11

THINKING AND PROBLEM SOLVING

Imagine the last thing you do when you are about to sleep, it is remembering what have you done today and planning what to do tomorrow. Similarly, the first thing you do when you wake up is thinking what all you would be doing today. Both these situations portray how there is not even a single minute when you are actually not thinking. When you go out for shopping, doing laundry, making breakfast, presenting your work to your boss, taking medicines and the list goes on. Even while sleeping our mind is restless and we keep on thinking until we go in rem sleep.

Hence, it becomes very important to understand varied concepts under thinking and cognition.

LEARNING OUTCOMES

After studying this lesson, learner :

- understands the nature of thinking;
- identifies the processes underlying thinking;
- elaborates upon the process of creative thinking;
- analyses the relationship between language and thought; and
- Applies reasoning, problem solving and decision making skills on one self.

Notes

11.1 NATURE OF THINKING

Our life revolves around understanding things, people and situations. Most of our waking time goes into thinking, reasoning, deciding, solving problems etc.Hence, it becomes very important to recognize what goes around during these processes.

Cognition is the general term used to connote all the higher order mental processes. It is the umbrella term, which includes different mental activities associated with thinking, decision-making, language, memory and other higher order mental processes.

Most of humans waking hours, even sleeping and dreaming involves thinking. It is nearly impossible not to think. While reading this portion on thinking, your thoughts and cognitive processes are at work. Even when you stop reading it, your thinking would shift to something else perhaps to what you would be doing next or tomorrow but it never stops.

Human Thinking involves processing, organizing and managing information. It involves all those processes which fall between reception of a stimuli to production of a response. Hence it requires cognitive rearrangement or manipulation of information from the surroundings or environment along with the information stored in memory including symbols, concepts and images. A symbol or an image represents any event or situation in the environment.

Consider a simple activity of buying a watch. You collect information about various brands, their prices and quality (stimuli) and you end up buying any one (response).

Thus starting from collecting, comparing and organizing all the information until you reach a final decision is called thinking.

- Some thinking is highly private and may use symbols having personal meaning. Such thinking is called as Autistic Thinking. Example, day dreaming.
- There are certain other types of thinking which are only aimed at solving problems or creating anything novel or new, this comes under Directed thinking. Example, finding way to reach a particular place.

The symbols that we use in thinking are often in the form of concepts, images, words or propositions. Hence the major elements of thinking are- concepts, imagery and proposition. Let's start by understanding each one by one.

11.1.1 Concepts

Concepts are important language symbols used in thinking. A concept is the symbolic construction that represents some common and general features of different objects and events.

E.g.: Concept of age, color, love, mother etc.

Most of the nouns in our vocabulary are names of concepts. The main aim of concept formation is classification of objects into categories. These are mental categories for varied experiences, ideas, events, situations and objects.

The feature or features we select define the concept and form the basis for making classifications. When a classification has been made, we tend to behave towards it and think about members of class in similar ways. Concepts make sense of the world around us.

E.g.: Knowledge that apple is a fruit and table is not, comes from different categorization in form of concept.

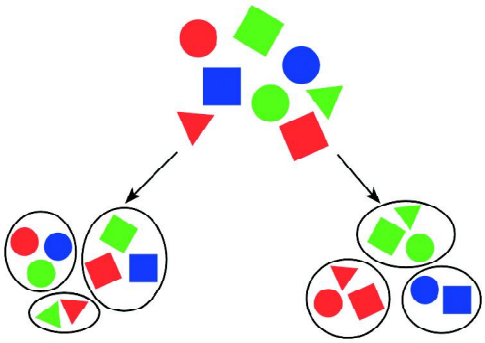


Figure 11.1: Concept Formation

Categorization in the concept formulation

There are different categorizations of concept. The major one is - Logical/ Artificial Concept- This is the one that can be easily defined by set of rules or properties. E.g., a square is a square when it has 4 equal sides and 4 equal angles (90 degree angle).

Natural concepts- These are not based on clear-cut precise set of attributes. There boundaries are not clear or readily specified set of defining features. Yet natural concepts more accurately reflect the aspects of natural world. Nature concepts are often based on Prototype. Prototypes emerge from our experience with the external world and new items that might potentially fit within their category are then compared with them,

Notes

the more attributes new items share with an existing prototype, the more likely they are to be included within the concept. E.g., when we think of fruit we think of apples never tomatoes where as both are fruits.

