



The role of CRITICAL THINKING in MANAGEMENT AND DECISION MAKING

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Review Paper

The role of critical thinking in management and decision making

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In an increasingly multifaceted business environment, characterised by fluidity, diversity and plurality of all forms, managers find themselves faced with dilemmas of different options and opinions. An ability to think critically becomes essential for managers in their endeavour to find solutions and navigate the turbulence. However, as a discipline, critical thinking has not been given due attention as an essential tool of management considering. This paper has endeavoured to discuss some of the major theories underpinning critical thinking process and link them to management decision making. The paper relied heavily on the different existing literature on theories and principles of critical thinking. Some of the theories discussed in the paper include; Coherence theory which emphasises clarity of decisions, Dialogue theory which emphasises discussion between two or more people, mental models theory and Reliability theory. The paper asserts that critical thinking is important in helping managers have accurate view of reality when confronted with issues and enable them make quality decisions especially in providing solutions to emerging challenges. In its conclusion, the paper underscores the role of critical thinking in aiding managers to be objective and holistic so as to make coherent and reliable decisions that are creative and instrumental towards organisational success. Finally the paper recommends that managers invest in sharpening their critical thinking skills to aid them towards proper, sound, and strategic decisions.

Key word: Critical thinking, strategic decisions, coherence.

INTRODUCTION

Critical thinking is the intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and evaluating information gathered or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action (Scriven and Paul, 2008). This process is an essential tool of inquiry that helps one to acquire knowledge, improve his theories and strengthen arguments. The application of critical thinking has some significant benefits in terms of improving the process of thinking and consequently leading to a better interpretation and a rational evaluation of assumption. It also assures that all the relevant possible hypotheses in a given situation are taken into account avoiding the inferences of personal biases or conflict among people within the organization or a team of people (Fisher, 2001). Further, Scriven and Paul (2008) view critical

thinking to be purposeful, self-regulatory judgement that results in interpretation, analysis, evaluation and inference which explains the contextual consideration upon which judgement is made. It has features that are useful for any management process including decision making.

To adequately answer questions, we need information which is in fact meaningful to us only if we can interpret it by making inferences. For instance, it enables a critical thinker to discern between choices and options and determine what is true from falsity or morally right from immoral and therefore wrong. Without critical thinking, inferences can be based on assumptions and sometimes biasness which can lead to poor decisions that can have serious negative impacts in management decisions. The quality of thinking has implications and consequences and therefore becomes a key determinant of the quality

of management and leadership (Elder and Paul, 2010).

Thinking is conceived as a common activity among people because in a way or another everybody does it. It is a process closely related to the mind and its purpose is to interpret and analyse the stimuli perceived through senses. Considering that thinking involves a specific process, there should be a certain level of control over it and models to apply and improve on it (2001). Understanding what it is and how to apply it in life can lead to better conclusions and better decisions. Managers are beyond doubt likely to benefit from application of critical thinking in choosing between a good and bad decision in business or in identifying the most strategic move among varied options (Facione, 2010). Good thinking informed by knowledge, promotes goal achievement in the organization. Effective thinking is key to management success, being implicated in virtually every task or function managers perform in organization (Pinker, 1997)

The paradigm of critical thinking

Scriven and Paul (2008) views critical thinking as a method based on universal intellectual values that transcend subject matter divisions, clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, breadth and fairness. Critical thinking has two components; asset of information and belief generation, and processing skills and the habit, based on intellectual commitment of using those skills to guide the behaviour. It is contrasted with the mere acquisition and retention of information, the mere possession of a set of skills and the mere use of those skills without acceptance of their results

Critical thinking involves the mode of thinking about any subject, content or problem in which the thinker improves the quality of his/her thinking by taking the structures inherent in thinking and imposing intellectual standards in them to help in finding solution and making appropriate decisions.

Although critical thinking is reflective, it interacts with the more automatic operations of the coherence system. It takes beliefs from the coherence system as inputs, creates and critically evaluates mental models which in turn feed its conclusion back as inputs to the coherence system. All cognitive faculties, perception, coherence-based reasoning and critical thinking are designed to reliably achieve particular purposes in a given environment (Haack, 1993).

