CHAPTER 2
THEORETICAL ORIENTATION

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CHAPTER II
THEORETICAL ORIENTATION

2.1 INTRODUCTION

Critical thinking is the ability to engage in reflective and independent thinking, and being able to think clearly and rationally. Critical thinking does not mean being argumentative or being critical of others. Although critical thinking skill can be used in exposing fallacies and bad reasoning, they can also be used to support other viewpoint, and to co-operative with other in solving problem and acquiring knowledge.

Critical thinking is general thinking skill that is useful for all kind of careers and professions. Clear and systematic thinking can improve the comprehension and expression of idea, so good critical thinking can also enhance language and presentation skill.

It is sometimes suggested that critical thinking is incompatible with creativity. This is a misconception, as creativity is not just a matter of coming up with new ideas. A creative person is some one who can generate new ideas that are useful and relevant to the task at hand. Critical thinking plays a crucial role in evaluating the usefulness of new ideas, selecting the best ones and modifying them if necessary.

Critical thinking is also necessary for self-reflection. In order to live a meaningful life and to structure our lives accordingly, we need to justify and reflect on our values and decisions. Critical thinking provides the tools for this process of self evaluation.

The aim of this chapter is to highlight concept of critical thinking to give a general impression related with the critical thinking.
2.2 DEFINITIONS OF CRITICAL THINKING

Before understanding the meaning of critical thinking we have to know the meaning of thinking.

◊ Thinking:

"Thinking is ‘interpolation’ that is filling in gaps of information, ‘extrapolation’ which is going beyond the given information and ‘re-interpretation’ which is rearranging information." (Bartlett, 1932)

Mayer (1977) has suggested definition of thinking that involves three basic ideas,

- thinking is cognitive (i.e. knowing, perceiving and conceiving), occurs internally in the mind or cognitive system and is inferred indirectly from behaviour.

- thinking is a process which involves some manipulation of or set of operations of knowledge in the cognitive system.

- thinking is directed and results in behaviour which solves or is directed towards the solution of a problem.

"Thinking is the formation of ideas, reorganisation of one's experience and the organisation of information in a particular form." (Fraenkel, 1980)

"Thinking is characterises by an unusual process used in making decision and solving problems." (Chaffee, 1988)

"Thinking is a collection of skills or mental operations used by individuals. (Nickerson, Perkins and Smith, 1985)

Thus thinking is the deliberate and purposeful movement of attention to concept up to a better view of any situation which is followed by a self sense that will indicate how close you are to better view of that situation.
Critical Thinking:

“Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do.” (Ennis, 1985, p.46)

“Critical thinking equips an individual to gather, interpret and evaluate information accurately and efficiently.” (Perkins, 1987)

Beyer (1988, p.57) has identified several activities that require critical thinking all of which are essential for making well-informed and rational decisions. These activities include:

- Distinguishing between verifiable facts and value claim.
- Distinguishing between relevant from irrelevant information.
- Determining the factual accuracy of a statement.
- Identifying ambiguous arguments.
- Identifying instated assumptions.
- Identifying logical fallacies.

Critical thinking is ‘the ability to assess viewpoints and information in an open-minded and critical way and to be able to change one’s opinions, challenge one’s own assumptions and make ethical judgments as a result’.

Critical thinking is the ability to be in control of one's thinking. It includes the ability to consciously examine the elements of one's reasoning and evaluate that reasoning against universal intellectual standard - clarity, accuracy, precision, relevance, depth, breadth and logic.

Critical and Creative Thinking can be described as qualities of good thinking processes and as types of thinking. Creative thinking is generally considered to be involved with the creation or generation of ideas, processes, experiences or objects while critical thinking is concerned with their evaluation.
Critical thinking is self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way.

"A unique kind of purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking, taking charge of the construction of thinking, guiding the construction of the thinking according to the standards, and assessing the effectiveness of the thinking according to the purpose, the criteria, and the standards" (Paul 1993, p. 21).