Generally, concepts are represented in terms of their features or attributes but natural concepts in part could also be represented in form of visual imagery (Mental representations of objects or events)

ACTIVITY

Think of two natural concepts from your life and come up with their prototypes.

11.1.2 Images

Thinking often involves manipulation of visual images. Research clearly shows that mental manipulations performed on images of objects are nearly similar to those that would be performed on the actual objects.

Example, when asked to form an image of a play school, we will think of different areas of the school with all the toys books, play equipment in playground, the paintings on the wall etc.

Images are therefore representations of information from the environment or our experiences of the environment that someone can use at a later point of time. Generally, these ae stored in our memory.

Concepts are also closely related to Schemas, cognitive frameworks that represent our knowledge and assumptions about the world. Generally, schemas are more complex and include many different distinct concepts. E.g., Schema of God (it includes spirituality, religiosity, concept of idol worship etc.)

Therefore, concepts may be represented in the mind in several ways and make sense of the complex external world around us.

11.1.3 Propositions

Propositions are statements that either state one concept or relationship between concepts. Thinking involves relating one concept to another or one feature of a concept to the entire concept. As human beings we possess highly developed language skills, these cognitive actions take the form of propositions- sentences that relate one concept to another. E.g., "Sita has black hair". Over here, there is description of relationship

between a concept and its properties.

Cluster of propositions are represented as Mental Modals (knowledge structure that guide our interactions with objects and events in the world around us).

11.1.4 Role of Culture in Thinking

Psychology sees mind and culture as inseparable. They are mutually constitutive. People are not only shaped by their culture but their culture is also shaped by them, so the influence is two way. Individuals thinking can impact and formulate different cultural norms and these norms in turn can influence the thinking pattern and behavior of an individual. The way we reason, what all we reason, memorize and how much importance we give to different choices while decision-making; all are influenced by our cultural practices and norms. For E.g., in a cultural setting where females are suppressed and live in a patriarchal setting, a choice between family and career might lead to family conflicts.

Thinking involves varied processes for goal attainment. The most important ones are- Problem Solving, Reasoning and Decision Making.

INTEXT QUESTIONS 11.1

Fill in the Blanks:

1. _____ thinking is highly private and may use symbols having personal meaning.
2. Sentences that relate one concept to another are called _____.
3. _____ concept does not have specified set of defining features.

11.2 PROBLEM SOLVING

Problem solving is goal directed behavior. It is motivated by the need of a person to reduce the discrepancy between one state of affairs and another.

In simpler terms problem solving could be seen as efforts to develop or choose among various responses in order to attain desired goals. Problem solving process moves through various stages to attain the desired goals:

- **Framing and understanding of problem-** Recognizing that a particular problem exists and then figuring out what issues need to be solved.

- **Generation of hypothesis or possible solutions-** Hypothesis is tentative answer to a problem. This process needs higher order thinking, collecting information, matching existing information and then coming out with the potential solutions.
- **Testing the hypothesis-** Now comes, the evaluation of each alternative or possible solution. The cost associated with each solution is graded and then the best possible one is used.
- **Evaluation of results and revision of earlier steps wherever needed-** Once the solution is applied, it becomes important to evaluate the results and if the desired results are not achieved then revision to the earlier steps is to be done.

11.2.1 Methods of Problem Solving

Simplest problem solving approach is **Trial and Error** (Here, different responses are tried till one works).

Second involves the use of **Algorithms** (these are precise sequences of procedures that automatically generate solution if followed in a particular manner).

Third, one is **Heuristics** (these are general rule of thumb, which are based on prior experiences and are mental shortcuts, which may or may not lead to the desired solution).

Next one is **Analogy** (the application of techniques that worked in similar situations in the past- Many a times, we use similar ways to tackle situations which we have somewhat resolved in past. E.g., like if we are hungry and it is late at night, we know that at highway there are chances to get food).

Last is **Means-end Analysis** (problem or goal here is broken into sub goals and path is laid to solve the problem in a stepwise manner. The problem solver perceives the end first and then looks for the diverse strategies, which could lead towards that end. Hence, it is a form of backward thinking, which starts from the goal then leads to the strategy to reach that goal in the present situation).

ACTIVITY

Identify any recent problem in your life and try to solve it using Algorithm, Analogy or Heuristic.

