Chapter – III

Conceptual Frame Work
# CHAPTER - III

CONCEPTUAL FRAME WORK

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CHAPTER - III

CONCEPTUAL FRAME WORK

“Our senses provide us with raw data about the external world. However, without interpretation, this raw information remains ‘a booming, buzzing confusion.’ The eye records patterns of light and dark, but it does not ‘see’ a pedestrian crossing the street. The eardrum vibrates in a particular fashion, but it does not 'hear' a symphony. Experiencing ‘meaningful’ patterns in the jumble of sensory information is what we mean by perception”

William James, (1980)

The growing importance of education for the economy and advancement of ever-increasing knowledge every year in the field of education has set an urgent task before all countries of the world to provide education to youth, so as to prepare them for a better life. In this age, Men are landing on Moon or Mars, very easily. Youth should have proper knowledge of science, earth science and its allied forms. To fulfill the aims, aspiration and expectation of the need of the hours towards knowledge acquisition and enrichment, the teacher has to develop skills and strategies. The teacher should be properly trained and equipped with wide horizon of information related to teaching. The present education is neither planning properly and nor implementing such things in an appropriate manner. The contents, text, syllabus and methods should be restructured and new innovative skills should be adopted in teaching to enhance the student’s achievement in the particular subject. The skills they learn will help in hand to solve the problems easily. The perceptive skills are oriented the geography learning ease and effective. The lack of effective teaching methods and techniques on the part of teacher stands in the way of student. Children who leave the portals of school do not satisfy the actual requirements of entrance to the university. No effect seems to be done in developing perceptive thinking skills among students. In spite of well defined aims of education, our schools merely provide means of fulfilling only knowledge acquisition aim. Lack of accommodation, equipment, facilities of experimental work, syllabus and text-books and
above all there is scarcity in supply of good teaching personnel with strong professional background. Unless the teachers are equipped with appropriate knowledge, students of future lack necessary skills. In the pre-service training student-teachers learn the use of new strategies in order to improve perception. The perceiving knowledge are those multi sensory learning. Student teachers should learn to use new strategies enable them to acquire perception. The perception of knowledge are processed through multi sensory organs.

3.1 PERCEPTION

E. Bruce Goldsmith (1980) defined perception as electrical signals processed and interpreted by the nervous system to create some image. Shiffman H. R. (1996) perception as cognitive process of selecting, organizing and attaching meaning or interpretation to event, objects or in the environment. Baron R.A. (1998) defined transmission of sensory input to achieve a grasp of our surrounding as well as a cognitive process which yields a unique picture of the world that may be quite different reality. William James (1990) called a booming buzzing confusion experiencing meaningful patterns in the jumble of sensory information is what we mean by perception. Charles G. Morris (1993). Processed the creating of meaningful patterns for raw sensory information in the 4th BC the philosopher Aristotle stated that the heart not the brain was the seat the mind and the soul. Thus perception is the processes through which we select, organize, and interpret input from our sensory receptors. Johnson & Dark (1986) conveyed that we have to selectively attend certain aspects of our environment while relating others to the background. Matlin & Foley (1997) has proposed selective attention has obvious advantages in maximizing information gained from the object of our focus by reducing sensory interference from other irrelevant source. Rensink O’ Regan, & Clark (1997) stated that selective attention to one thing may mean neglecting another. For a first hand understanding of the power of selective attention watching if some one who is completely absorbed in a suspenseful novel or a thrilling sports event.

