PREREQUISITE STRUCTURES AND GENERAL APPROACHES TO CRITICAL THINKING

Uche Nnyagu PhD
Department of English
Nnamdi Azikiwe University, Awka

Prerequisite Structures Necessary for Critical Thinking

In communication, the aim is basically to pass information across. Obviously, every utterance contains information, but the intended information cannot be hewed out of the utterance if the receiver (reader or the listener) does not sieve the collocation as to get the expected message. This process is not possible without the listener or the reader engaging in critical thinking. Critical thinking, therefore, is a systematic evaluation and analysis of information and ideas to form a judgment or decision. It is a process in communication that entails the receiver trying to decode what has been encoded by the giver (speaker or the listener), with the aim to arrive at the expected message.

Critical thinking is something that should be taken very seriously if quality learning must take place. This chapter delves into the pedagogical aspect of critical thinking with the aim to point out the requirements necessary for proper teaching of the concept. It should be pointed out at this point that for critical thinking skills to be developed, critical thinking training should start at early ages. This is the period when the mind of the child is still developing and any knowledge acquired in this age almost becomes indelible in the mind of the individual. If critical thinking skills are taught in early stage, learning becomes easier for the individuals as they grow. Scholars believe that when this is done early enough, the individual will structure his or her own habits, ways of thinking and attitudes related to thinking. According to Richard Paul critical thinking is classified it into two dimensions:

- **Critical Thinking Skills** and
- **Critical Thinking Habits.**

Critical Thinking Skills: This dimension, as postulated by Paul, encompasses the cognitive abilities and techniques used to analyze, evaluate, and construct arguments, such as:

- identifying biases and assumptions

- Analyzing arguments and evidences

- Recognizing ambiguity and uncertainty.

- Making sound inferences and deductions.

Critical Thinking Habits

This dimension involves the consistent and intentional application of critical thinking skills in everyday life. It includes:

- A commitment to intellectual curiosity and lifelong learning

- A willingness to question assumptions and challenge prevailing views

- A tendency to approach problems and decisions with a critical and open-minded attitude.

Allowing the mind to attain positive attitudes and habits makes it easier to use skills and strategies. For example, the fact that one has attitudes and habits such as being open to alternatives, empathizing and being open-minded will make one to pay attention to different views in the process of getting information.

Three Important Attitudes Toward Critical Thinking

- The first is to be ready for and enthusiastic about reasoning. People should perceive the need of making sense of their experiences as a requirement.

- The second attitude is the desire to struggle. People ought to develop thinking habits by means of producing thoughts against their own thoughts. In other words, they should examine their own thoughts.

- Critical Thinkers should desire to come to a conclusion through considering contrasting thoughts while they are shaping their own thoughts.

Critical thinking demands that the learner, should be free-minded. Fisher (1995) suggests how to be free-minded to include the below:

- By making decisions and taking the evidences and evaluating evidences as the basis.
- Considering the thoughts that contrast with one's own decisions and thoughts.
- Being open to others' thoughts that contrast with one's own thoughts.
- Always keeping in mind the possibility of being wrong.

Four Basic Approaches to Teaching Critical Thinking

While educators agree on the importance of developing critical thinking skills within educational systems, there is no common view about how to teach these skills. However, to ensure understanding and appreciation of Critical thinking, below are the four major approaches that must be considered while teaching critical approach:

A. Subject-Based Educational Approach:

B. Integrating-to-the-Subject Approach,

C. General Approach (Skill-Based Approach),

D. Blended Learning Approach

A. Subject-Based Educational Approach:

This approach defended by Glaser (1984) and McPeck (1981) envisages that critical thinking should be taught together with the content planned to be taught. According to this approach, the principles and rules of critical thinking are clearly presented to the students in parallel to content unit.

Integrating-to-the-Subject Approach

This approach, integrating-to-the-Subject Approach (Content-Based Critical Thinking Teaching) entails focusing on a specific subject as to delve deeper into the topics. Although this approach is similar to the first approach, it envisages integrating content unit and critical thinking principles and rules. However, these rules and principles are not presented explicitly. On the other hand, some thinkers and educators do not agree.

