

# CRITICAL THINKING: CONCEPTUAL FRAMEWORK

By

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## ABSTRACT

"Critical", "Criticism", and "Critic" all come from the age-old Greek word "Kritikos", meaning able to authorise, discern, or decide. In contemporary English, a "Critic" is someone whose job is to make appraise judgements, for example, about films, books, music, or food. It means giving a fair and unprejudiced opinion of something. The same as for Education is concerned, critical thinking is a cognitive activity associated with using mind. Critical thinking is the ability to transfer knowledge learned from certain disciplines to other cognitive areas. Critical thinking was connected with supporting suspicious thoughts along with developing individual thoughtful skills, such as logical reasoning and personal judgement. According to John Dewey, "thinking is the natural propensity of mind, day dreaming, building of acropolis in the air are the examples for thinking", in a random sense. John Dewey further says to become analytical thinker or to think critically that "reflections" is more important. Piaget say "Thinking is based on experience". "Intelligence, is the product of the innate potential interacting with the environment" and young children knows more that he can verbalise. Development has to do with general mechanisms of action and thinking. Vygotsky suggests that social interaction plays a fundamental role in the process of cognitive development. "Critical thinking" is needed for critical analysis, while "critical pedagogy" goes beyond it claiming that societal instructions producing and implementing knowledge, and related ideologies have to be questioned and transformed. Paul goes on to argue that an ample conception of critical thinking must go away from skills, and include the dispositions and personality traits relevant to the use and appreciation of those skills.

*Keywords: Critical Thinking, John Dewey's Views, Piaget's Views, Vygotsky's Views, Critical Pedagogy Views.*

## INTRODUCTION

The terms "Critical", "Criticism", and "Critic" all come from the ancient Greek word "Kritikos" meaning able to judge, distinguish or choose. In modern English, a "Critic" is somebody whose job is to create evaluative judgements, for example, on films, books, music, or food. It means expressing a fair and unprejudiced opinion on something. As far as education is concerned, critical thinking is a cognitive activity related to using the mind. Learning to think in vital, diagnostic, and evaluative ways means using mental processes, such as attention, categorisation, selection, and judgement. Critical thinking is the capacity to transmit knowledge learned from certain disciplines to other cognitive areas. It involves not only the attainment of knowledge, but also vigorous learning, a kind of evaluative learning and operation of knowledge effectively (Santos,

2017). During the acquisition of critical thinking skills and processes, the mind and body of the students must be active and open for scientific analysis.

Critical thinking was associated with encouraging a suspicious attitude along with developing individual reflective skills, such as logical reasoning and personal judgement. At the same time, there was an argue on whether critical thinking was the general ability that could be taught as a separate subject or whether it needed to be developed during the process of accepting a specific discipline or body of knowledge. The present research highlights the important theoretical views of critical thinking concept in the discipline of education (Garrison, 2016).

### 1. Definitions of Critical Thinking

Dewey in 1934, defined critical thinking as "Active, persistent, and careful consideration of a belief or

supposed form of knowledge in the light of grounds which support it and the consequences to which it leads" (Jiang, 2017).

Paul in 1988 found that "Critical thinking is the ability to reach sound conclusion based on observation and information" (O'Donnell et al., 2011).

Facione in 1990 saw "Critical thinking to be purposeful, self-regulatory judgement, which results in understanding, investigation, evaluation, and inference, as well as an explanation of the evidential, abstract methodological, criteriological, or contextual considerations upon which that judgement is based...." (Mentor, 2016).

Ennis in 2002 defined it as "Critical thinking is meditative and sensible thinking that is focused on deciding what to believe or do" (Fisher, 2011).

Glaser in 1941 thought "Critical thinking as an attitude of being disposed to consider in a thoughtful way the problems on subjects that come within the range of one's experiences" (Lin, 2018).

Mulnix in 2010 critical thinking includes a commitment to using reason in the formulation of our beliefs (Han, 2015).

