

"EVOLUTION, GROWTH AND DEVELOPMENT OF CRITICAL THINKING " - A THEMATIC ANALYSIS

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ABSTRACT

This paper throws light on how a part of brain is involved in thinking and decision making followed by the earliest record of critical thinking in the ancient Greek by Socrates. Academically, John Dewey, who is considered to be the 'Father' of the modern Critical thinking is the forerunner of this tradition. His definition on 'Reflective Thinking' is later adopted by Edward Glaser who is the coauthor of Watson-Glaser Critical Thinking Appraisal. Robert Ennis joined this tradition of developing Critical thinking with his famous definition that gained a wide attention about 'deciding what to do'. Another contribution in this row is Richard Paul with his different definition 'thinking about your thinking' which is also called as 'metacognition'. Critical Thinking that was historically focusing on logical procedures went into a collection of sources from researches that surpassed the logical restriction by Kerry Walters in the year 1994. Critical Thinking today has become a part of all professional fields and academic disciplines. It is evident that through a process of reflective contextualization Critical thinking principles can be applied universally to different disciplines. Critical thinking is offered a subject in A-Level. Full advanced GCE is used in politics, philosophy, history or theology degree courses. Many examinations for university entrance set by the universities also include critical thinking component and the Thinking Skills Assessment.

Key Words: Critical Thinking, Socratic Thinking, Reflective Thinking, progressive education, reasoning, reflective thinking, thinking about your thinking, metacognition, recent developments.

INTRODUCTION.

Man is born with innate abilities and thinking is one of them. The mere thinking has not been sufficient in order to solve the problems he faced. As the societies became more complex, communication was a necessary and understanding the environment crucial, man needed special thinking ability to analyze the facts, generate and organize ideas, defend opinions, make comparisons, draw inferences, evaluate arguments and solve problems. This tradition of developing Critical Thinking grew through several civilizations and today it has emerged to be the most wanted course of study in professions and in academic disciplines.

There can be little disagreement to the claim that the complexities of the contemporary life place great demands on the rationality of the humankind. Though the current problems are neither

larger nor more in number like the past, they need to be solved in a world today where the previous assumptions do not hold true. (Morril 1980). In addition to that, it is human irrationality, not a lack of knowledge, that threatens human potential. (Nickerson 1986c)

Though Critical Thinking has become a popular topic in the conferences, publications and programs in the schools and higher education, there are challenges in reaching out Critical Thinking through academics where everyone participates to develop. Where Critical Thinking can be taught? Whether it is allowed to be taught? How to convince the parents and organizations who prevent the teaching of ideas contrary to their belief? Do the teachers have internal support to teach Critical Thinking? How to present these skills to the students who oppose Critical Thinking because of its difficulty? These are the questions that need to be addressed empirically. Even after so many years of education the graduates including teachers make the judgments on the basis of unexamined personal preferences without involving Critical Thinking. Therefore, Critical thinking is an unavoidable area which everyone needs. This paper attempts to study the evolution, growth and development of Critical Thinking from brain development till its implication in the contemporary world.

THE BRAIN DEVELOPMENT AND THINKING

The basic foundation of Critical thinking lies in the development of our brain. The growth of the prefrontal cortex, crucial for complex thinking and decision-making, is the key in the evolutionary leap of the Human life. This allowed our ancestors to analyze situations, solve problems, and to get accustomed to their environment. The most important function of the prefrontal cortex is the executive function. Executive function is thought to be the coordinated operation of multiple neural processes and allows to accomplish a current goal flexibly. Among a variety of executive functions in which the prefrontal cortex participates, decision-making is one of the most important. Planning, judgment, anticipation, and reasoning are also examples of executive functions.

The prefrontal cortex is known to be an important brain area for executive control (Stuss and Benson, 1986), since it has been shown that human patients with damage to the prefrontal cortex exhibit poor judgment, planning, and decision-making (Stuss and Benson, 1986; Goldman-Rakic, 1987; Mesulam, 2000; Fuster, 2015).

THE EARLIEST RECORD OF CRITICAL THINKING.

As a matter of fact, people have been thinking about 'critical thinking' and have been researching how to teach it for about a hundred years. In a way, the earliest record began this approach to learning by Socrates over 2400 years ago. In the [classical period](#) (5th c.–4th c. BC) of Ancient Greece, the philosopher [Plato](#) (428–347 BC) indicated that the teachings of [Socrates](#) (470–399 BC) are the earliest records of critical thinking. Socrates insisted upon the significance of raising deep questions that lead profoundly into thinking prior to the acceptance of ideas that are worthy to believe. It is acknowledged that the agenda for the Critical Thinking was set by Socrates.

