Empowering School Students through Developing Critical Thinking Skills

BHARTI DOGRA*

Abstract

Developing critical thinking has always remained one of the primary goals of school education. Critical thinking emphasises on thinking, challenging the validity of prior beliefs and assumptions. A person having critical thinking skills is expected to adopt an objective and questioning perspective. Can critical thinking be developed? Can students acquire critical thinking? What is the role of a teacher in developing critical thinking of the students? How can we as teachers initiate and sustain a classroom environment which is conducive for development of critical thinking of students? This paper tries to answer these questions through analysis of various strategies which can be used by teachers for developing critical thinking amongst students. Critical thinking is a skill and it can be acquired by students.

INTRODUCTION

Let us understand the conversation going on between student A and B in a classroom.

A: If somebody commits an act which is considered 'crime' by the society, but the person shows his ignorance, then it should not be considered as an act of 'crime'.

B: But, why? What do you understand by the term 'crime'?

A: It is an action which constitutes an offence and is punishable by law.

B: Then, in this case he has committed a crime.

A: But, he was not aware of it.

B: But, crime is a crime whether you are aware of it or not aware of it.

These two students are grappling with an issue that concerns them—whether a crime is a crime when you are not aware about it. These students

*Professor, School of Education (SOE), IGNOU, New Delhi

were thinking critically about a significant matter— the concept of crime and questions of culpability. Critical thinking is also required for simple tasks such as critiquing a novel, deciding the hero of the book and planning a presentation. In this paper, the author discusses the meaning of critical thinking, rationale for teaching critical thinking, various strategies for promoting critical thinking.

What is Critical Thinking?

The origin of critical thinking as a goal for education dates back at least as far as the ancient Greeks, when Socrates, Plato, and Aristotle encouraged their students to realise that things often are not what they seem to be on the surface (Burbach, Matkin, and Fritz, 2004). Many educators have continued to stress the importance of critical thinking, following John Dewey, who indicated in Democracy and Education (1916, p. 179) that "all which the school can or need to do for pupils … is to develop their ability to think." As educators, we understand that learning does not result from mere memorisation of facts as by memorisation of facts we just become familiar with the knowledge and opinions of others. But, when we do our thinking about these facts then we develop understanding.

John McPeck has recently defined critical thinking as "a certain skepticism" about what to believe, think and do. The key thought here is that critical thinking reflects "certain skepticism," a willingness to withhold judgment, to doubt, and to ask good questions before we accept or believe what we're told.

Critical thinking is about challenging the validity of presuppositions in prior learning; as Mezirow (1990) argues, premise reflection more accurately captures what critical reflection is. Critical reflection addresses the question of the justification for the very premises in which problems are posed or defined in the first place. We very commonly check our prior learning to confirm that we have correctly proceeded to solve problems, but becoming critically aware of our own presuppositions involves challenging our own established and habitual patterns of expectation: the meaning perspective with which we have made sense out of our encounters with the world, others, and ourselves.

Finlay (2008) in examining skills underpinning reflective practice advocated the use of an integrated theoretical framework to examine three interrelated areas impacting reflective practice— self-awareness, reflection and critical thinking. How do we develop self-awareness? This comes from our own experiences. Our experiences can improve our reasoning and analysing skills by exposing us to new ideas. We also experience feelings as a part of our everyday lives. We experience affect in the form of moods or emotions. Reflection draws on existential phenomenology and critical theory to

inform self and social awareness, and critical thinking draws on skepticism and critical theory focusing on identifying and challenging assumptions about oneself and about the context in order to imagine and explore alternatives.

"Critical thinking is skillful, fully responsible thinking that facilitates judgments because it (1) relies on criteria, (2) is self-correcting, and (3) is sensitive to context". Here, we are talking for the criteria with which you made your judgment or drew your conclusions (Lipman, 1988).

