically. Socratic questioning is one of the most popular and powerful teaching approaches that can be used to guide students in generating thoughtful questions, thus fostering their critical thinking skills [8]. That is, there is a special relationship between critical thinking and Socratic questioning because both share a common end. Critical thinking gives one a comprehensive view of how the mind functions

(in its pursuit of meaning and truth), and Socratic questioning takes advantage of that overview to frame questions essential to the quality of that pursuit (Paul & Elder, 2006). Instead of providing direct answers, the Socratic questioning approach stimulates students' minds by continually probing into the subject with thought-stimulating questions [11]. As a result, through active interactions between instructors and students and among students, Socratic questioning can facilitate students' critical thinking skills by the exchange of ideas and viewpoints, giving new meaning to content, exploring applications to problems, and providing implications for real-life situations [9].

ASKING QUESTIONS

Questioning should be used purposefully to achieve well-defined goals. An instructor should ask questions which will require students to use the thinking skills which he is trying to develop. A system exists for organizing those thinking skills. Bloom's Taxonomy is a hierarchical system of ordering thinking skills from lower to higher, with the higher levels including all of the cognitive skills from the lower levels. Lower level questions are those at the knowledge, comprehension, and simple application levels of the taxonomy. Higher-level questions are those requiring complex application.

Usually questions at the lower levels are appropriate for:

- 1.evaluating students' preparation and comprehension.
- 2.diagnosing students' strengths and weaknesses.
- 3.reviewing and/or summarizing content.

Questions at higher levels of the taxonomy are usually most appropriate for:

1.encouraging students to think more deeply and critically.

2.problem solving.

3.encouraging discussions.

4.stimulating students to seek information on their own.

Table1. The summary of Bloom's Taxonomy with the Principles of Asking Questions

Questioning Category	Bloom's Category	Student Activity	Typical Stem Words
Lower Level	Knowledge	Remembering: Facts Terms Definitions Concepts Principles	What? List Name Define Describe
	Comprehension	Understanding the name of material	Explain Interpret Summarize Give examples... Predict Translate
	Application	Selecting a concept or skill and using it to solve a problem	Compute Solve Apply Modify Construct
Higher Level	Analysis	Breaking material down into its parts and explaining the hierarchical relations	How does...apply? Why does...work? How does...relate to? What distinctions can be made about...and...?
	Synthesis	Producing something original after having broken the material down into its component parts	How does the data support...? How would you design an experiment which investigates...? What predictions can you make based upon the data?
	Evaluation	Making a judgment based upon a pre-established set of criteria.	What judgments can you make about...? Compare and contrast...criteria for...?

As mentioned, both critical thinking and Socratic questioning share a common end. Critical thinking provides the conceptual tools for understanding how the mind functions in its pursuit of meaning and truth; Socratic questioning employs those tools in framing questions essential to the pursuit of meaning and truth (Paul & Elder, 2006). The characters of Socratic questioning are the following:

1. Conceptual clarification questions

Get them to think more about what exactly they are asking or thinking about.

Prove the concepts behind their argument.

Use basic 'tell me more' questions that get them to go deeper.

- Why are you saying that?

- What exactly does this mean?

- How does this relate to what we have been talking about?

- What is the nature of ...?

- What do we already know about this?

- Can you give me an example?

- Are you saying ... or ... ?

- Can you rephrase that, please?

2. Probing assumptions

Probing their assumptions makes them think about the presuppositions and unquestioned beliefs on which they are founding their argument. This is shaking the bedrock and should get them really going!

- What else could we assume?

- You seem to be assuming ... ?

- How did you choose those assumptions?

- Please explain why/how ... ?

- How can you verify or disprove that assumption?

3. Probing rationale, reasons and evidence

When they give a rationale for their arguments, dig into that reasoning rather than assuming it is a given. People often use un-thought-through or weakly-understood supports for their arguments.

- Why is that happening?

- How do you know this?

- Show me ... ?

- Can you give me an example of that?

- What do you think causes ... ?

- What is the nature of this?

- Are these reasons good enough?

- Would it stand up in court?

- How might it be refuted?

- How can I be sure of what you are saying?

- Why is ... happening?

- Why? (keep asking it -- you'll never get past a few times)

- What evidence is there to support what you are saying?

- On what authority are you basing your argument?

4. Questioning viewpoints and perspectives

Most arguments are given from a particular position. So attack the position. Show that there are other, equally valid, viewpoints.

- Another way of looking at this is ..., does this seem reasonable?

- What alternative ways of looking at this are there?

- Why it is ... necessary?

- Who benefits from this?

- What is the difference between... and...?

- Why is it better than ...?

- What are the strengths and weaknesses of...?

5. Probe implications and consequences

The argument that they give may have logical implications that can be forecast. Do these make sense? Are they desirable?

- Then what would happen?
- What are the consequences of that assumption?
- How could ... be used to ... ?
- What are the implications of ... ?
- How does ... affect ... ?
- How does ... fit with what we learned before?
- Why is ... important?
- What is the best ... ? Why?