Critical thinking means active, persistent and careful consideration of a belief or supposed form of knowledge in light of the grounds that support it, and the further conclusions to which it tends.

"Critical thinking is correctly defined as the review, evaluation and revision of previous thinking." (Stratton, 1999)

2.3 CONCEPT OF CRITICAL THINKING

The concept of critical thinking reflects a concept embedded not only in a core body of research over the last 20 to 25 years but also derived from roots in ancient Greek. The word "critical" derives etymologically from two Greek roots: "kriticos" means discerning judgment and "kriterion" means standards. Thus the meaning of critical thinking is the development of "discerning judgment on standards.

According to Webster's New World Dictionary, "characterized by careful analysis and judgment" and is followed by the gloss. "Critical in its strictest sense implies attempt at objective judgment so as to determine both merit and faults." applied to thinking, we might be define critical thinking as thinking that explicitly aims at well founded judgment and utilizes appropriate evaluative standards in attempt to determine the worth, merit or value of some thing.

Each major dimension of critical thinking has been carved out in intellectual debate and dispute through 2400 years of intellectual history. That history allows us to differentiate two contradictory intellectual tendencies: a tendencies on
the part of the large majority to uncritically accept whatever was presently believed as more or less eternal truth and a conflicting tendency on the part of a small minority: those who taught critically to systematically question what was commonly accepted and seek, as a result, to establish sounder, more reflective criteria and standard for judging what it does and does not make sense to accept as true.

Our basic concept of critical thinking is, at root simple. We could define it as the art of taking charge of your own mind. Its value is also at root simple, if we can take charge of our own mind, we can take charge of our lives, we can improve them, bringing them under our self command and direction. Of course, this requires that we learn self discipline and the art of self examination. This involves becoming interested in how our minds work, how we can monitor and modify their operation for the better.

All that we do, we do on the basis of some motivation or reason. But we rarely examine our motivation to see if they make sense. We rarely scrutinize our reasons critically to see if they are rationally justified. As consumers we sometimes buy things impulsively and uncritically without stopping to determine whether we really need what we are inclined to buy or whether we can afford it or whether it is good for our health. As parents, we often respond to our children impulsively and uncritically without stopping to determine whether our action are consistent with how we want to act as parents or whether we are discouraging them from thinking or from taking responsibility for their own behavior.

As citizens, majority time we vote impulsively and uncritically, without taking the time to familiarize ourselves with the relevant issues and positions, without thinking about the long run implications of what is being proposed, without paying attention to how politicians manipulate us by flattery and empty promises.

As patients, too often we allow ourselves to become passive and uncritical in our health care, not establishing good habits of eating and exercise, not questioning what our doctor says.
As teachers, repeatedly we allow ourselves to uncritically teach as we have been taught, giving assignment those students can unconsciously do, involuntarily discouraging their initiative and independence, missing opportunities to develop their self-discipline and thoughtfulness.

On this view, critical thinking is highly practical goal and value. It is focused on an ancient Greek idea of "living an examined life". It is based on the skills and the values essential to that end. It is a way of going about living and learning that empowers us and our students in quite practical ways.

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 analyzing, assessing and constructing it.

Critical thinking is self directed, self disciplined, self monitored and self corrective thinking. It entails effective communication and problem solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism.

Raymond S. and Nickerson (1987) described characteristics of good critical thinker in terms of knowledge, abilities, attitudes and habitual ways of behaving. Some of the characteristics of such a thinker are as bellows:

- uses evidences skillfully and impartially
- organizes thoughts and articulates them concisely and logically
- distinguishes between logically valid and invalid inferences
- suspends judgment in the absence of sufficient evidence to support a decision
- understand the difference between reasoning and rationalizing
- attempts to anticipate the probable consequences of alternative action
- understand the idea of degrees of belief
- sees similarities and analogies that are not superficially apparent
• can learn independently and has an abiding interest in doing so
• applies problem-solving techniques in domains other than those in which learned
• can structure informally represented problems in such a way that formal techniques, such as mathematics, can be used to solve them
• can strip a verbal argument of irrelevancies and phrase it in its essential terms
• habitually questions one's own views and attempts to understand both the assumptions that are critical to those views and the implications of the views
• is sensitive to the difference between the validity of a belief and the intensity with which it is held
• is aware of the fact that one's understanding is always limited, often much more so than would be apparent to one with a non-inquiring attitude
• recognizes the unreliability of one's own opinions, the probability of bias in those opinions and the danger of weighting evidence according to personal preferences

This list is of course incomplete but it serves to indicate the type of thinking and approach to life that critical thinking is supposed to be.

⇒ Requirements for Effective Critical Thinking:
For effective Critical Thinking six cognitive skills are require. These six cognitive skills are given below.

• Interpretation
• Analysis
• Evaluation
• Inference
• Explanation
• Self-regulation
➢ **Interpretation**

Comprehend and express meaning or significance of wide variety of experiences, situation, data, events, judgments, conventions, beliefs, rules, procedures or criteria.

➢ **Analysis**

Identify the intended and actual inferential relationship among statements, questions, concepts, description or other forms of representation intended to express beliefs, judgments, experiences, reasons, information or opinions.

➢ **Evaluation**

Assess the credibility of statements or other representations which are descriptions of a person's perception, experience, situation, judgment, belief or opinion and to assess the logical strength of the actual or intended inferential relation among statements, descriptions, questions or other forms of representation.

➢ **Inference**

Identify and secure elements needed to draw reasonable conclusions to form hypotheses, to consider relevant information and draw out the consequences flowing from data, statements, principles, evidences, judgments, beliefs, opinions, concepts, descriptions, questions or other form of representation.

➢ **Explanation**

State the result of one's reasoning, justify that reasoning in terms of evidential, conceptual, methodological and related considerations upon which one's results were based, to present one's reasoning in the form of strong arguments.

➢ **Self - regulation**

Self consciously to monitor one's cognitive activities, the elements used in those activities, particularly by applying skills in analysis and evaluation to one's own inferential judgments with a view toward questions, validation, correcting either one's reasoning or results.
Principles of Critical Thinking:

1. Thinking Independently:

   Critical thinking is independent thinking, thinking for oneself. Many of our beliefs are acquired at an early age, when we have a strong tendency to form beliefs for unreasonable reasons (because we want to believe, because we are praised or rewarded for believing). Critical thinkers use critical skills and insights to reveal and reject beliefs that are illogical. In forming new beliefs, critical thinkers do not passively accept the beliefs of others, rather they try to figure things out for themselves, reject unjustified authorities and recognize the contributions of genuine authorities. They thoughtfully form principles of thought and action, they do not unconsciously accept those presented to them. Nor are they improperly influenced by the language of another. If they find that a set of categories or distinctions is more appropriate than that used by another, they will use it. Recognizing that categories serve human purposes, they use those categories which best serve their purpose at the time. They are not limited by accepted ways of doing things. They evaluate both goals and how to achieve them. They do not accept as true, or reject as false, beliefs they do not understand. They are not easily manipulated. Independent thinkers attempt to incorporate all known relevant knowledge and insight into their thought and behavior. They attempt to determine for themselves when information is relevant, when to apply a concept or when to make use of a skill. They are self-monitoring, they catch their own mistakes and they don't need to be told what to do every step of the day.

2. Developing Insight into Egocentricity or Sociocentricity:

   Egocentricity means confusing what we see and think with reality. When under the influence of egocentricity, we think that the way we see things is exactly the way things are. Egocentricity obvious itself as an inability to consider others' points of view, a refusal to accept ideas or facts which would prevent us from getting what we want (or think we want). In its extreme forms, it is characterized by a need to be right about everything, a lack of interest in consistency and clarity, all or nothing attitude ("I am 100% right; you are 100% wrong.") and a lack of self-consciousness of one's own thought processes. The egocentric individual is more
concerned with the appearance of truth, fairness, and fair-mindedness than with actually being correct, fair or fair-minded. Egocentricity is the opposite of critical thought. It is common in adults as well as in children.