All the above definitions indicate that critical thinking gives due thought to prove the situation of judgement, the appropriate criterion for making the relevant methods or techniques for forming the judgement, and the applicable theoretical construct for understanding the problem and the question at hand. Critical thinking employs not only reason, but also broad intellectual conditions, such as precision of thought, sincerity, accuracy, precision, relevance, and significance.

Most of the human decisions are associated with either acceptability or denial of a particular argument, idea or concept based upon inferences. The human mind infers from deductive, inductive, and evaluative thinking. For critical thinking skills, three cognitive skills are basic; people who think critically again and again attempt to live rationally, reasonably, and emphatically.

## 2. John Dewey's Views on Critical Thinking

The American philosopher, psychologist, and educator, John Dewey is extensively regarded as the father of contemporary critical thinking tradition. He called it

"reflective thinking" (Fisher, 2011). He said that the whole thing that comes to mind and "go through our heads" is called thinking. To think of a thing is to be just aware of it. We can think of such things as we do not openly see, hear, smell, or taste. The meaning is further limited to beliefs that rest upon some kind of verification or proof. In a thin sense, thinking signifies the whole thing that goes "in our heads" or that "goes in our minds". According to John Dewey, "thinking is the normal inclination of the mind, day dreaming, building of palace in the air are the examples for thinking", in a random sense. He added to become an analytical thinker or to think critically "reflections" are more important. Reflection involves not only a sequencing of ideas, but also a product, a consecutive ordering in such a way that each determines the next as it is a proper outcome. While each in turn leans back on its predecessors, the successive portions of a reflective thought grow out of one another and support one another; they do not come and go in a combination. Critical thinking is essentially a vigorous process, one in which we think things through oneself. To raise questions and find relevant information, critical thinking attaches huge importance to reflections; reflections based on perceiving things, ideas, or concepts. Hence, John Dewey said that skillful reasoning is important for critical thinking.

He suggested that critical thinking had both cognitive and emotional constituent. Hence, students must be trained to examine, thrust questions, and reflect on what they have learned; cynicism insightful and reflection are essential. Examining a difficulty to find a solution, think about why an individual is not flourishing, and learning from one's own failures. Critical thinking involves students in doing things, and thinking about the things they are doing.

### 2.1 Criteria for Reflection

1) Reflection is an intelligence process that moves a learner from one understanding to the next with broad understanding of its associations and relations to other experiences and ideas. Reflections act like a thread and help in the continuity of learning, and ensures the development of the individual and ultimately, the society. Reflection is an orderly rigorous, well-organised way of thinking with its roots in scientific investigation (Jacobson, 2012).

2) Reflection needs to happen in the centre of the population in interaction with the others.

3) Reflection requires attitudes that value the individual and academic growth of oneself and others.

The second kind of thinking is invention. Invention helps to recognize facts, it is called thoughts.

The following are the six phases of reflection.

- An experience
- Unstructured explanation of the experience
- Identification of the problem(s) or question(s) that arise out of the experience
- Generating promising explanations for the problem(s) or question(s) posed
- Bifurcate the explanations into fault blown hypotheses
- Experimenting or testing the selected hypothesis

Reflection, according to Dewey, is more than just casual thinking or passive introspective thoughts about something. It is a complex and intentional intellectual activity that generates learning from experience (Wang, 2016). It can be largely conceived. It is more than simply a matter of direct participation in events, for example, introverted reading of a book or discussion with others. The important thing according to Dewey is the contact between the person and his environment. Lacking contact with the environment, learning is sterile and passive; never primarily change the learner without repeatedly learning is random and disconnected, building toward nothing either within the learner or in the world (Haore, 2006). This kind of intelligent accomplishment is important in the field of education as it helps to improve pupils' higher order cognitive skills. A reflective teacher does not merely seek solutions, nor does he or she do things the same way every day without an awareness of both the source and the impact of his or her actions.

Dewey said that reflection is a particular way of thinking; it is stream of realisation invention and faith. The second kind of thinking is creativeness. Creativeness stands in contrast to direct insight of facts. It is in short imagination.