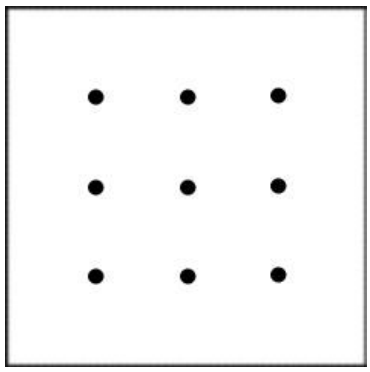
11.2.2 Barriers to Problem Solving

Mental set- When you solve a problem in a one particular way, it becomes a set. These are already tried mental operations or steps. This could lead to success in some situation but could also create a kind of mental rigidity that acts as a hindrance to think in new ways, rules and strategies for problem solving.

Functional fixedness- It means seeing the functions of a particular object or thing only as it has been used before. Here fixation occurs as we are fixed on a thing's usual function. It is our strong tendency to think of using objects only in ways they have been used before.

Mental Set

Draw 4 straight lines so that they pass through all nine dots without lifting your pencil from the page. Here mental set becomes a hindrance.



Overcoming Functional Fixedness - Using hanger for a different purpose

Figure 11.2: Examples of Barriers in Problem Solving

11.2.3 Overcoming hindrances in problem solving

Mental set and functional fixedness decrease the capacity to solve problems in diverse manner. It is important that creativity be enhanced at each stage of life to deal with these barriers. **Brainstorming** (person look for many ways to deal with a situation and find large number of solutions to it) could be helpful to overcome functional fixedness. Breaking down problems into parts rather than perceiving them as whole, could be another useful way. **Cultural training** and **early parental practices** are the best way, through which an individual can minimize barriers in problem solving.

11.3 REASONING

Whenever we see a particular behavior, we try to judge about the causes behind that behavior. Like a woman crying in metro, you could attribute she had a fight with her husband or is unwell or something bad has happened in her life. All these are part of reasoning. Reasoning is the cognitive activity in which we transform information in order to reach specific conclusions.

There is a process of reasoning which make a distinction between formal reasoning and everyday reasoning.

Formal reasoning involves specific method; it is used in formal setting or straightforward problems or situations.

Everyday reasoning is involved in our daily lives. This is more complex and less defined and involves different possible reasons in varied quality and effectiveness. Our everyday reasoning involves higher use of mood and beliefs. Hence, sometimes it reduces our ability to reason.

11.3.1 Types of Reasoning

Deductive- It begins with an assumption. Here, we start with general assumption that we know or believe and move down to drawing specific conclusions. It is reasoning from general to specific. E.g: You know that women generally cry, when they have a fight with their husbands hence, you assume that this woman is also crying because of this reason whereas this may be or may be not true.

Inductive- This kind of reasoning is based on specific facts and observation. Here, we draw general conclusion based on particular observation. E.g.: Concluding that all females cry after fight from seeing just one or two incidences. Here we compare and predict.

Hence, reasoning could be seen as a process of gathering and analyzing information to arrive at conclusions. Here, judgment is made by evaluating events and coming out with appropriate decision.

INTEXT QUESTIONS 11.2

1. Match the following

i.	Algorthim	a.	based on specific facts and observation

ii.	Heuristic	b.	solving a problem in one particular way
iii.	Inductive Reasoning	c.	general rule of thumb
iv	Mental Set	d.	precise sequences of procedure that automatically generate solution if followed in a particular manner

11.4 DECISION MAKING

It is the process of choosing among various alternatives any one, while rejecting some options. In simpler terms, it is a kind of problem solving in which we are presented with several alternatives, from which we choose the best one.

It is a process of choosing among various courses of action or alternatives and a rational decision is made after taking into consideration- Both the Utility and the **Subjective Probability**

- The utility or value of the outcomes that each alternative might yield.
- The probability that such results would actually occur.

People generally make decisions that will maximize their subjectively expected utility. In other words, given a choice among alternatives, we consider utility and subjective probability, multiply them together, and take the alternative with the highest product.