Theories of critical thinking

There have been a number of theories developed to underpin and guide the science of critical thinking. While these theories have some basic divergences, they all share some fundamental commonalities in their approaches. The theory of critical thinking is drawn on three synthesized research that includes; cognitive

reasoning in which alternative possible situations are represented by mental models, normative models of critical discussion in which a proponent must defend a claim against an opponent and models of cognitive mechanisms which enables for assessment on the reliability of the process upon which we form beliefs and make choices (Cohen *et al.*, 2001). The essence of the theory is that critical thinking skill is exemplified by asking questions about alternative possibilities in order to achieve some objective. Alternative possibilities in the critical thinking skill are represented by mental models, a process adopted because of reliability.

At, its innermost core, critical thinking involves selective consideration of alternative options. Metrics of performance at this level involves logical, probabilistic and explanatory coherence of mental models. At the immediate level the models are embedded within a layer of critical questioning which motivates the generation and evaluation of possibilities. Such dialogues may take place within a single individual or among individuals. Critical questioning is evaluated by reference to norms for conducting the appropriate kinds of crucial dialogue. Dialogue types are differentiated by the depth of probing to which a proponent must respond and the scope of the permitted responses. At the outermost layer, critical thinking is a judgement about the reliability of a cognitive faculty, and the level of trust placed in its output. The critical dialogue is only one of various available cognitive or social processes that might be utilized to generate beliefs and decisions.

Critical thinking skill is exemplified by asking and answering questions about alternative possibilities to the extent that such questioning is likely to increase the reliability of the overall activity in achieving its purpose (Cohen, Salas and Riedel, 2001). Modern philosophy began with the notion that we have a duty to carefully decide whether to accept or reject our beliefs and a duty to base those decisions upon good evidence. At the beginning, philosophers thought evidence was good only if it rendered a conclusion absolutely certain. Now, philosophers acknowledge uncertainty and good evidence only needs to provide sufficient justification. Even if beliefs are true, unless they are accepted on the basis of what we explicitly take to be good evidence we are correct only by chance because the belief may be subject to further questioning and justification (Klein, 2000).

The purpose of critical thinking is to ensure that we have explicit reflective knowledge of all our first-level beliefs, our reasons for accepting them and the criteria that determine whether the reasons are sufficient. This may be dubbed as the intellectualist models of justification as Sosa (1991) explains. This fact is further supported by Siegel (1997) where he indicates that being a critical thinker requires basing one's beliefs and actions on reasons.

Coherence Theory

This theory underscores the fact that every belief depends in some way on the other beliefs for its justification. On this understanding, philosophers urge the consideration of a more complex variant of reasoning that they refer to as coherentism (Thagard *et al.*, 2000). Coherentists assert that a chain of arguments towards a conclusion will if pursued long enough, arrive back at the conclusion itself just as a chain of dictionary definitions will eventually arrive back at the original word. Though this is the case, coherentists who believe in fineness deny that justification is circular. Justification in their belief is not directly transferred from one belief to another by a series of arguments. From the coherentist perspective, it is the system of beliefs that is the target of justification and not the individual beliefs within it. A system of beliefs is coherent when its members are tightly interconnected by logical, conceptual, explanatory or other such relationships. Every belief contributes some support to every other belief and in turn draws support from every other belief just as each stone in an arch depends on the other stones (Day 1989).

Though coherentism puts emphasis on beliefs depending on one another to hold together in achieving a particular purpose of belief, it concedes that in certain situations some beliefs receive consideration over others hence defeating the logic that every belief is justified in the same way (Riedel *e. al.*, 2001). Coherentism provides an account of how conflicting arguments are resolved through the evaluation of alternative systems of beliefs. The combination of inferences in such belief systems outweighs human cognitive capabilities (Chemiak, 1986). The system of belief is justified as a whole by the inferential links among its components in coherent paradigms network of acceptability of belief. Pure coherentism presents with it some problems that elicit certain responses. One response makes intellectualism worse in a given perspective while the other response makes a dramatic break with it. The intellectualist solutions to the problems require a higher degree of reflective self-awareness indicating that the systems of beliefs be evaluated in terms of coherence, originality and reliability (Herman *et al.*, 1973)

Coherence theory therefore, is mainly about beliefs, beliefs about those beliefs and their significance in, intellectualism and arguments (Sosa, 1991). This paper postulates that this theory in the writer's view is of integral importance in decision making as it impacts on clarity of action or decision to be taken to address a particular circumstance in management aspects. Coherence is very critical in decision making. Some decisions haphazardly made by managers without coherence substance may prove counterproductive leading to failure. Managers are encouraged to be coherent in their thoughts and in the decisions they make in the course of discharging their managerial functions. The success and

achievement of the organization's objectives depends among other essential factors the concrete and coherent decisions made by its managers.