Dewey further viewed critical thinking as focused reflective thinking. He used the terms correspondently as essential to reflective thinking, and considered that thinking is not

necessarily reflective unless one is critically thinking about the problem, information or data, personal experiences, and interpretation of available information. Critical thinking involves reflective thinking, if engaged in reflective judgement. Reflective judgements promote the development of reflective thinking, but rely upon critical thinking to bring about these reflective processes. Critical thinking is affected by decision making criteria, and complex problem solving. It is reliant upon skillful thinking and good judgement is self-correcting.

Critical thinking involves identifying and demanding assumptions, which underlie faith, justifying ideas and actions, judging the rationality of these justifications, and analysing of arguments. Reflective judgements and critical thinking do not occur in separation from a complex problem, but are connected with finding the solution to the problem. Reflective thinking requires an evaluation of speculation beliefs and hypotheses against data. Knowledge researches findings and interpretations, and judgements are made as a result of identifying and weighing up various views and understanding of these issues. Reflective judgements involve purposeful thought and deliberation on the knowable elements of the problem and its possible solutions. Self-improvement is an element of critical thinking.

### 3. Piaget's Views on Thinking

Piaget's theory on cognitive development is one of the influential theories in cognitive Psychology. Piaget opined that as the age increases, thinking skills increase among children. Piaget also said that favourable environment is important for cognitive development. Although Piaget does not use the term "critical thinking", he did extensive work on cognitive development, thinking, and higher order thinking. His interest in children's thinking was a joint outcome of his grounding in biology and his wide ranging interest in idealistic problems. His ambitious application of a biological model of development to the problem of epistemology resulted in lifetime work on the origins (genesis) and development of children's thinking. He called this genetic epistemology. The term "cerebral embryology" might also have been appropriate.

Piaget proposed that the inbuilt quality of logic have their

origin in the activities of the subject. Thinking actions are derived from the activities we carry out upon objects in the outer world. Hence, thought is an internalised form of action. This view enabled Piaget to make clear how development tends towards increasingly abstract and logical terms of thoughts such that similar set of logical rules develop in all children (Hargreaves, 1986).

Piaget proposed that equilibrium is the instrument by which the acquisition of logical thinking occurs. Cognitive structures are seen as unbalanced in relation to new objects and experiences, and the tendency to equilibrate towards more stable states is a kind of intrinsic "cognitive drive", which motivates exploration. The environment is a constant source of feedback, which guides the inclination to explore and the development stages represent successive levels of stabilisation or adjustment to it.

The basic "building blocks" of cognition are schemes, or schemata. In a baby, a scheme might be a harmonised set of actions, such as those involved in sucking different objects, the baby soon learns by trial and error that some objects are more suckable than others. Piaget would say that the objects are assimilated to the sucking scheme and because of this differentiation and complementary integration of the framework of schemes, it is mobile and functional.

Piaget's theory of cognitive development explained cognitive development in stages, namely the sensory motor stage, the pre-operational stage, the concrete operational stage, and the formal operational stage (Wikipedia (n.d.)). A major upheaval in a child's thinking occurs around the age of seven, with the shift into the concrete operational stage, and the attainment of formal operational thinking (Hargreaves, 1986).

### **3.1 Four Stages of Cognitive Development as Proposed by Piaget**

The sensory-motor stage surrounds the child from 0-2 years. During this stage, the child will change from a fairly helpless new born baby to a walking, talking toddler. This stage is dominant by sensory and motor activity. The new born baby is dependent upon built-in schemas and reflexes and is unable to imitate or integrate information. As the child grows, their sensory and motor activity develops and

expands, so that by the end of this stage, it is able to reproduce and incorporate information to some degree. A two year old child is capable of using objects to correspond to other objects, for example, a cup can become a boat in a game (Oakley, 2004).

The pre-operational stage (2-6 years) is characterised by an increase in language development continuation of symbolic internal representation and the development of imaginative play (Oakley, 2004). The child begins to use symbols and language to represent things, mental ordering, and classification. This stage is intuitive because the child has no idea about the concepts or principles that underlie the classification.