As people are socialized, egocentricity partly evolves into sociocentricity. Egocentric tendencies extend to their groups. The individual goes from "I am right" to "We are right". To put this in another way, people find that they can often best satisfy their egocentric desires through a group. "Group think" results when people egocentrically attach themselves to a group. One can see this in both children and adults: My daddy is better than your daddy! My school (religion, country, race, etc.) is better than yours. Uncritical thinkers often confuse loyalty with always supporting and approving, even when the other person or the group is wrong.

If egocentricity and sociocentricity are the disease, self-awareness is the cure. We need to become aware of our own tendency to confuse our view with "The Truth". People can often recognize when someone else is egocentric. Most of us can identify the sociocentricity of members of opposing groups. Yet when we ourselves are thinking egocentrically or sociocentrically, it seems right to us (at least at the time). Our belief in our own rightness is easier to maintain because we ignore the faults in our thinking. We automatically hide our egocentricity from ourselves. We fail to notice when our behavior contradicts our self-image. We base our reasoning on false assumptions we are unaware of making. We fail to make relevant distinctions (of which we are otherwise aware and able to make) when making them prevents us from getting what we want. We deny or easily "forget" facts that do not support our conclusions. We often misunderstand what others say.

The solution is to reflect on our reasoning and behavior to make our beliefs explicit, critique them and to stop them when they are false, to apply the same concepts in the same ways to ourselves and others, to consider every relevant fact and to make our conclusions consistent with the evidence, to listen carefully and open-mindedly to others. We can change egocentric tendencies when we see them for what they are: irrational and unfair. The development of children's awareness of their egocentric and sociocentric patterns of thought is a crucial part of education in
critical thinking. This development will be modest at first but can grow considerably over time.

3. Exercising Fair-mindedness:

To think critically, we must be able to consider the strengths and weaknesses of opposing points of view, to imaginatively put ourselves in the place of others in order to genuinely understand them, to overcome our egoistic tendency to identify truth with our immediate perceptions or belief. This trait is linked to the ability to accurately reconstruct the viewpoints and reasoning of others and to reason from premises, assumptions and ideas other than our own. This trait also requires the willingness to remember occasions when we were wrong in the past even though a strong conviction that we were right, as well as the ability to imagine our being similarly deceived in a case at hand. Critical thinkers realize the unfairness of judging unfamiliar ideas until they fully understand them.

The world consists of many societies and peoples with many different points of view and ways of thinking. To develop as reasonable persons, we need to enter into and think within the ideas of different peoples and societies. We cannot truly understand the world if we think about it only from one viewpoint, as Americans, as Italians, or as Soviets. Furthermore, critical thinkers recognize that their behavior affects others and so consider their behavior from the perspective of those others.

4. Developing Intellectual Humility and suspending judgment:

Critical thinkers recognize the limits of their knowledge. They are sensitive to circumstances in which their native egocentricity is likely to function self-deceptively; they are sensitive to unfairness, prejudice and limitations of their views. Intellectual humility is based on the recognition that one should not claim more than one actually knows. It does not imply negativity. It implies the lack of intellectual pretentiousness and superiority. It implies insight into the foundations of one's beliefs, knowing what evidence one has, how one has come to believe, what further evidence one might look for or examine. Thus, critical thinkers distinguish what they know from what they don't know. They are not afraid of saying "I don't..."
know" when they are not in a position to be sure. They are willing to rethink conclusions in the light of new knowledge. They qualify their claims appropriately.

5. Developing Intellectual Courage:

To think independently and fairly, one must feel the need to face and fairly deal with unpopular ideas, beliefs, or viewpoints. The courage to do so arise when we see that ideas considered dangerous are sometimes rationally justified and that conclusions or beliefs inculcated in us are sometimes false or misleading. Critical thinkers realize that their feelings are their cept what we have "learned". We need courage to admit the truth in some ideas considered dangerous and absurd and the distortion or falsity in some ideas strongly held in our social group. It will take courage to be true to our own thinking, for honestly questioning our deeply held beliefs can be difficult and sometimes frightening and the penalties for non-conformity are often severe.