Dialogue theory

Dialogue theory attempts to describe arguments by means of vigorous and idealized models of interactive exchanges in management situations. It is a unifying factor that successfully accounts for different types of arguments and the errors to which they are subject (Walton, 1998). Walton further describes dialogue as a goal directed collaborative and conversational exchange of various types between two parties. According to van Eemeren and Grootendorst (1992), a critical discussion is a dialogue type used for the resolution of a difference of opinion. It involves persuading one of the parties to retract doubt concerning the other party's position.

Dialogue theory provides a deeper analysis of fallacies than the usual description in terms of surface features. A rule of discourse in dialogue theory states that, parties to the dialogue must not prevent each other from advancing stand point views or from casting doubt on such standard points (Walton, 1998). According to dialogue theory, participants cooperate to choose the type of dialogue that is best for the purpose and context. They are compelled to make reflective judgments about the relative reliability of different dialogues as methods for achieving their goals. They must also reflectively monitor adherence to the norms that govern the relevant types of dialogue (Johnson, 2000)

The critical stage of a critical discussion involves argumentation where the proponent and opponent carry out their roles of defending and challenging a thesis respectively. The major difference between the proponents and opponents in a critical dialogue is the global burden of proof. It is up to the proponent to create a positive case while the opponent merely has to create doubt (Rescher, 1997)

The critical discussion provides a promising framework for both understanding and training of critical thinking. The primary reason for its usefulness is the functional similarity between rationally persuading another individual to accept or reject a position. The idea of a dialogue externalizes necessary functions that must take place within an individual. Thinking may be fruitfully studied as a form of internal dialogue in which a single individual takes on dialectical role (Walton, and Crabbe, 1995)

Another reason for discussing on dialogue as a model of thinking is that the functional resemblance between thought and dialogue is more than coincidence. A variety of developmental psychologists have proposed that thought first develops in each individual as internalized speech and that we learn to reflect on and evaluate our own thoughts by responding to the thoughts of others. (Bogden, 2000). Research suggests that critical thinking is

really a mini-debate within oneself. What is often mistaken for private thought is more likely an internalized conversation (Rieke and Siltanrs, 1997)

According to this paper, the dialogue theory is key in management decision making. Dialogue involves two or more people to strike a discussion. The dialogue as conceived by the dialogue theory can also be internally focused. It is through discursive dialogue that decisions are interrogated and purified and made by managers in developing policy framework or issuing out directives for the good of the organization. Managers use dialogue set ups to address issues affecting employees and also solve any inherent conflicts that may hamper smooth working relationship within an organization.

Reliability theory

This theory lays emphasis on reliability and acceptance in management decision making. It underscores the fact that a problem that is not addressed by either mental model theory is the likely choice of a strategy that will reliably achieve external objective. This gap is brought about by the internalist character of both mental model theory and dialogue theory. The selection of the appropriate types of dialogue, the rules for bringing a dialogue to an end and how to determine a winner largely require judgement of external reliability (Walton, 1998). The theory further emphasizes that when identifying a solution to a given situation, it is important to take note that some factors justifying belief acceptance may not be accessible. First, perceptual systems may reliably anchor a system of beliefs even if the subject has no explicit reflective awareness of their reliability. Equally, coherence may be established by relatively direct processes of spreading activation across a network of beliefs rather than as a result of deliberate reasoning (Thagard *et al.*, 2000).