The concrete operational stage (7-12 years) uses the term "operations" because this stage is characterised by the development of activities and rules for clarifying and analysing the child's world. The term concrete refers to the child's ability to apply these strategies to things that are present. Thus, the child can solve problems it can see or manipulate.

The formal operational stage (12-16 years) diminishes need on concrete objects and children are able to solve hypothetical problems or imagined problems that they are unable to see.

Hypothetical deductive reasoning is reasoning that uses deductive logic. The second element of this stage is efficient problem solving. As the term suggests, a child at this stage solves problems in a systematic and logical manner (Oakley, 2004).

Critical thinking activates in early childhood, which arises from the conception that abstract thinking or formal reasoning is same as critical thinking. In construct to abstract or formal reasoning, which Piaget defines as manipulation of symbols without connection to concrete objects, critical thinking has to do with how thinking is done, and not necessarily with what a young child to think critically long before thinking metaphorically that is formally or abstractly (Davis-Seaver and Davis, 2000).

Dewey saw thinking as developmental, but not of necessity with regard to age. According to him, thinking develops by progressing from concrete to abstract. He defined concrete as "a meaning definitely marked off from other

meanings so that it is willingly detained by itself". According to Piaget "Thinking is based on experience". "Intelligence is the product of the innate potential interacting with the environment", where young children know more than they can verbalise. Development has to do with wide-ranging mechanisms of action and of thinking. It pertains to intelligence in its widest and fullest sense (Furth and Wachs, 1975). The second unique principle in Piaget's definition centres on the word "interaction". This also influences on critical thinking. The way teachers provide stimulating and favourable setting in the school or in their lessons help them to think independently. The sources of thinking grows from within, Piaget's theory focuses on logical thinking, structure of thought process, and the interaction between biological and environmental influences on cognitive functioning. When the child reaches the formal operational stage, abstract thinking emerges to achieve this higher order thinking skills, which the child must master in the consecutive levels.

#### 4. Vygotsky's Views on Critical Thinking

Vygotsky focused on the connections between people and socio-cultural contexts in which they act and interact in or share experiences (Soundarajan, 2012). Consolidated Vygotsky's claim that higher mental functioning in individuals has social origin. Vygotsky suggested that social communication plays a basic role in the process of cognitive development. He also suggested that More Knowledgeable Others (MKO) scaffold an individual's learning. MKO refers to those who have a better understanding or a higher ability level than the learner, normally a teacher or an elder adult. MKO is important to improve critical thinking of young children. Children can act as MKO for peers through modelling better thinking or demonstrating a more coherent speaking ability or simply by being more socially capable and confident. Critical thinking also is a demonstration or application of Vygotsky's Zone of Proximal Development (ZPD). The ZPD is the remoteness between a student's ability to execute a task under adult guidance and or with peer collaboration and the student's capacity to solve the problem independently. According to Vygotsky, it was in this zone or liberty that learning occurred.

Numerous schools still hold mainly to transmission or

instruction models of teaching in which a teacher 'transmits' information to students. These are largely monologue classrooms with the leading monologue being that of the teacher. Children answer in response to teacher directed closed questions. Vygotsky promotes learning contexts in which students play an active role in learning. This entail having a dialogic classroom where views are exchanged reasonably with the idea of teacher as skilled and student as empty vessel is less visible in such classrooms. Teachers can and should be learners. The role of the teacher as learner might have to shift in order to facilitate the creation of classroom cultures of trust and ongoing participation in community. Vygotsky says that education is a social process (Roche, 2014).

He provided an important angle on the social origins of thinking. He believed that "both persons and society are mutually produced and reproduced". The extension of Vygotsky's view is "the notion of learning as a process of inquiry". According to Vygotsky, high level of cognitive functioning is first manifested interpersonally (i.e., collaborative discourse) from which the individual creates "meanings" which is open to involvement through discourse. The Vygotskian perspective calls for "reconstituting classroom and schools as communication of inquiry" (Garrison, 2016).