The development of a critical perspective provides students with the skills to read any given text or content from an informed position. Critical thinking skills enable students to adopt an objective and questioning perspective. However, 'critical thinking' should not be reduced to simply a set of skills. Rather, it should be regarded as an 'attitude, underpinned by curiosity… the motivation to understand at deeper levels' (Bryan et al., 2010)

Critical Thinking is a Skill

Critical thinking is not the same as intelligence; it is a skill that can be improved in everyone (Walsh and Paul, 1988). Also, many educators differentiate between ordinary thinking and critical thinking. According to Lipman (1988b), ordinary thinking is usually simple and lacks standards, whereas critical thinking is more complex and is based upon standards of objectivity and consistency. He suggests that students must be taught to change their thinking from

- guessing to estimating;
- preferring to evaluating;
- grouping to classifying;
- believing to assuming;
- inferring to inferring logically;
- associating concepts to grasping principles;
- noting relationships to noting relationships among relationships;
- supposing to hypothesising;
- offering opinions without reasons to offering opinions with reasons; and
- making judgments without criteria to making judgments with criteria.

Critical thinking tends to require higher levels of thinking— that is, more evaluation and synthesis than application or analysis.

Rationale for Teaching Critical Thinking

- As citizens, we have to make decisions about who to vote for and what stance to take on issues. It is better to think about these responsibilities critically.
- Understanding any discipline or subject area requires that we understand and critique the claims made within that discipline or subject area. This requires critical thinking.
- We often confront conflicting claims, whether in science,

history, or the media. Critical thinking can help us sort out which are most credible.

- Without critical thinking, there would be little human progress. Let us explain this with an example here. State Government wants to set up some industries in the state. Now, industries will provide employment to workers and finished products to people. But, before taking this decision, higher authorities need to critically think about its impact on the environment in terms of air pollution, disposal of wastes etc. These are the problems which may arise because of absence of critical thinking.
- Critical thinking is useful in making personal decisions.
- Many of the problems we face are moral. It is better to think critically about these than to appeal to emotions, self-interest, or the use of force.
- If we respect children and want them to become independent decision makers, then we should teach them how to think critically.
- The use of critical thinking helps empower people so they can reason well about problems and issues.
- Employers want people who can think critically.
- If you can think critically, you are more likely to think about your own thinking and evaluate it.

Critical Thinking Instruction

According to Stephen Brookfield (1987), there are two activities central to critical thinking—

1. identifying and challenging assumptions and
2. exploring and imagining alternatives

Brookfield defined assumptions as the unquestioned rules that individuals have assimilated into their value system as self-evident truths – "taken-for-granted" truths established by the culture that the individuals have accepted as their own. These assumptions influence how we interpret situations and how we perceive solutions to problems. Critical thinking helps us in developing open-mindedness and a willingness to explore other possibilities. In effect, we must teach students to examine old ideas in new ways and to consider alternatives to old ways of thinking.

One good way of providing opportunities for students to examine assumptions is by having them work in small groups with a list of "loaded" questions – statements about which the group must gather responses from each member and then report their areas of agreement and disagreement during a whole-class discussion. The following statements are examples of loaded questions:

1. When we see a picture of a rock star, what assumptions might we make about their lifestyle?

2. When we see somebody wearing shabby clothes, what assumptions might we make about them?
3. When we hear that someone has AIDS, what do we think?
4. When you come to know about a lady who is fighting parliamentary elections then what assumptions do you have about her abilities?
5. Anybody who is selected in IIT entrance exams, then what assumptions you must be having about their abilities?

Strategies for teaching Critical Thinking

All those approaches which require students to be actively engaged help in developing critical thinking. The interactive classrooms where communication between students-to-teachers, teachers-to-students and students-to-students, is encouraged motivate students to learn, explore, discover and inquire. A number of strategies can be used for creating interactive environment in the classrooms. These strategies include:

1. Inquiry as a thinking skill: According to Hester (1994), inquiry involves critical thinking processes such as methods of diagnosis, speculation and hypothesis testing. Inquiry helps in confronting the problems and then testing the news ideas. In inquiry method, information (such as events, facts, situations, behaviours) are examined and then explained. In inquiry learning, students apply their knowledge in new problem situations and then on the basis of the findings they arrive at the usefulness of this knowledge. Inquiry learning helps the students in acquiring knowledge and skills with the help of which they can learn independently throughout their life. Inquiry learning starts with a question so role of a teacher here becomes very important. Teachers must ask thoughtful probing questions such as
   - What would happen if you…?
   - How are you going to do that?
   - Where would you get more information?