John McPeck, an American philosopher and educator, is of the view that critical thinking begins with a problem or question that needs to be addressed. According to him, it involves actively seeking information, asking questions, and exploring possibilities. Critical thinking therefore requires breaking down complex information into smaller parts, examining relationships and identifying patterns. To him, since good reasoning is dependent upon the epistemological and logical norms of subject field, critical thinking may change from one field to another.

Scholars are of the view that it is more meaningful to teach critical thinking skills through integrating it to the subject field instead of teaching independently from the field. Resnick (1987), Pauker (1987), Vincent Ryan Ruggiero (1988), Paul (2001) and Elder (2001) are some of educators whose study on critical thinking claim that critical thinking should be taught with an approach that envisages integrating the subject.

According to Paul and Elder a good critical thinking demands the below:

- All thinkings have a goal.
- All thinkings focus on at least one question.
- All thinkings require information.
- All thinkings require concepts.
- All thinkings include inferences.
- All thinkings include some premises.
- All thinkings include perspectives.
- All thinkings include a point of view.

General Approach or Skill Based Teaching of Critical Thinking

Skill-Based Teaching (General Approach) is structured completely different from subject-based teaching. Critical thinking skills have the characteristics of a skill-based programme which has been developed depending on a non-school context apart from the contents presented at school. Kruse and Prenssesisen (1987) and Sternburg and Bhanaar are advocats of this approach.

Skill-based Teaching of Critical Thinking

Ennis (1991), one of the pioneers of critical thinking, states that there are twelve dimensions of critical thinking, and that these are teachable and transferrable skills. Critical thinking should be taught through a skill-based approach. When critical thinking is taught through a skill-based approach, repetitions of basic disciplines within the subject are avoided while it gets easier to apply the attained cognitive skills to other lessons and to support these skills by these lessons.

Skill-based Approach

A skill-based approach is a method of training, or developing individuals and it focuses on specific skill and competencies required for a particular job or task and not based on qualifications gained through schools. In this approach, skills are clearly defined and identified as necessary for success rather than qualification. This entails that individuals are appraised based on demonstrated skills rather than the certificates they possess. This approach helps in improving job perfection and productivity as individuals' capacities have been ascertained based on their demonstrated skills. One of the educators who claim that critical thinking should be taught through a skill-based approach is Matthew Lipman. According to Lipman (cited in Fisher, 1995), thinking is made up of individual skills and one should start to teach critical thinking with these skills.

According to Lipman, when critical thinking is taught with a content-based approach, subjects get attention and critical thinking skills are ignored during the lesson. Thus, the development of such critical thinking skills of the students are limited.

Although the programme offered by Lipman is basically designed for elementary school pupils, it can be adapted to all levels of education. Lipman believes that a skill-based approach to

teaching philosophy involves focusing on the development of critical thinking problem-solving and communication.

Methods to be Followed in Teaching Critical Thinking

As I have stated earlier in this chapter, critical thinking entails the systematic evaluation and analysis of information and ideas to form a judgment. Here, facts are separated from biases and ideas statements and inferences are sieved to arrive at the a comprehensive understanding. Swartz and Parks believe that for the importance of critical thinking, its method of teaching should be taken seriously. He suggested methods to follow in teaching critical thinking to include:

1. **Encourage Active Learning:** Here, the students are engaged in discussions, debates, and problem-solving activities.
2. **Use Open-Ended Questions:** The students are posed with certain questions that would prompt them to think deeply and explore different perspectives.
3. **Forster a Growth Mindset:** The fact that critical thinking skills can be developed over time is emphasised.
4. **Model Critical Thinking:** The teacher demonstrates critical thinking skills behaviours such as questioning.
5. **Encourage Collaboration:** Here, students are paired here to work together for actualization of result.

Processes to follow for Actualization of Goal:

- Thinking Skill or Process: It is important to define the thinking skills or processes that the students are going to learn
- Methods and Materials:
- Using Teaching Methods in order to Teach Thinking Process Effectively
- Strategy of structured questioning

- Tables of organizing data
- Collaborative learning comprising small group works
- Explaining the thinking process directly or inductively
- Cognitive Maps (pictures or drawing) produced by students

Active Thinking Process

An active thinking process involves engaging with information or a situation in a systematic manner with the aim to deepen understanding and solve a problem effectively. It includes verbal messages and graphic maps (tables of organizing data).