6. Questions about the question

And you can also get reflexive about the whole thing, turning the question in on itself. Use their attack against themselves. Bounce the ball back into their court, etc.

- What was the point of asking that question?
- Why do you think I asked this question?
- Am I making sense? Why not?
- What else might I ask?
- What does that mean?

The art of Socratic questioning is intimately connected with critical thinking because the art of questioning is important to excellence of thought. What the word "Socratic" adds to the art of questioning is systematic, depth, and an abiding interest in assessing the truth or plausibility of things. Therefore, the purpose of the study was to study the development of students' critical thinking skills by using Socratic questioning.

METHOD

This study was the experimental research studying in both quantitative and qualitative results.

The target group of this study was 10 students of the 8th grade students of Khon Kaen Wittayayon School enrolling E22102 course in academic year 2011. The procedures of the study were as follows:

1. The students were introduced about the information of short story, critical thinking, and the objective of the activities.

2.6 lesson plans were conducted to develop students' critical thinking with 2 short stories: The Wonderful Magic Spell by Jack Kent and Stone Soup retold by Nils Gabriel Djurklou.

3. After, students were asked to read these two short stories, they would write their answers from the 6 following questions:

- The Wonderful Magic Spell by Jack Kent:

1. Clarify the meaning behinds this saying: "Being me has its problem, but at least I know what my problems are. Whatever I turn into might have bigger problems."

2. Explain and give reasons why the mouse said that the magic spell has changed him and how he has been changed.

3. Do you believe that the magic spell changed the mouse's mind? Why?

- Stone Soup retold by Nils Gabriel Djurklou:

1. Does the way the old woman talks to the young man seem reasonable? How?

2. How does the man's speech affect the old lady's thought that makes her changed her mind to allow the young man to stay in her house and also give him food? Please explain.

3. What does the young man exactly mean with this statement, "Poor woman. Then you must be hungry, too. Why don't you eat with me"?

Period	Questions	Bloom's Category	Questioning Category
1	Clarify the meaning behinds this saying: "Being me has its problem, but at least I know what my problems are. Whatever I turn into might have bigger problems."	Knowledge	Lower Level
2	Explain and give reasons why the mouse said that the magic spell has changed him and how he has been changed.	Comprehension	
3-4	Do you believe that the magic spell changed the mouse's mind? Why?	Analysis	
5-6	Does the way the old woman talks to the young man seem reasonable? How?	Analysis	
7-8	How does the man's speech affect the old lady's thought that makes her changed her mind to allow the young man to stay in her house and also give him food? Please explain.	Analysis	Higher Level
9-10	What does the young man exactly mean with this statement, "Poor woman. Then you must be hungry, too. Why don't you eat with me"?	Analysis	

4. Students' answers would be checked with the rubric score created by researchers

5. With the students' scores, students would be given a chance to reflect their thoughts with their classmates and teachers in class.

6. Then, the interview was administered with 2 of the following themes:

1) Do you enjoy these classroom activities? Why?; and

2) Are there any suggestions or questions?

The quantitative data was analyzed by average score and percentage. The content analysis was used to analyze the interview results.

FINDINGS

It was found that after using Socratic questioning, students' critical thinking skills developed significantly.

QUANTITATIVE RESULTS

The percentage and average scores of students' answering through 6 questions based on Socratic questioning are given in Table 2. It was found that there were 9 students who passed the

criteria 70 percent considered as 90 percent. Also, the average score of students' answering through 6 questions based on Socratic questioning was 83.85 percent. That is, over 70 percent of students had passed the criteria set by researchers.

Table2. The percentage and average scores of students' answering through 6 questions based on Socratic questioning

Students No.	Scores (96 points)	Percentage (100%)	Criteria 70 percent
1	63	65.62	Failed
2	72	75.00	Passed
3	82	85.41	Passed
4	93	96.87	Passed
5	91	94.79	Passed
6	84	87.50	Passed
7	88	87.50	Passed
8	74	677.08	Passed
9	84	87.50	Passed
10	78	81.25	Passed
\bar{x}	80.51	803.85	Passed

QUALITATIVE RESULTS

After the end of the study, 10 students were interviewed for qualitative feedback regarding the attitudes towards the given activities. All of their voices were recorded using audio recording technology and then analyzed. With 2 interviewed questions, it has been found that all 10 students had good attitude towards learning English, especially reading section. They like to read short stories and answer the questions. All students said that Socratic questioning made them think and focus on the stories better. Besides, they added that it would be good if they participated in these activities in other skills such as speaking, listening or writing. Students A,

B, and C talked about the learning management and also gave the suggestions about the activities.

Student A said:

When it's time for English class, I'm very happy. I love to read short stories. It's very fun, especially when I have to answer the challenging questions. It makes me think a lot to get the right answers.

Student B said:

Reading short stories with answering questions makes me think carefully and critically...I'm really fun whenever teacher made us do the activities. I have a chance to interact with my classmates and teachers.