   Questions must be well-thought out to stimulate critical, higher-level thinking by the students. These questions are critical in that they provide students with their thinking task. These questions take time to develop if they are to be different from the typical, closed, low-level questions which are often used in classrooms and which do not stimulate student thinking. In addition to the critical initial questions, the teacher's role throughout the lesson is one centered on questioning. Rather than answering students' questions, the teacher's job is to lead students to their own answers to their questions either through an open-ended response question or through refocusing the students on their observations of the objects. Today, we talk about multiple realities. There is

no one correct answer. The problem can be approached in many ways and the student may arrive at an answer based on their experience.

2. Active learning: Critical thinking requires students to be actively involved in their learning (Browne and Freeman, 2000) as they attempt to understand and apply the information to which they are exposed (Ahern-Rindell, 1999). For actively involving students, they must be given opportunities such as small group interaction, asking higher order questions, problem solving, planning and carrying out investigations and then preparing a report on findings using tables, graphs etc. and then discussion on results with other students, debates, discussions etc. Instructional techniques that encourage passivity in a learner are probably not going to support and may even impede critical thinking (Browne and Freeman, 2000). To develop students' thinking skills in the science classroom, instruction should require students to hypothesise, speculate, generalise, create, and evaluate while providing opportunities for identifying and solving problems, especially problems that are real and of interest and concern to students (Pizzini, Abell, and Shepardson 1988).
3. Story telling in classrooms: The real world stories as cases can be presented in the class along with discussion. Both case based teaching and PBL have been successful because they are based on stories that put learning in context and actively engage students in the learning process (Herreid, 2006). Open-ended activities can be conducted for developing critical thinking skills in which no single, correct answers are sought.
4. Brainstorming: The dictionary meaning of 'Brainstroming' is to have a group discussion to generate many ideas or to solve a problem. This means that we get a number of responses or ideas from a group and it is important to accept and appreciate all responses during the activity. Provide an accepting atmosphere throughout the activity. Brainstorming can also encourage flexible thinking.
5. Flexible thinking: As the name 'flexible' means able to easily modify as per the needs of the circumstances so flexible learning goes beyond the usual learning situations and offers opportunities beyond the usual responses. Students must be encouraged to put their five senses to work in thinking about how many ways a concept could be used. A teacher can ask questions that help them consider alternative possibilities—what if you are stuck up at a desert (with no water). They can ask themselves questions like—

What if_____?
Suppose that_____?
How is_____
like_____?
If you were_____?

Such questions and statements help define new possibilities and produce flexible thinking.

6. Problem solving: Complex thinking processes often involve problem solving and decision making. Problem solving involves six steps— (1) defining the problem, (2) collecting data, (3) identifying obstacles to the goal, (4) identifying alternatives, (5) rating alternatives, and (6) choosing the best alternative. Problem-solving models can be developed and guide students through these important steps. Divergent questions can be developed for encouraging students to give all different types of answers.
7. Use of advance organisers: Let us consider few examples here such as:
   - a teacher makes students bring in pictures that show the destruction caused by earthquakes before starting a lesson on earthquake waves, how they are caused and measured.
   - a teacher constructs a concept map of transport system in man to familiarise students with structure and functions of human transport system and can refer back to visual aid to emphasise on interactive instruction on this topic.

In the above mentioned examples, advance organisers are being discussed. In order to form a connection between what students presently know or understand and what they need to learn, an advanced organiser comes into picture. Advance organisers involve some form of information that is presented prior to learning, allowing the learner to apply an organisational scheme while they construct new knowledge. Advance organisers help the students organise what they are to learn. The teacher can refer back to the organiser and use it to support the immediate instruction, as well as communicating connections to past and upcoming lessons.