6. Developing Intellectual Perseverance:

Becoming a more critical thinker is not easy. It takes time and effort. Critical thinking is reflective and recursive that is, we often think back to previous problems to re-consider or re-analyze them. Critical thinkers are willing to pursue intellectual insights and truths in spite of difficulties, obstacles, and frustrations. They recognize the need to struggle with confusion and unsettled questions over time in order to achieve deeper understanding and insight. They recognize that significant change requires patience and hard work. Important issues often require extended thought, research and struggle. Considering a new view takes time. Yet people are often impatient to "get on with it" when they most need to slow down and think carefully. People rarely define issues or problems clearly; concepts are often left unclear; related issues are not sorted out etc. When people don't understand a problem or situation, their reactions and solutions often compound the original problem. Children have to gain insight into the need for Intellectual Perseverance.
7. Refining Generalizations and Avoiding Oversimplifications:

It is natural to seek to simplify problems and experiences to make them easier to deal with. Every one does this. However the uncritical thinker often oversimplifies and as a result misrepresents problems and experiences. What should be recognized as complex, intricate, ambiguous, or subtle is viewed as simple, elementary, clear, and obvious. For example, it is typically an oversimplification to view people or groups as all good or all bad, actions as always right or always wrong, one contributing factor as the cause, etc., and yet such beliefs are common. Critical thinkers try to find simplifying patterns and solutions, but not by misrepresentation or distortion. Seeing the difference between useful simplifications and misleading over-simplifications is important to critical thinking.

Critical thinkers scrutinize generalizations, search for possible exceptions and then use appropriate qualifications. Critical thinkers are not only clear but also exact and precise. One of the strongest tendencies of the egocentric, uncritical mind is to see things in terms of black and white, "all right" and "all wrong". Hence, beliefs which should be held with varying degrees of certainty are held as certain. Critical thinkers are sensitive to this problem. They understand the important relationship of evidence to belief and so qualify their statements accordingly. The tentativeness of many of their beliefs is characterized by the appropriate use of such qualifiers as 'probably', 'often', 'usually', 'seldom', 'I doubt', 'many' and 'some'.

8. Comparing Analogous Situations: Transferring Insight to New Context:

An idea's power is limited by our ability to use it. Critical thinkers' ability to use ideas mindfully enhances their ability to transfer ideas critically. They practice using ideas and insights by appropriately applying them to new situations. This allows them to organize materials and experiences in different ways, to compare and contrast alternative labels, to integrate their understanding of different situations, and to find useful ways to think about new situations.
Every time we use an insight or principle, we increase our understanding of both the insight and the situation to which we have applied it. True education provides for more than one way to organize material. For example, history can be organized in our minds by geography, chronology or by such phenomena as repeated patterns, common situations and analogous "stories" and so on. The truly educated person is not trapped by one organizing principle but can take knowledge apart and put it together in many different ways. Each way of organizing knowledge has some benefit.

9. Developing One's Perspective: Creating or Exploring Beliefs, Arguments or Theories:

Uncritical thinkers assume that their perspective on things is the only correct one. Selfish critical thinkers manipulate the perspectives of others to gain advantage for themselves. Fair-minded critical thinkers learn to recognize that their own ways of thinking and that of all other perspectives are some combination of insight and error. They learn to develop their points of view through a critical analysis of their experience. They learn to question commonly accepted ways of understanding things and avoid uncritically accepting the viewpoints of their peers or society. They know what their perspectives are and can talk insightfully about them. To do this, they must create and explore their own beliefs, their own reasoning and their own theories.