11.4.1 Stages of Decision Making

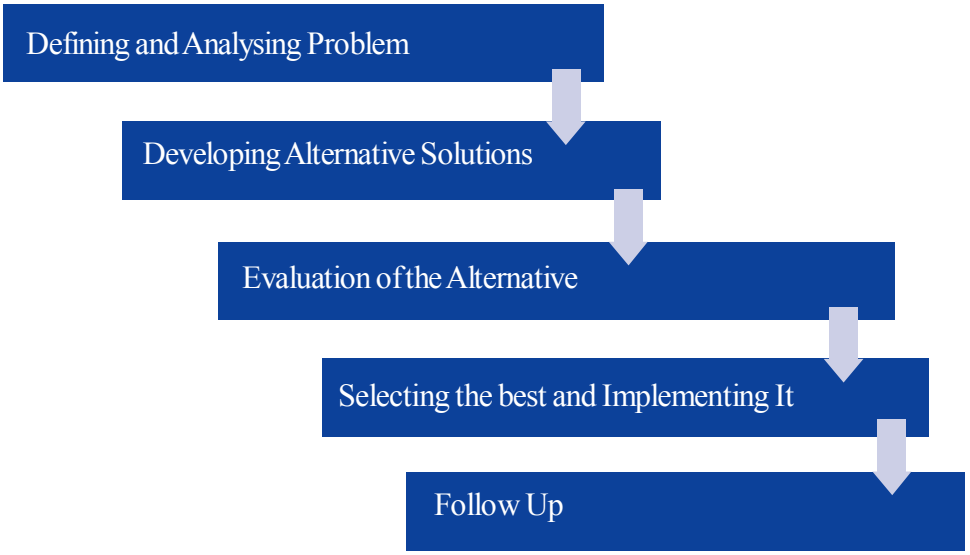


Figure 11.3: Process of Decision Making

11.4.2 Barriers to Decision Making

There are various factors that influence the decision-making process making it less effective. These act as barriers to decision making. The common barriers are:

- **Lack of Information -** Wrong information or partial information always leads to bad decisions.
- **Lack of Context -** Not knowing the actual context of the problem leads to mismatch between the problem and the solution.
- **Lack of Feedback -** It is important to follow up the solutions applied and decisions made so that in future similar mistakes are not repeated.
- **Information Overload -** Too much information about a problem may also lead to hindrance in decision-making, as the time and effort are limited resources.
- **Cultural Barriers-** Cultural norms and practices could also act as a barrier in effective decision-making.
- **Overconfidence-** Confidence over one's decision is important but overconfidence without being calculative of the risk factor leads to a bad decision.
- **Confirmation Biases -** Here, a person looks for, explores, and interprets information, which confirms their beliefs and ideology. This leads to a hindrance in both divergent thinking and critical analysis of a problem and eventually leads to a incorrect decision.
- **Escalation of Commitment-** Tendency to become increasingly committed to wrong decisions even as losses associated with them increase.

ACTIVITY

Remember any conflicting situation where you had to choose between options- Now follow the stages of decision-making and think how you came up with the best option.

11.4.3 Heuristics

Heuristics as discussed earlier are the mental rules that permit us to make decisions and judgments in a rapid and efficient manner. Heuristics make our decision making easier. These cognitive shortcuts reduce our efforts but may or may not necessarily

enhance the quality or accuracy of our decisions. Heuristics are extracted from our experience and acts as simple guidelines for making reasonably good choices quickly. The most frequently used heuristics are:

1. **Availability-** It is the tendency to make judgments about frequency or likelihood of event in terms of how readily examples of them can be brought to mind.

   E.g., study conducted by **Kahneman (1974)** wherein the participants were given list of names and then asked whether the list contained more men or women names. Although the numbers of male and female names were nearly equal but 80%, participants reported that women names appeared more frequently. The reason was that the female names on the list were more famous ones, so their names were remembered easily.

2. **Representativeness-** This type of Heuristic suggests that more closely, an event or object resembles typical examples of some concept or situation; the more likely it is to belong to that concept, situation or category. Here, it is seen whether the current situation is a representation that has already been experienced.

   E.g., if we meet someone new who always wears formals and you are asked to judge the person's occupation. You would first remember your past experiences and then assume that formals are generally worn by teachers so he must be a teacher but you eventually learn that he is a Chef. Therefore, the availability or the similarity among the situation leads to such a decision.

3. **Anchoring and Adjustment-** Here, we start with a certain subjective probability and raise or lower it depending on the circumstances. When we make these adjustments, the outcome depends upon the starting point. If we start with a high estimate, even if we adjust it downward our probability estimate will be higher than if we started with a low estimate. It is as 'if' the initial level provided an 'Anchor' that biased our estimate and therefore this biasing effect is called anchoring.