In an early dialogue by Plato, the philosopher Socrates debates several speakers about the [ethical](#) matter of the rightness or wrongness of Socrates escaping from prison. Socrates also established the unreliability of [Authority](#) and of authority figures to possess knowledge and consequent insight. That is to mean, for an individual man or woman to lead a worthy life, that person must ask critical questions and possess an interrogative soul, which seeks evidence and then closely examines the available facts, and then follows the implications of the statement under analysis, thereby tracing the implications of [thought](#) and action. There has been a clear note by Socrates that Authority does not ensure accurate, verifiable knowledge. Therefore, Socratic questioning analyses beliefs, assumptions, and presumptions, by relying upon evidence and a sound rationale.

Plato, Aristotle and the Greek thinkers, followed by the practice of Socrates, emphasized that the appearance of the things are different from what they appear. There is a need for a trained mind to be prepared to look at the deeper realities of the things to the delusive appearances of them.

MIDDLE AGES AND SYSTEMATIC CRITICAL THINKING

The tradition of systematic Critical Thinking was partially personified by Thomas Aquinas like thinkers in their writings and teachings. Thomas Aquinas and other medieval thinkers, worked to increase awareness of the power of reasoning and insisted upon the necessity for the reason to be cultivated systematically and cross-examined. The universities in the medieval era moved their interest to logic from grammar and rhetoric. It gained its value not only as the training of the intellect but became a method of reasons making people to reach conclusions about the nature of reality that are valid and demonstrable.

CRITICAL THINKING IN RENAISSANCE AND POST-RENAISSANCE.

A great number of scholars during the period of renaissance in Europe started to think very critically about religion, art, society, human nature, law and freedom. They strongly proposed that many areas of human life were in need of analysis and critique. Francis Bacon from England openly analyzed how the normal human mind is deceived by ignorance, prejudice, self-deception and personal expectations. Since his agenda of Critical thinking was much traditional, his books and contributions can be considered as the earliest texts on Critical Thinking.

About fifty years later, in France, Descartes wrote the “Rules for the Direction of the Mind” which might be called the second text on Critical Thinking. Descartes has designed a special systematic disciplining of the mind to guide it in thinking that led to the articulation of the principle of systematic doubt. Contemporary to Descartes, Sir Thomas More introduced an attractive model of a new social order called Utopia. This new social order insisted that every domain of the present world was subject to critique.

History also records that Machiavelli in the Italian Renaissance, founded the modern critical political thought by assessing the political conditions of his time. Hobbes and Locke during the 16th and 17th centuries in England showed the critical mind of the thinker that the world witnessed in Machiavelli. Both the thinkers promoted that the critical mind must look for new

vistas of learning. Hobbes was interested in the naturalistic view of the world where everything has to be explained by evidence and reasoning and Lock supported a commonsense analysis of life every day. Bayle, Montesquieu, Voltaire and Diderot were the thinkers of the French enlightenment who made very important contribution to Critical Thinking. They together supported the view that the human mind will be able to understand the nature of the social and political world when it is disciplined by reason.

CRITICAL THINKING IN 18TH AND 19TH CENTURY – APPLICATIONS

The concept of Critical Thinking was driven further by the 18th century thinkers. Adam Smith's *Wealth of Nations* was produced by applying the concept to the problems in economics. At the same time, the Declaration of Independence was created by applying the concept to the traditional concept of loyalty to the king. The Critique of Pure Reason was produced by Immanuel Kant, applying to the reason itself.

Furthermore, critical thought was extended to the area of human social life by Comte and Spencer. The economic critique Karl Marx applied to the issues related to Capitalism. When it was applied to the history of human culture and the basis of biological life, Darwin's *Descent of Man* was produced. The critical thought was merged to the study of unconscious mind and we can see that vividly in the works of Sigmund Freud.

JOHN DEWEY AND REFLECTIVE THINKING

John Dewey, the American philosopher, psychologist and educator, is popularly known as the 'father' of the modern critical thinking tradition. He called it 'reflective thinking' and defined it as "active, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends." (Dewey, 1909, p. 9)

John Dewey stressed the distinction between process and product in thinking. He defined "reflective thinking" as "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends [that] includes a conscious and voluntary effort to establish belief upon a firm basis of evidence and rationality" (1933, p. 9). The important element about the definition of Dewey is about the 'ground which support' and the 'further conclusions to which it tends'. According to him, what matters are the reasons we have in order to believe something and the implications of our belief. Undoubtedly, critical thinking carries huge importance to reasoning, and the skillful reasoning is a key element. Dewey's ideas stimulated wide reform rhetoric and were used to justify a reform movement called "progressive education."