According to Vygotsky, during preschool years, children begin using their speech not only for communicating to others, but also for communicating to themselves and a new form of verbal communication, i.e., private speech emerges (Kozullin et al., 2003). This is similar to Piaget, who associated the phenomenon with children's egocentrism and measured it a sign of immature thinking. For this perspective, private speech does not develop into a sign of immaturity, instead a sign of progressive development of the cognitive process (Kozullin et al., 2003).

Vygotsky describes two major changes that occur in the use of private speech during preschool years. First, the function of private speech changes. Children start using private speech to go with their realistic actions. At this point, it is closely tangled with social speech, which is directed to other people which, Vygotsky believes, serves as a precursor to private speech. Later, private speech becomes exclusively self-directed and changes its



function to organise children's own behaviour. At the same time, the sentence structure of private speech changes as well. From complete sentence typical for social speech, a child's utterance changes into abbreviated phrases and single words, unsuited for the purpose of communication to other people, but sufficient for communicating to oneself. Vygotsky uses these two meta phases of private speech to illustrate what he believed to be the universal path of gaining of cultural tools. They are first used externally in interaction with other people and then internalised and used by an individual to master his or her own mental functions. The beginning of private speech marks an important point in the development of children's thinking, the beginning of expressed thought (Kozullin et al., 2003). Vygotsky believed that education was central to cognitive development. Knowledge and cultural understanding are transferred from adults to the child through language and communication. He said that for the development of critical thinking, language development is important.

### 5. Critical Pedagogy and Critical Thinking - Paulo Freire

Critical pedagogy is heavily influenced by the works of the Brazilian born educator Paulo Freire (1921-1997), the most well-known critical educator. It is a compound term, that theoretically surrounds and extends one's experience in a continuous resistance to accept and embrace another's knowledge, principles verbal communication, class, sexual orientation, nationality, cultural mores, and the gaps between and the connections among each of the listed groups. Critical pedagogy is a personal lifelong journey. It is qualitatively different for each early childhood and elementary teacher and aspirant because every person has a unique world view (Christensen and Aldridge, 2013). It is through reflection on our lived experiences, especially in classrooms with young children, which we can choose to look more introspectively as if into a prism and imagine how the common place could be further interpreted by each of our students or co-workers and try to accept life from their perspectives. Critical pedagogy assists us in understanding what happens when we fail to take into account the richness of cultural knowledge that walks into the classroom with the students and families remind us that critical pedagogy has the potential to clarify teachers thinking and enhance their teaching practice (Christensen and

Aldridge, 2013).

Freire dealt with students' ability to think critically about their education. The idea being that this way of thinking allowed the students to be familiar with and understand connections between individual problems and experiences and the social contexts and structures in which these were fixed (Sporre and Mannberg, 2010). It would promote critical thinking and search for transformative knowledge. Critical teachers preserve that students should study the world around them. In the process they learn 'who they are' and 'what has shaped them'. As such, they are challenged to evaluate and interpret data, carry out research, and develop a love for scholarship that matter to the well-being of the people of the world (Scott and Purdum-Cassidy, 2016). Critical teachers can assist students to question their experiences and to ponder the important points where these experiences intersect with larger social, political, scientific, aesthetic, and literacy concerns in an epistemological framework. Freire and Dewey were both moved beyond schooling as a form of change of previously validated data from the curriculum guide to the teacher and then, students. A critical approach is aimed to employ people in probing situations and analysing multilayered perception on the world. Critical thinking may help people to realistically investigate existing knowledge and examine underpinning assumptions and beliefs, while critical pedagogy claims that analysing in reality means to explore and expose structures in society that privilege certain social groups, while other groups are excluded or oppressed (Stevenson et al., 2013). Social disparity supremacy relationships, interest in guiding research and knowledge production, and setting free are notions in the contexts of "Critical pedagogy", while "critical thinking" is needed for critical analysis. "Critical pedagogy" goes beyond it claiming that societal instructions producing and implementing knowledge and related ideologies have to be questioned and transformed. "Critical pedagogy" links reflection and action, interpretation and social change.