   E.g. study by Kahneman, one group of people were asked to estimate 8x7x6x5x4x3x2x1 in 5 seconds. The other group in the same time has to estimate the product of 1x2x3x4x5x6x7x8. As they had different anchor, the first group gave higher product and the second one a much lower product whereas both product would be same, the anchoring biases is clearly visible.

4. **Attribute Substitution-** Another name of this heuristic is Substitution Bias. Here, person solves a problem by placing incorrect substitution. They unconsciously substitute a hard problem for an easy one. Whatever is available to the mind is chosen rather then what is needed.

E.g., Optical Illusions are the best examples of such substitution. In day today life, we sometime perceive a three-dimensional figure as two-dimensional. Another example is unconsciously talking about something else, which is similar to what has been asked about.

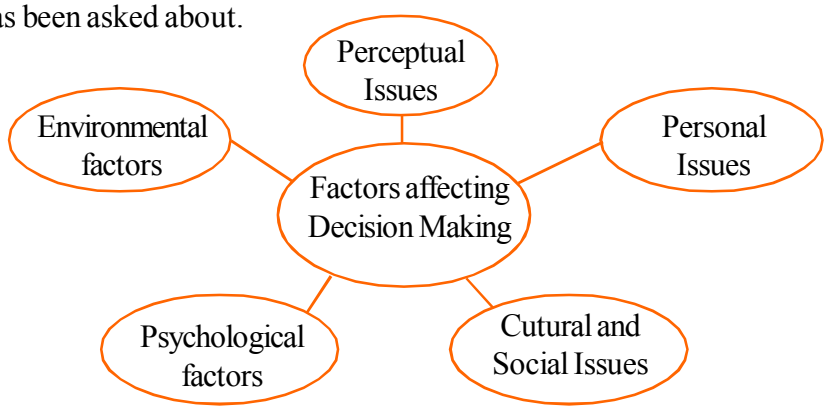


Figure 11.4: Factors affecting Decision Making

INTEXT QUESTIONS 11.3

State which of the following statements are 'true' and which are 'false'?

1. Representativeness and Availability are types of Heuristics.
2. Cultural and social issues do not affect the decision-making ability of a person.
3. Anchoring and Adjustment are one of the stages of decision-making.

11.5 CREATIVE THINKING

Creative thinking involves a considerable amount of unconscious rearrangement of symbols. It involves the production of new and original ideas, solutions or objects. It's different from other kind of thinking, ideas over here are new and original both. Generally, uniqueness of solutions, which have not been used earlier constitute the arena of creativeness.

The thinker here at first makes a little progress, but then perhaps triggered by a fortuitous set of circumstances, a new idea seems to "bubble up" into awareness, or consciousness, in a seemingly spontaneous manner. This sudden appearance of new ideas is called insight.

It is important to understand that the new and original idea should also be appropriate in a particular context. The workability and functionality decide the importance of the idea. Hence any thinking which is constructive, appropriate, reality- oriented, novel and desirable comes under the header of creativity.

J.P. Guilford was a pioneer in the field of creative thinking. He proposed two major types of thinking-

Convergent: Here mind converges to solve a problem, which has only one possible solution. The result of convergent thinking is usually a solution that has been previously arrived at by someone else. Like: 2-1= 1

Divergent: This is involve in open-ended questions, where there is no set answer to a particular problem. Such thinking where the pattern is not set and number of solutions could be attained, leads to generally creativity and novelty of ideas. Divergent thinking includes autistic and convergent thinking to gather information as building materials for the ultimate creative solution. At times, the person may drift into autistic thinking, or free association in which the symbols of thought have private meanings.

Divergent thinking abilities generally include - Fluency, Flexibility, Originality and Elaboration.