The role of deliberate critical thought in this theory is more limited in that it selectively activate and evaluate subsets of belief referred to as mental models (Adelman *et al.*, 2000). The reliability paradigm for acceptability of beliefs involves a series of input and output processes. Beliefs are justified to the extent that they are produced or sustained by processes that reliably achieve the goal of accepting true beliefs and avoiding false beliefs under relevant environmental conditions (Goldman *et al.*, 1992). According to one version of externalism called reliabilism a belief is justified if it is generated or sustained by a method that tracks the truth (Nozick 1981).

Another variant of reliabilism aver that a belief is justified if it is generated or sustained by cognitive processes that reliably generate truths and avoid falsehoods under the relevant conditions. Beliefs of different kinds are more or less justified depending on the processes and mechanisms that produced them and the specific conditions under which the processes were

operating (Goldman, 1992). In reliability theory, externalism does not insist that a person should have cognitive access to reasons for a belief, that a person has second order belief about the reliability of first order beliefs or even that beliefs are always under voluntary control. Externalism accounts for the willingness to attribute knowledge to people even when they cannot accurately articulate the reasons for these judgements (Honvath *et al.*, 1999).

Externalism allows evaluation of a belief in terms of the objective effectiveness of strategies in the external environment. It promises fundamental integration with concerns of cognitive psychology (Karfman *et al.*, 1999). Reliabilism as an externalist theory of justification has its own problems. First there is the coherence problem. The judgement about reliability must be part of a network of beliefs that is evaluated with respect to its coherence. Thus there is no escaping the kind of circularity emphasised by coherence theories. Coherence theories emphasizes on coherence of reliability judgment, while externalist theories stresses the reliability of judgement based on coherence (Sosa, 1999).

Reliability theory is important in management decision making considering its emphasis on reliability and acceptance. This implies that management decisions should be reliable and above board in view of acceptance. Without much attention to reliability element, managers may make arbitrary decisions that lacks reliability and are ultimately not accepted thus leading to rejection and failure.

Mental models theory

This theory may be described as a representation of a possible state of affairs. It is basically about human reasoning in terms of meaning (Johnson-Laird and Byrne, 1991). It can also be described as conceptual representation within a person's mind that is used to help a person understand the world and to help the person interact with the world (Norman, 1983). This theory is based on creating mental representations of things in the world. The model may be used to help train a user on a system or help explain a user's interaction with a system (Johnson-Laird *et al.*, 1998). Mental models may be an image, a script, a set of related mental models, a controlled vocabulary or a set of assumptions that may assist users' to interpret or make deduction inductions or explanation over something (McDaniel, 2003).

According to mental model theory, the difficulty of an inference increases with the number of alternative possibilities that must be considered. Thus the use of backing round knowledge is significant to the effortless elimination of some of the possibilities. The major advantage of mental model theory is that it can accommodate both automatic and deliberate processes in any mix (Johnson-Liard and Byrne, 1991). The theory of mental models rests on simple principles, and it

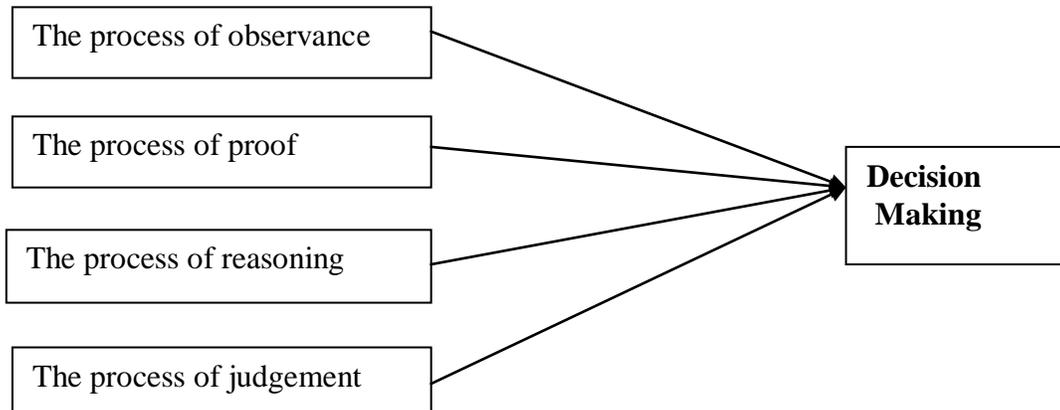


Figure 1: Conceptual framework (Author, 2015)

extends in a natural way to inferring probabilities, to decision making, and to recursive reasoning about other people’s reasoning (Johnson-Liard and Byrne, 2006). The principal assumptions of the theory states that: Model represents a possibility in that its structures correspond to the structure of the world