The critical pedagogy movement sees the teaching of critical thinking in a different way. They see it as a way of changing students to their instruction and their role in serving on well-established entrepreneur political system. Moreover, they see the role of teaching critical thinking as

altering them to the social conditions that have led to this, "critical pedagogy" movement raising the issue of the social conditions of freedom as essential for critical thinking. "True critical thinking" for them involves liberty from a cruel system as a condition of freedom of thought. At heart, critical thinking's claim is to teach politically. For critical pedagogy, this is false distinction. Burbules and Berk in 1999 said that Self-liberation in the words of critical pedagogy is collective. "Education is preparation for life; education is life itself (Paulsen, 2015).

Critical thinking according to Paulo is an "academically disciplined process of actively and skilfully conceptualising, applying, analysing, synthesizing and/or evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and intention". Paulo extended the idea of the dialogic into his theories on critical thinking, particularly in relation to dialogue of inner voice. His suggestion was that the ability to reason and rationalise with oneself is an important feature of developing rational knowledge. It is the consideration of possible opposing arguments and an empathy with the alternative view point that enables the development of rational thinking through a "dialogical exchange this is particularly important if there is no one set to engage an alternative point of view. For Paulo, the ability to voice other points of view was not only advantageous, but a key skill of rational thinking. He really opposed the term "Multilogical", rather than merely "dialogical" as there may be multiple opposing viewpoints. He also argued that this was mainly a creative way of thinking as it extended the thinker beyond one fixed 'monological' frame of reference with a defined set of logical moves (Maine, 2015). Paulo's theory furthered the argument for considering a dialogic space of possibility between speakers and thinkers or perhaps just between ideas and responses. He suggested that "Philosophical thinking" was very close to "Critical thinking".

Critical thinking must be based on the systematic monitoring of thought. Ideas must not be taken at their face value, but must be integrated as to their clarity, relevance, and logical soundness. Reasoning itself is not universal, but always takes place within the context of a specific point of view or frame of reference. Reasoning is likewise never

value-free, but has as its point of departure, and specific goals and objectives.

Paulo asserted that there were two key components of their thinking that students needed to be able to externalise, foreground or identify, and make explicit the constituent parts of their thinking. Once this was done, they needed to become fluent in the tools and techniques used to evaluate their use of these parts of thinking. He emphasised that the parts of thinking that can be identified were based on recognition that,

- All way of thinking has a purpose
- Is an attempt to shape something out, to resolve some questions, to solve some problems
- Is based on hypothesis
- Is done from some aim of vision
- Is based on data, in sequence and confirmation
- Is expressed through and formed by concepts and facts
- Contains inferences by which we draw conclusions and give meaning to data
- Leads somewhere, have inference and consequences (Paul and Elder, 2010).

Paulo goes on to argue that sufficient conception of critical thinking must go beyond skills, and include the nature and character traits relevant to the use and pleasure of those skills. His idea that "critical thinking" was significantly "Socratic" in a way which demanded that critical thinking involved in particular ways the character or "critical spirit" of the thinkers. Critical thinking is disciplined, self-monitored, self-directed, and self-corrective thinking, and it classically involves valuable communication and problem solving skills (Siegel, 1997).

## Conclusion

Developing critical thinking skills and higher order thinking skills must develop among present students through various processes of education. Thinking citizens only can contribute for the development of the country. Dewey says reflections are important that means each student must introvert their personality and select the best of academic discipline for their study. To achieve this experimental learning is better in early school days. Even though Piaget's

view says cognitive development takes place through ages, but to achieve this learning is important, that is learning through experiments helps to develop higher cognitive faculties of mind. In every subject, teacher must teach reasoning skills as far as possible. Vygotsky says conversation skill is important for learning. This says student must study different language, during their primary education, which helps them to communicate among themselves. Further he says the idea of teaching through mother tongue is important in the life of each and every child during their initial learning process. The language is closely connected to the child's cognitive development, which enhances child's thinking capacity. Paul Fierce says critically evaluative teaching method in the classroom is important for the development of thinking process. even though these educationalists theories looks quite age-old in the field of education, but its application is evergreen in contemporary schooling.

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