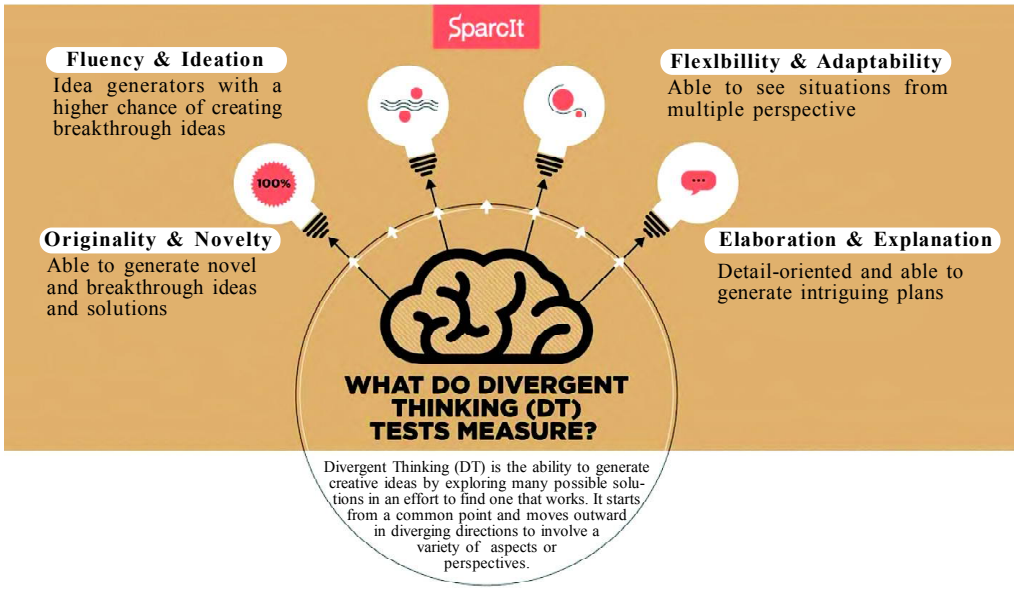


Figure 11.5: Aspects of divergent Thinking

Source: https://medium.com/sparcit-blog/divergent-thinking

11.5.1 Process of Creative Thinking

There are different stages, which comes before creative thinking. It begins with

- **Preparation:** The thinker formulates the problem and collects the facts and materials considered necessary for the new solution.
- **Incubation:** During this period, some of the ideas that were interfering with the solution tend to fade. The unconscious thought processes involved in creative thinking are also at work during this period.
- **Illumination:** Here comes 'Aha' effect. In this, an idea for the solution suddenly wells up into consciousness. The person has feeling of excitement and satisfaction.
- **Evaluation:** The apparent solution is tested to see if it unsatisfactory, and if it is then the thinker is back at the beginning of the creative process. The solutions are tested and judged.
- **Revision :** Frequently, the insight turns out to be unsatisfactory and the thinker is back at the beginning of the creative process. In other cases, the insight is generally satisfactory but needs some modification or the solution of minor problems to be a "good" new idea.

  It is important to understand that both heredity and environmental factors plays a role in development of creative thinking abilities. Practice, training and stimulated environment makes a person more imaginative, flexible and original in solving problems.

11.5.2 Barriers to Creative Thinking

Inhibiting factors which reduces our creative expression are -

- **Habitual** (in a habit of thinking in a particular way).
- **Perceptual** (perceiving a problem in a manner in which it is always done).
- **Motivational and Emotional** (Lack of motivation, fear of failure, fear of rejection, fear of judgment, fear of being different).
- **Cultural Barriers** (Adherence to traditional expectations, stereotypes, conformity bias, dependency on others, group pressure). It is important to remove the above-discussed barriers to become a creative thinker.

11.5.3 Characteristics of Creative Thinkers

- **Preference to complex task -** Such people like higher degree of complexity and imbalance in their task.
- **Independence in judgments -** Self-dependency is important to them hence; they make judgments independently without being influenced by others.
- **Higher awareness and sensitivity** - Creative thinkers are vigilant about their surroundings and people. They always strive to know more.
- **Notices contradictions and incompleteness -** They analyze situations in both holistic manner and by breaking it into parts. That is why it becomes easy for them to pin point incompleteness.
- **Pondering over mysteries of situations and objects -** Finding new ways and trying to solve the mystery around is important to them.
- **Developing the art of asking questions-** Questioning others and oneself is the skill these people rely on.
- **Generating diverse ideas and solutions -** Divergent thinking is a forte for creative thinkers.
- **Brainstorming -** These people try to find as many as possible solutions to a problem.
- **Getting feedback on the solutions -** Once applied they follow up the consequences of the solution and take feedback so that better performance can be done in future.
- **Resistance to temptation of immediate reward and success coping with frustration and failure-** Creative thinkers are masters in delay of gratification, they wait for the right time and enjoys success then.
- **Visualizing causes and consequences and predicting things -** They not only understand the start and end to a problem and solution but try to know the mediating factors too.
- **Awareness of own defenses-** Self-Introspection is what they depend on. Knowing one's weaknesses and strengths leads them towards better solutions.