EDWARD GLASER

Another definition which belongs to the Critical Thinking tradition is due to Edward Glaser, co-author of what has become the world's most popularly known test of Critical Thinking, the Watson-Glaser Critical Thinking Appraisal. Glaser defined critical thinking as (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the

range of one's experience; (2) knowledge of the methods of logical enquiry and reasoning; and (3) some skill in applying those methods.

It is easily observable that this definition owes a lot to the original definition of Dewey. Glaser refers to 'evidence' in place of 'grounds' but otherwise the second sentence is much the same to Dewey. The first sentence is all about 'an attitude' or disposition to be thoughtful about problems and recognizes that you can apply what he calls 'the methods of logical enquiry and reasoning' with more or less 'skill'.

The tradition has picked up on both these elements, acknowledging that Critical Thinking is partly a matter of having certain thinking skills. Furthermore, it is not just a matter of owning these skills, but it is also important to be disposed to use them.

ROBERT ENNIS - A WIDELY USED DEFINITION

With his definition 'Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do. (Cf. Norris and Ennis, 1989)' Robert Ennis became one of the famous contributors to the development of Critical Thinking tradition and this has notably gained a wide attention in the field. The emphasis given for 'reasonable' and 'reflective' are from the previous definitions. In addition, Ennis also speaks about 'deciding what to do' was not openly mentioned earlier and therefore in the conception of Ennis, decision making is part of Critical Thinking.

RICHARD PAUL - 'THINKING ABOUT YOUR THINKING'

Richard Paul gave a definition of Critical Thinking that looks rather different from the definitions that were given by the previous ones. He defined it as 'Critical thinking is that mode of thinking about any subject, content or problem - in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. (Paul, Fisher and Nosich, 1993, p. 4)

This became an interesting definition as this draws the attention to a feature of Critical Thinking. That is to say, the only realistic way to develop a person's critical thinking ability is through 'thinking about one's thinking' often called 'metacognition'. As this aims to improve it by reference to some model of good thinking in that domain, it is largely agreed in the field by the teachers and the researchers.

CRITICAL THINKING IN ACADEMICS

Critical thinking has become an inevitable element of all professional fields and academic disciplines with reference to their respective sets of permissible questions, source of evidences, and criteria. The ideas and principles of critical thinking are able to be applied to any case but strictly involving the reflection upon the nature of that application. Consequently, Critical Thinking forms, modes of thought with the system of related, and overlapping, such as anthropological thinking, sociological thinking, historical thinking, political thinking, psychological thinking, philosophical thinking, mathematical thinking, chemical thinking, biological thinking, ecological thinking, legal thinking, ethical thinking, musical thinking, thinking like a painter, sculptor, engineer, business person, etc Through a process of

reflective contextualization Critical Thinking principles can be applied universally to different disciplines.

RECENT DEVELOPMENTS IN CRITICAL THINKING.

The teaching of Critical Thinking that historically focused only on logical procedures such as formal and informal logic underwent a compiled collection in the year 1994 by Kerry Walters. This conglomeration of sources surpassed the logical restriction to include the researches of many authors regarding connected knowing, empathy, gender-sensitive ideals, collaboration, world views, intellectual autonomy, morality and enlightenment.

In the English and Welsh school systems, Critical Thinking is offered as a subject that 16- to 18-year-olds can take as an A-Level. Under the OCR exam board, students can sit two exam papers for the AS: "Credibility of Evidence" and "Assessing and Developing Argument". The full Advanced GCE is now available: in addition to the two AS units, candidates sit the two papers "Resolution of Dilemmas" and "Critical Reasoning". The A-level tests candidates on their ability to think critically about, and analyze, arguments on their deductive or inductive validity, as well as producing their own arguments. The full Advanced GCE is useful for degree courses in politics, philosophy, history or theology, providing the skills required for critical analysis that are useful, for example, in biblical study.

There used to also be an Advanced Extension Award offered in Critical Thinking in the UK, open to any A-level student regardless of whether they have the Critical Thinking A-level. Cambridge International Examinations have an A-level in Thinking Skills.

From 2008, Assessment and Qualifications Alliance has also been offering an A-level Critical Thinking specification. OCR exam board have also modified theirs for 2008. Many examinations for university entrance set by universities, on top of A-level examinations, also include a critical-thinking component, such as the LNAT, the UKCAT, the BioMedical Admissions Test and the Thinking Skills Assessment.

CONCLUSION.

Whatever we are doing at present is determined by the way we are thinking. Whatever we feel, our emotions, is determined by our thinking. Whatever we want, all our desires, is determined by our thinking. The quality of our life depends upon the decisions we make. The effectiveness of the decisions is greatly influenced by Critical Thinking. The life of the individual consequently affects the quality of the society and then the university. The departments of education around the world will continue to implement and inculcate Critical Thinking in all the disciplines. This should spread to the organizations in a higher level to the professionals to learn and apply them in their own field of work.

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