Students should be helped with thinking activities through verbal messages and tables of organizing data. They are directly asked questions to explain their own way of thinking. The prepared cognitive maps guide the formation of questions that will be asked to the students. Students explain which way of thinking they use, how they do this and how they can display (reflect) this thinking skill.

Applying Thinking to Other Fields and Daily Life

Critical thinking can be applied to various fields and daily life in various ways including:

1. Decision making
2. Problem-solving
3. Science and research
4. Media literacy
5. Health and wellness
6. Personal finance
7. Education
8. Relationship

9. Environmental issues
10. Ethics and morality

Learning and Skill Transfer

Skill transfer is a means of taking what has been learnt and using it in a very practical way in order to achieve a goal. It entails the process of applying the skills learnt, activities or any form of knowledge in a new context, or situation. Scholars identify the below as the types of transfer

1. Instant Transferring: Instant transfer occurs when learners apply what they have learnt immediately after it has been learnt. It is a short-term application which is demonstrated immediately after it has been learnt often in a controlled enviroment.

2. Immediate transfers: Immediate transfer happens when learners apply what they have learnt within a relative short period after it has been learnt often in a similar environment. It is a relative short-term application of newly acquired skill or knowledge

3. Distant Transfer: This transfer is also known as far transfer and it occurs when learners apply what they have learnt in a new and unfamiliar context after quite a long period has passed. It is therefore, a long-term application as it didn't take place immediately after it was acquired. Distant transfer is considered ultimate goal of learning as it demonstrates the ability to apply knowledge easily and naturally in real word situations.

   Statements and activities of teachers should be diminished while students' activities are increased in both kinds of transfers.

   The Role of the Teacher in Teaching Critical Thinking

   Teachers have very serious roles to play to ensure that the learners acquire necessary skills. One of the most important things that a teacher can do in class is to make students able to notice their own operating cognitive processes which means that students can form their own opinions regardless of the subject and level of the class. The teacher is like a pilot at the helm of a plane, the fate of the crews to a great extent, lies in the hands of the pilot. In the same vein, the fate of the learners lies in the hands of the teachers. If a child is wrongly taught by the teacher, the negative effect lives with the learner for so

long. This is why the teacher needs to be very meticulous with his or her roles for positive acquisition of knowledge by the learner. For better learning of critical thinking, below are two major roles of the teacher in teaching critical thinking:

- The teacher should have the students attain the skills of learning how to learn and think. The students should be able to try thinking, classifying and comparing, defining the wrong things about their thinking and correcting their own mistakes by themselves.
- Teachers are both planners of learning-teaching activities and organizer of the classroom environment. Oppressive and authoritative environments prevent learning to take place in class. Over oppression, fear and excitement cause some hormones to be excreted more in the brain, and this causes mental processes to slow down.

Demirel and Şahinel go further to advance more points he believed that would further enhance teaching critical thinking as below:

- Encourage Active learning: The teacher should engage students in discussions, debates and problem solving activities to foster critical thinking.
- Use Open-Ended Questions: The students should be asked questions that would prompt them to think deeply.
- Emphasize Inquiry-Based Learning: The teacher should encourage students to explore and make investigations on topics taught. They should be encouraged to research further on the topic as that would enhance understanding.
- Forster a Supportive Learning Environment: It has to be understood that environment is a major contributing factor to learning. Therefore, to ensure better learning, a safe and inclusive space for students to share ideas should be enabled.
- Model Critical Thinking: As a student eager to learn, you must demonstrate critical thinking skills yourself. The best way to learn is by observation so as a student, you observe and demonstrate the positive learning you have observed.

- Encourage Feedback, Not Answers: As a teacher, encourage the students by guiding them to towards finding solutions and understanding concepts rather than providing straightforward answers.

In the light of these understandings, a teacher:

- should let students participate in determining the classroom activities and even their goals through discussion and preference.
- should let students ground their own ways of behaving on their own decisions in a gradually increasing manner and should prepare opportunities for them.
- should display some certain ways of behaviours to the students through examples, criticism and explanations or have the students do them instead of repeating the necessity of these behaviours,
- should give students chance of revealing, improving and making use of their abilities as an individual.
- should work with students in a nice environment collaboratively through encouraging student participation and individual initiative.