- **Self-positivity and confidence -** Positive self-talk is an important characteristic of creative thinkers.
- **Self- assertiveness and dominance -** Being assertive about their decisions and judgments is visible in their personality.
- **Rejection of suppression -** Suppression of thought people and situation is not acceptable by creative thinkers.

ACTIVITY

Examine how many characteristics of a creative thinker, you possess.

INTEXT QUESTIONS 11.4

1. Barriers to creative thinking:

   (a) Perceptual

   (b) Cultural

   (c) Habitual

   (d) All of the Above

2. The first stage of creative thinking is:

   (a) Incubation

   (b) Preparation

   (c) Revision

   (d) None of the Above

11.6 LANGUAGE AND THOUGHT

Thinking is not only based on concepts and images; our words and language are also essential in our thinking process. Let us discuss language and its relationship with thought.

Development of Language

Language is one's ability to use diverse set of symbols and rules for combining them for communicating information.

Table 11.1: Conceptualization of language

Concept of language involves			
Sounds or written elements of language	Knowledge of rules for combining words	Storage of semantic /meanings of various words	Using speech in order to have intended impact on others

Development of human language is complex, spontaneous and creative. Acquisition of language in children generally follow a predictable pattern, which moves from crying to cooing then babbling, Echolalia (strings of sounds combined into repetitive patterns), one word, Holophrases (one or more words which combined to form whole sentences or phrases), then telegraphic speech and then at last language with correct rules and impact.

STAGES OF FIRST LANGUAGE DEVELOPMENT

Age	Accoomplishment	Examples
0-2 months	Crying (express hunger and discomfort)	
2-4 months	Cooing (express satisfaction of pleasure)	aaa,ooo
4-9 months	Babbling, gurgling, changing to echolatic babbling	gagaga, mamamama
9-18 months	One-word utterances; refer to people and objects in baby's life	juice; mama
18 months 2 ½ years	Two-word utterances; the beginning of syntax, expanding to three-word utterances; allows for more communicative functions (commenting, negating, requesting & questioning)	more juice juice fall down Daddy go?
2 ½ years 4 years	Telegraphic Stage (S.V.O): Expanded syntax and vocabulary; omit key grammatical markers and function words	I eated bread

Figure 11.6: Stages of Language Development

Source: http://thelimitsofmylanguagemeansthelimitsofmyw.weebly.com/first-and-second-language-development.html

11.6.1 Language as determinant of thought

When we talk to people living in snow covered areas they have more than 6 types to connote to snow whereas we only have 2 or 3. Similarly, an Indian has various terms for kinship relationship in comparison to English speaking who connote these only with uncle or aunt.

Does it bring us to the conclusion that our thinking process depends on how we describe it in our language. Benjamin Lee Whorf was of the view that language determines the contents of thought. This view is known as Linguistic Relativity Hypothesis. In its stronger version, this hypothesis states that what and how individual think is only determined by the linguistic categories they use. This is known as Linguistic Determinism.

This view does have certain experimental evidences showing that some thoughts may be easier in one language compared to other but there are other evidences portraying same level or quality of thoughts in all languages.

11.6.2 Thought as determinant of language

Swiss psychologist, Jean Piaget believed that thought not only determines language but also precedes it. He strongly believed that children form an internal representation of the world through thinking. Whenever they encounter a particular situation of learning, thinking is involved irrespective of whether they have access to language or not. Language for him is only a vehicle of thinking. It can affect children's range of symbolic thinking but it is not necessary for the origin of thoughts. Piaget propagated that understanding of language symbols and rules itself require thinking and formulation of concept of words. Thus, thought is basic and necessary if language is to be understood and learned.