While mental models are applicable in many situations, the lack of coherent methodology in their application may cause confusion and give contradicting results (Preece et al., 1994). Mental models are majorly used in training and facilitate learning by the user. They explain what the system does along with predicting what the user can do next and equally the system with a view to discern the results of the actions (Fisher, 2003). In the view of this paper, that mental models theory influences decision making to some extent. Organizations are made of people and people make organizations to succeed or fail. The theory if applied can help managers to make further internal focused interrogation of ideas. For instance, in decisions about employees, managers are likely to make an inference on the kind of reaction employees are likely to exhibit.

Other variables likely to influence critical thinking and quality of decisions

Besides the various critical thinking theories, this paper has discussed other variables likely to influence the critical thinking process and the intellectual processes as a method of evaluation of alternative for enhanced quality of decisions. The relationship among the variables can be summarised in the conceptual framework (figure 1).

The process of observance: In the process of observance, the first state is concerned with the conditions of the intellectual process itself. This is to do with intellectual autonomy of having rational control over the means, tools and methods to apply in the decision making process. This step is meant to make sure that an objective process of evaluation of information precedes any conclusion or decision made (Fisher, 2003)

The process of proof: In this process, one has first to develop criteria in order to organize the proofing method of data or information. For example the value of human life is based on criteria of human life distinguishing it from other forms of beings. A clarification is used to make understanding easier, to free from confusion and ambiguity and to remove obscurities. Clarity is a fundamental perfection of thought and clarification of fundamental aim in critical thinking. (Curtler, 2004)

The process of reasoning: A judgement based upon reasoning is any belief or conclusion on the basis of reflective thinking and able to be practised by others. Critical thinking involves knowledge of the science of logic including skills of logical analysis, correct interpretation and understanding for example when using statistical material (Scriven and Paul, 2008).

The process of judgement: The process of judgement is the final step in a critical thinking process. A presentation of arguments is the preceding step in this process, where the arguments serve as criteria for or against something that is the focus of the object and it can be summarized in the judgement process. The conclusion of an argument means that a proposition is affirmed or not affirmed, as true or false as a determination which is a actually made in the judgment (Over, 2004).

Decision making and the process of choice

In a management context, ability to think critically can provide a helpful method to measure the possible solutions in the light of a set of collected evidence. Further, the relevance between the hypotheses and their evidence as well as their correlation to the main problem is appraised. In this way, critical thinking becomes a useful method towards a good conclusion (Baker, 2001)

Reasoning is using available facts and figures to influence decisions. It can however, ignore emotional aspects to the decision and in particular issues from the past that may be biased and therefore affect the

objectivity of a conclusions made. Choice is the outcome of a process which involves assessment and judgement. In order for these processes to take place and a choice to be made, there need to be two or more alternatives from which to choose. In addition, these alternatives value, in this sense a choice between something which is definitely desired and something which is definitely not desired (Over, 2004)

CONCLUSION

Critical thinking is a process that leads to reasoned conclusions through rigorous application of principles of logic and scientific reasoning. It can be applied and used in different contexts in order to test the validity of several hypotheses presented as solutions of a problem or issue. The application of critical thinking results in better decisions, fewer mistakes and ultimately improved quality of management output. Through the use of abstract ideas, critical thinking is crucial in interpretation of information and testing it against relevant criteria and standards. It enhances open thinking and provides alternative systems of thought. Critical thinking is self-directed, self-monitored and presupposes assent to rigorous standards of excellence.

This paper has discussed in detail the various theories of critical thinking that range from coherence, dialogue, mental models and reliability. These theories provide a framework of interaction that is stable and likely to promote better understanding, simulation and expectations within an organization and ultimately impact on management level of success. Finally, the paper recommends that managers should invest in sharpening their critical thinking skills to aid them towards proper, sound, and strategic decisions that will enhance performance and position their organisations competitively.

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