10. Clarifying Issues, Conclusion or Beliefs:

The more completely, clearly and accurately a problem or statement is formulated, the easier and more helpful the discussion of its settlement or verification. Given a clear statement of a problem and prior to evaluating conclusions or solutions, it is important to recognize what is required to settle it. And before we can agree or disagree with a claim, we must understand it clearly. It makes no sense to say "I don't know what you mean, but I disagree with it, whatever it is." Critical thinkers recognize problematic claims, concepts, and standards of evaluation, making sure that understanding precedes judgment. They regularly distinguish facts from interpretations, opinions, judgments, or theories. They can then raise those questions most appropriate to understanding and evaluating each.
11. Clarifying and Analyzing the Meaning of Words or Phrases:

Critical thinking requires clarity of thought. A clear thinker understands concepts and knows what kind of evidence is required to justify applying a word or phrase to a situation. The ability to supply a definition is not proof of understanding. One must be able to supply clear, obvious examples and use the concept appropriately. In contrast, for an unclear thinker, words float through the mind unattached to clear, specific, concrete cases. Distinct concepts are confused. Often the only criterion for the application of a term is that the case in question "seems like" an example. Irrelevant associations are confused with what are necessary parts of the concept. Unclear thinkers lack independence of thought because they lack the ability to analyze a concept.

12. Questioning Deeply: Raising and Pursuing Root or Significant Questions:

Critical thinkers can pursue an issue in depth, covering various aspects in an extended process of thought or discussion. When reading a passage, they look for issues and concepts underlying the claims expressed. They come to their own understanding of the details they learn, placing them in the larger framework of the subject and their overall perspectives. They consider the significant issues and questions underlying subjects or problems studied. They can move between basic underlying ideas and specific details. When pursuing a line of thought, they are not continually dragged off the subject. They use important issues to organize their thought and are not bound by the organization given by another.

13. Analyzing or Evaluating Arguments, Interpretation, Beliefs or Theories:

Rather than carelessly agreeing or disagreeing with a conclusion based on their preconceptions of what is true, critical thinkers use analytic tools to understand the reasoning behind it and determine its relative strengths and weaknesses. When analyzing arguments, critical thinkers recognize the importance of asking for reasons and considering other views. They are especially sensitive to possible strengths of arguments that they disagree with, recognizing the tendency to ignore, oversimplify, twist or otherwise unfairly dismiss them. Critical thinkers
analyze questions and place conflicting arguments, interpretations and theories in opposition to one another, as a means of highlighting key concepts, assumptions, implications, etc. When giving an interpretation, critical thinkers recognizing the difference between evidence and interpretation, explore the assumptions on which interpretations are based and propose and evaluate alternative interpretations for their relative strength. Autonomous thinkers consider challenging theories and develop their own theories.

14. Reading Critically: Clarifying or Critiquing Texts:

Critical thinkers read with a healthy doubt. But they do not reject until they understand. They clarify before they judge. Since they expect intelligibility from what they read, they check and double-check their understanding as they read. They do not mindlessly accept nonsense. Critical readers ask themselves questions as they read, reasons for, examples of and meaning and truth of the material. They do not approach written material as a collection of sentences but as a whole, trying out various interpretations until one fits all of the work rather than ignoring or distorting what doesn't fit their interpretation. They realize that everyone is capable of making mistakes and being wrong including authors of textbooks. They also realize that, since everyone has a point of view, everyone sometimes leaves out some relevant information. No two authors would write the same book or write from exactly the same perspective. Therefore, critical readers recognize that reading a book is reading one limited perspective on a subject and that more can be learned by considering other perspectives.