How to Move from the usual Thinking to Critical Thinking

A teacher should arrange educational activities that go:

1. from assuming to hazarding guesses
2. from preferring to evaluating
3. from grouping to classifying
4. from believing to supposing
5. from mere deducing to logical deducing
6. from remembering concepts to perceiving principles
7. from giving importance to relations to giving importance to relations between relations

8. from presuming to hypothesizing

9. from Suggesting without thinking to presenting an opinion after thinking

10. from judging without evaluating with standards to judging through evaluating with standards.

To Facilitate Critical Thinking, a Teacher Must do the following:

- Cause a mental transformation in students
- Be able to go beyond course books and course plans.
- Transforming the atmosphere of the class ensuring a class free of violence and force.
- Carry out all educational activities considering human rights, respecting students and their opinions, for example, giving students time to think, decide, express their opinions.
- Use interactive methods, understand and believe in the students' contribution to the critical thinking skills.
- Correlate information and life.
- Participate in the discussions in class without being bossy.
- Demonstrate capacity to facilitate critical thinking skills
- Should not humiliate students by means of using age, status and position of being a teacher (in other words, not misusing power).
- Be aware of the fact that one can force his/her own opinion involuntarily.
- Thinking reflectively about topics and themes
- Set goals among students in the class
- Dialogue reflectively with colleagues or student about issues.
- Create a conducive atmosphere that enables interaction in class.

Advantages of Teaching Critical Thinking

1. It ensures the subjects are learnt thoroughly.

2. Learning thoroughly creates interest in and motivation about the subject in the student.

3. It increases the level of active participation of students to a great extent.

4. It facilitates transferring of the learnt skills and subjects to other lessons and life.

5. In-class communication and interaction increases as a result of attaining skills.

6. Teaching critical thinking skills contributes to creating a democratic atmosphere in class.

7. It contributes to the socialization of students.

8. It helps the students to develop self-evaluation skills.

9. Especially in skill-based teaching, choosing extracurricular subjects helps students to be more active in class.

Challenges/Difficulties in Teaching Critical Thinking

1. There is usually a need for an orientation period in order to properly teach critical thinking.

2. The teachers should be well-trained about teaching critical thinking skills.

3. It requires a good planning. This planning should be composed of a yearly plan that covers a whole educational year and daily plans that show how to get students attain the critical thinking skill in each lesson. These plans may require to be prepared by people having specialized in critical thinking especially in our country until teaching critical thinking becomes widespread.

4. Stationery expense is more than usual activities.

5. Critical thinking activities take longer time.

6. Teaching critical thinking should be spread over a long period of time. Teaching critical thinking should be planned with a spiral sense that is distributed to all levels of education starting from pre-school period instead of teaching in one or a few years

Works Cited

Bittner, N., and Fisher, R. *Teaching Children to Think.* Stanley Thornes Publishers, 2006.

Demirel, O, & Sahin, M. *"*Critical Thinking in Education: a Review of the Literature." *Journal of Educational and Instructional Studies in the World.* 7(2) , 2017105 – 115.

Ennis, R. H. *Critical Thinking: a Streem of Thought.* Routledge, 2018.

Gibson, C. *Teaching Strategies: a Guide to Better Instruction.* Orlichharder, 1998.

Glaser, E. M. & McPeck, J. E. "Critical Thinking and the Education of the Gifted" in *Gifted Child Quarterly,* 27(2), 1983, 34 -35.

Kruse, S. D. & Prenssissen, K. "Fostering Critical Thinking in the Classroom: The Clearing House" in *A Journal of Educational Strategies, Issues and Ideas* 88 (4) , 2015, 119 – 124.

Lipman, M. *Thinking in Education* (1991) (cited in Fisher, A. *Critical Thinking: an Introduction.* Cambridge University Press, 2011.

Paul, R. W, & Elder, L. *"*Critical Thinking: the Nature of Critical and Creative Thought" in *Journal of Developmental Education* 30(2), 2006, 34 – 35,.

Pauker, R. "Critical Thinking: a Review of Literature." in *Journal of Educational Psychology* 79(3), 1987, 302 – 311.

Sternberg, R, J. & Bhana, K. *Critical Thinking in the Classroom: a Practical Approach.* Routledge, 2018.