8. Using examples to help students understand concepts: According to Webster Dictionary, the word 'example' comes from the word 'sample' which means a portion that shows the character of the whole. When a teacher cites examples of concepts or asks students to give examples of concepts, they acknowledge that learning must be based on students' prior knowledge. By using examples, teaching is connected to the students' world. Students can relate examples to concepts such as:
   - substances existing in different states, solids, liquids and gases,
   - plants and plant parts,
   - different types of animals,

- liquids of different density, colour and viscosity,
- magnetic attraction of iron,
- rusty iron,
- sinking and floating of objects in water,
- conversion of different states of matter,
- different life stages of fishes, butterflies, mosquitoes and frogs,
- germinating seeds and,
- composition of soil.

These examples can be used deductively or inductively to help students understand concepts. But inductive approach, is closer to constructivist notion of how students learn concepts, students begin with an exploration of ideas and phenomena, followed by a teacher-directed activity to facilitate the invention of the concepts. Examples can also be thought of as metaphors and analogies of the concepts in the curriculum.

Conclusion

Critical thinking means not accepting any information without questioning it or analysing it objectively. We all require critical thinking at each and every stage of life. While studying at school, we need to comprehend, analyse and apply classroom information critically. Later, for choosing a stream and then a profession or vocation. Therefore, critical thinking is required by all during all the stages of life. While developing critical thinking instruction for students, it must be framed in such a manner that it must provide opportunities to students to (i) identify and challenge assumptions, and (ii) explore and imagine alternatives. Teachers can help students in developing critical thinking skills by actively engaging them in the classrooms, providing interactive and stimulating classroom environment and providing opportunities to inquire, explore and discover.

References

Ahern-Rindell, A.J. 1998. Applying inquiry-based and Cooperative Group Learning Strategies to Promote Critical Thinking. *Journal of College Science Teaching*. Vol. 28, No. 3. pp. 203–207.

Brookfield, S. 1987. Developing Critical Thinkers. Jossey Bass, San Francisco.

Browne M.N. and K. Freeman. 2000. Distinguishing features of critical thinking classrooms. *Teaching in Higher Education*. Vol. 5, No. 3. pp. 301–309.

Bryan, H., C. Carpenter and S. Hoult. 2010. *Learning and Teaching at M-level — A Guide for Student Teachers*. Sage. London.

Burbach, M.E., G.S. Matkin and S. M. Fritz. 2004. Teaching Critical Thinking in an Introductory Leadership Course Utilising Active Learning Strategies: A Confirmatory Study. *College Student Journal.* Vol. 38, No. 3. pp. 482–493.

Dewey, J. 1916. Democracy and Education: An Introduction to the Philosophy of Education. Mcmillan. New York.

Finlay, L. 2008. Reflecting on 'reflective practice'. Open University Practice-based Professional Learning Centre. Retrieved from http://www.open.ac.uk/cetl-workspace/cetlcontent/documents/ 4bf2b48887459.pdf (accessed 18 December 2013).

Herreid, C.F. 2006. "Clicker" Cases: Introducing Case Study Teaching into Large Classrooms. *Journal of College Science Teaching.* Vol. 36, No. 2. pp. 43–48.

Hester, J.P. 1994. Teaching for Thinking: A Program for School Improvement Through Teaching Critical Thinking Across the Curriculum. Carolina Academic Press. Durham, N.C.

Lipman, M. 1988. Philosophy goes to School. Philadelphia: Temple University Press.

McPeck, J. 1982. Reviewed Work: Critical Thinking and Education. Review by: William Hare. *Canadian Journal of Education/Revue canadienne de l'éducation.* Vol. 7, No. 4. pp. 107–110.

Mezirow, J. 1990. *How Critical Reflection Triggers Transformative Learning.* pp. 1–20.

Pizzini, E. L., S. K. Abell and D. P. Shepardson. 1988. Rethinking thinking in the Science classroom. *The Science Teacher.* Vol. 55. pp. 22–25.

Walsh, D. and R, Paul. 1988. The Goal of Critical Thinking: From Educational Ideal to Educational Reality. *American Federation of Teachers.* Washington, D.C.