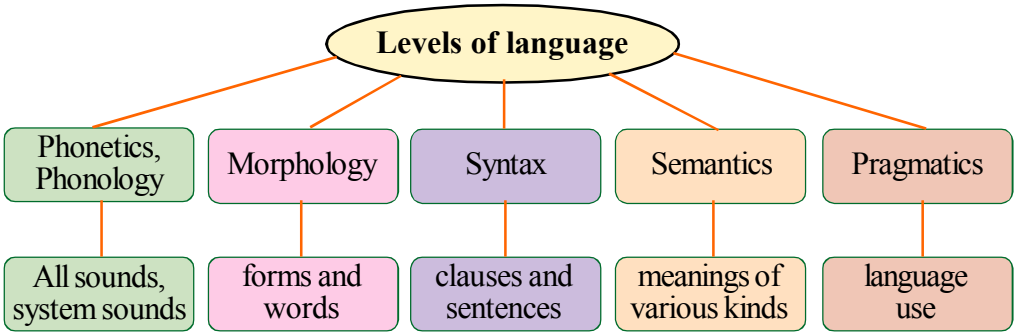


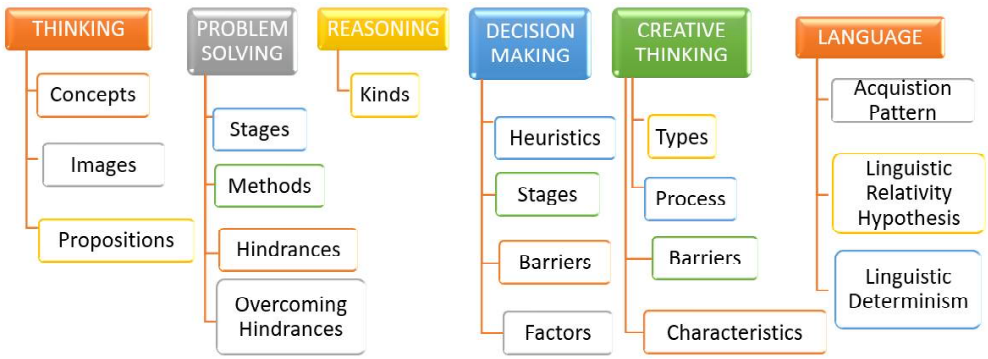
Figure 11.7: Levels of Language Development
Source: https://www.hierarchystructure.com/emergence-hierarchical-structure-human-language/

The Russian Psychologist, **Lev Vyogotsky** argued that both language and thought develop separately until 2 years of age and later they merge. Before 2 years, thoughts are experienced more in actions. Around 2 years of age, child expresses thought verbally and their speech reflects rationality. Now, children manipulate thoughts using soundless speech. According to Vyogotsky, this is the time when development of language and thinking become interdependent. Thought works without language when we are involved in any visual or motor task. Even language can be used without thinking when there is only expression of feelings. When both work together, verbal thought and rational speech occurs.

Learning of language is a complex task, which involves both inherited characteristics and environmental stimulation. Different psychologists attach different reasons for learning of language.

Noam Chomsky, a known linguist proposed the idea of innate proposition of development of language. He conceptualized that children have a 'critical period ' where learning must occur if it is to occur successfully. He believed that there is built in readiness to learn language in children. This explains why children sometimes acquire language even without direct teaching. Behaviorists on the other hand believed it to be developed by imitation and reinforcement. It could be concluded that language and thought are interdependent, depending on the situation and circumstances, one leads another.

WHAT YOU HAVE LEARNT



TERMINAL QUESTIONS

1. Discuss the nature of Thinking.
2. What do you understand by concept? Discuss propositions.
3. Highlight different stages of problem solving. Discuss barriers in effective problem solving.
4. What are the different kinds of reasoning?
5. Discuss types of heuristics with examples.
6. What do you understand by creative thinking? Highlight different characteristics of creative thinker
7. Explain Linguistic Relativity Hypothesis.
8. Examine relation between language and thought.
9. Discuss the stages of development of language.
10. Describe process of creative thinking.

ANSWERS TO INTEXT QUESTIONS

11.1

1. Autistic
2. Propositions
3. Natural

11.2

i. d

ii. c

iii. a

iv. b

11.3

1. True
2. False
3. False

11.4

1. d
2. b

MODULE -3

Human Development

The module aims at building an understanding of human development across the lifespan and deals with key features and challenges across different stages of development. This will help the learners reflect on their own course of development and related experiences.

12. Life Span Perspective on Development

13. Infancy and Childhood

14. Adolescence and Young Adulthood

15. Adulthood and Old Age