15. Thinking Precisely About Thinking:

An essential requirement of critical thinking is the ability to think about thinking, to engage in what is sometimes called "metacognition". One possible definition of critical thinking is the art of thinking about your thinking while you're thinking in order to make your thinking better: more clear, more accurate, more fair. It is precisely at the level of "thinking about thinking" that most critical thinking stands in contrast to uncritical thinking. Critical thinkers can analyze thought-take it apart and put it together again. For the uncritical thinker, thoughts are "just there". "I think what I think, don't ask me why." The analytical vocabulary in the English
language (such terms as 'assume', 'infer', 'conclude', 'criterion', 'point of view', 'relevance', 'issue', 'elaborate', 'ambiguous', 'objection', 'support', 'bias', 'justify', 'perspective', 'contradiction', 'consistent', 'credibility', 'evidence', 'interpret', 'distinguish') enables us to think more precisely about our thinking. We are in a better position to assess reasoning (our own, as well as that of others) when we can use analytic vocabulary with accuracy and ease.

16. Distinguishing Relevant From Irrelevant Facts:

To think critically, we must be able to tell the difference between those facts which are relevant to an issue and those which are not. Critical thinkers focus their attention on relevant facts and do not let irrelevant considerations affect their conclusions. Whether or not something is relevant is often unclear, relevance must often be argued. Furthermore, a fact is only relevant or irrelevant in relation to an issue. Information relevant to one problem may not be relevant to another.

2.4 COMPONENTS OF CRITICAL THINKING

From the definition of critical thinking and concept of critical thinking discussed in this chapter, components of critical thinking were identified which are as follows:

- Perception
- Assumption
- Emotion
- Language
- Argument
- Fallacy
- Logic
- Problem Solving

From all the above components of the critical thinking only six components of critical thinking were selected for the present study which are as follows:
1. **Perception:**

Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world. Sensation usually refers to the immediate, relatively unprocessed result of stimulation of sensory receptors in the eyes, ears, nose, tongue or skin. Perception on the other hand, better describes one's ultimate experience of the world and typically involves further processing of sensory input. In short perception is:

- The way we receive and translate our experience.
- Also a significant filtering system.
- How we perceive defines how we think.

2. **Assumption:**

Assumption means the act of taking for granted or supposing a thing without proof, supposition and unwarrantable claim.

Assumption, for the purpose of level of critical thinking is unstated reason. It is something that must be true for an argument to work, but which is not explicitly stated in the argument.

3. **Argument:**

In ordinary usage the word 'argument' is often used to refer to dispute between two or more parties. To attempt to persuade by giving good reason is to give an argument. We encounter many different types of attempt to persuade.
You may find it surprising to think of an 'argument' as a term for giving someone a reason to do or believe something - telling them why they should boycott certain product or disapprove of fox-hunting for instance.

4. Fallacy:

Fallacies are mistakes of reasoning, as opposed to making mistakes that are of a factual nature. If I counted twenty people in the room when there were in fact twenty one, then I made factual mistake. On the other hand, if I believe that there are round squares, I believe something that is inconsistent. This is a mistake of reasoning. Fallacies divide into four kinds:

- Fallacy of inconsistency
- Fallacy of inappropriate presupposition
- Fallacy of relevance
- Fallacy of insufficiency.

5. Logic:

Logic is usually defined as the science of valid thought. But as 'thought' may mean either the act of thinking or the object of thought we get two definition of logic. ( I ) logic as the science of the act of valid thinking or ( II ) the object of valid thinking.

Logic has been defined as the study of the rules of correct thinking. It concentrates on the principles that guide rational thought and discussion. The most fundamental concept.

When we think, we bring a variety of thoughts together into some order. When the combinations of thoughts are mutually supporting and make sense in combination, the thinking is "logical." When the combination is not mutually supporting, is contradictory in some sense or does not "make sense", the combination is not logical.
Problem Solving is important but problem solvers often misunderstand it. Even consultants, who should be professional problem solvers, are often confused with the terminology of problem solving. For example some consultants may think of issues as problems or some of them think of problems as causes. But issues must be the proposal to solve problems and problems should be negative expressions while issues should be a positive expression.

There are several useful thinking patterns such as strategic thinking, emotional thinking, realistic thinking, and empirical thinking and so on. The thinking pattern means how we think. If we choose an appropriate pattern at each step in Problem Solving, we can improve the efficiency of problem solving.