Student C said:

I enjoy the activities in class very much, but it would be great if teacher provides activities in other skills besides reading. So, I will have more chance to practice other skills in thinking, interpreting and exchanging my thoughts to others.

DISCUSSIONS AND CONCLUSIONS

The result of students showed that the majority of the target group passed the criteria 70 percent considered as 90 percent. Also, the average score of students' answering through 6 questions based on Socratic questioning was 83.85 percent. That is, over 70 percent of students had passed the criteria set by researchers. Therefore, Socratic questioning could promote students' critical thinking ability which was related to the study of Yang (2002) showing that the teaching and modeling of Socratic questioning helped students demonstrate critical thinking skills at a higher level in the process of making judgments and decisions in university-level correspondence-style distance learning courses. Also, the paper of [16] discussed critical questioning (i.e. Socratic questioning) as a requirement for critical thinking. That is, Socratic questioning could develop participants' critical thinking skills. As [8] stated in the study of "Assessing Student Critical Thinking Through Online Discussions", Socratic questioning could use as a format for promoting critical thinking in online discussion but with careful attention.

With the data from the interview, it was found that students enjoyed with the given activities. They had better attitudes towards English learning, especially in reading class. They thought that reading with questions and trying to find the answer helped

them concentrate on the stories and think carefully when they answered the questions. When considering the student who did not pass the criteria, he answered that because of his illness, he did not come to class regularly. However, he believed that if he participated in all activities, he would have passed the criteria. Also, he added the whenever he came to class, he had a lot of fun and happiness with the activities and his classmates.

To encourage higher-level cognitive processes of students with the Socratic questioning, both teachers and students should help each other achieve this goal. That is, during Socratic questioning, the teacher is a model of critical thinking who respects students' viewpoints, probes their understanding, and shows genuine interest in their thinking. The teacher poses questions that are more meaningful than those a novice of a given topic might develop on his or her own. The teacher creates and sustains an intellectually stimulating classroom environment and acknowledges the value of the student in that environment. In an intellectually open, safe, and demanding learning environment, students will be challenged, yet comfortable in answering questions honestly and fully in front of their peers. At the same time, students should participate in the activities actively and answer questions as carefully and clearly as possible.

To sum up, as [15] stated, critical thinking is based on critical questioning (Socratic questioning). By being well prepared with the discipline content and knowledgeable in the use of critical questioning, teachers can help students become critical thinkers. It is through understanding, preparation, and practice that instructor can be ready to meet this challenge.

REFERENCES

[1] Dearing, R. Higher Education in the Learning Society. Report of the National Committee of Inquiry into Higher Education. London: HMSO; 1997.

[2] Dillon, J. T. Questioning and teaching: A manual of practice. New York: Teachers College Press.; 1988.

[3] Flammer, A. Towards a theory of questioning. *Psychological Research* 4:407–420; 1981.

[4] Gardiner, L. Redesigning Higher Education: Producing Dramatic Gains in Student Learning. ASHE-ERIC Higher Education Report. Volume 23, No. 7. Washington, DC: The George Washington University, Graduate School of Education and Human Development; 1995.

[5] Kerry, T. Classroom questions in England. *Questioning Exchange* 1 (1): 32–33; 1987.

[6] King, A. Enhancing peer interaction and learning in classroom through reciprocal questioning. *American Educational Research Journal*. 27 (4): 664–687; 1990.

[7] ———. Designing the instructional process to enhance critical thinking across the curriculum: Inquiring minds really do want to know: Using questioning to teach critical thinking. *Teaching of Psychology*. 22 (1):13–17; 1995.

[8] Leppa, C. J. Assessing Student Critical Thinking Through Online Discussions. *Nurse Educator*. 29 (4): 156-160; 2004.

[9] Maiorana, V. P. The road from rote to critical thinking. *Community Review*. 11 (1–2): 53–63; 1990-91.

[10] North Report. Commission of Inquiry Report. Oxford: Oxford University Press; 1997.

[11] Paul, R. W.. Critical thinking: What every person needs to survive in a rapidly changing world. Santa Rosa, CA: Foundation for Critical Thinking; 1993.

[12] Paul, R. and Elder, L. *The Thinker's Guide to How to Read a Paragraph: The Art of Close Reading*. Foundation for Critical Thinking Press; 2006.

[13] Ramsden, P. *Learning how to Teach in Higher Education*. Abingdon: Routledge Falmer; 2003.

[14] Taba, H. Teaching strategies and cognitive functioning in elementary school children. Cooperative Research Project, No. 2404. San Francisco: San Francisco State College; 1996.

[15] Thoms, K.J.. Critical Thinking Requires Critical Questioning. The Professional and Organizational Development Network in Higher Education: St. Cloud State University; 1998.

[16] Thoms, K.J. and Junaid,. Developing Critical Thinking Skills in a Technology- Related Class. Mid-South Instructional Technology Conference Proceedings (2nd, Murfreesboro, TN); 1997.

[17] Yang, Y.C. . Use of structured Web-based bulletin board discussions with Socratic questioning to enhance students' critical thinking skills in distance education. Purdue University; 2002.