Gestalt psychologist intrigued by our tendency to perceive sensory pattern as well organized wholes rather then as separate isolated parts. Gestalt means “Whole” in German. Sensory inputs in whole pattern they outlined several principles that influence
the way we organize basic sensory input in whole pattern. Perception refers to the way
the world looks, sounds, feels, tastes/smells. In other words, perception can be defined as
whatever is experienced by a person. Attention is one of the perceptual processes of the
human being. V.G. Stepanow (1997) viewed that the perceptive process uses two general
ways of information processing called detailed investigation and guessing. Experimental
data confirm this notion. Junior school children’s student and adults on to genetic
characteristics are shown. Pedagogical psychological problems are discussed and the
necessity of new pedagogic technologies taking into account the peculiarities of
information processing is stressed. Clickford. D. Morsan.et.al. (1998) proposed the
process of perception as follows. Controllers in visual form, organization, visual
depthless, constancy, size, shape and bright formation, movement perception and
plasticity of perception. Perception is said to be plastic, this refers to the modifiability, or
moldability of perceived experience, the plasticity of perception has been demonstrated in
experiments the restricted subjects visual input during what were believed to be their
sensitive periods for the perceptual developments. Such restriction of visual inputs in
known as visual deprivation. Among the factors that influence an individual’s perception
are; (i) Perceptual learning, (ii) Differences in what the person expects to perceive or the
persons set, (iii) Motives and needs and (iv) The individual’s characteristics such as
cognitive style.

Johannes Kepler thought the eye operated like an ordinary optical instrument that
projected images on to the sensory nerves of the rating. Santiago Ramon Y. Cajal stated
that the discovery of the synapse raised the question of how the electrical signals
generated by one neuron are transmitted across the space separating this neuron from
another one. Perception may be defined as the cognitive process of selecting, organizing
and attaching meaning or interpretation to event objects or propel in the environment.
Perception is taken from the following six modalities namely, Vision, Audition,
Cutaneous, Olfaction, Gestation and vestibular.

Perception: An Overview

Perception is the impression made by an object through process of sensory organs
and the central nervous system. Perception is a process by which we come to know
Conceptual Frame Work

objects in their appropriate identify. Sensation is the most elementary reprocesses, which is essential for cognition. Sense organs are described as "Windows of the soul" or the gateways of knowledge. Sensation comes to conscious by way of special sense organs. Sensation is a reaction aroused by a stimulus. A sensation is an act of the sense organ. Sensation is the smallest mental process. It can not be reduced to any simpler ingredients. A distinction is often made between sensation and perception on the ground that sensation is the primary response of the sense organ, where as perception is the meaningful apprehension of the stimulus object. The two processes sensation and perception are not separated. Perception is sensation and thought perception is the true beginning of knowledge. Sensation give us only the raw material of knowledge and perception is the first step by which that material is elaborated into definite knowledge of the external world, the attributes and relations of objects outside use when perception are the result of interaction between the sensory and central nervous system processes. Direct and indirect social instruction is another factor that makes a difference in our perception.

Table 3.1 Perceptual System

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<th>Types of information obtained of responded to</th>
<th>Sense involves</th>
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<td>Basic orientation</td>
<td>Direction of gravity acceleration</td>
<td>Vestibular (Primarily)</td>
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<td>Auditory</td>
<td>Nature and location of sound</td>
<td>Hearing</td>
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<td>Haptic</td>
<td>Mechanical encounters, object, shape, material status (solid, viscosity temperature)</td>
<td>Pain pressure heat warmth kinesthetic</td>
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<tr>
<td>Taste and Smell</td>
<td>Odors, nutritive value</td>
<td>Taste and Smell</td>
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<tr>
<td>Visual</td>
<td>Location shape identity and movement of objects</td>
<td>Sight</td>
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3.1.1 FACTORS INFLUENCING PERCEPTION

There are seven factors which influenced the perception namely Learning, Adaptability, Motives, Emotion, Sensory Condition, Maturation and Heredity.

Learning: Many studies were conducted to ascertain the effect of learning on perception has shown that learning and past experience play on important role in the way an individual perceives his/her world. Whatever he/she learnt is partly a learning of new perception. An object acquires different meaning for different person depending upon the persons past experiences. The influence of past experience and prior learning is not limited to emotional experience alone. Other aspect of perception also depends on learning.

Adaptability: It is indicated that people have remarkable cues, learning abilities and learn influence on perception of their world. It shows the perceptual experience is also determined by sensory motor co-ordination.

Motive and Emotion: The motives and erosions of an individual also influence the perception to great extent. When people are motivated or emotionally involved in an activity they tend to perceive what they want.

Sensory Condition: Many studies have been conducted to determine the effects of perception and unusual sensory conditions, particularly sensory deprivation. The results have suggested that people isolated form stimulus for prolonged periods show unusual perceptive activity and also an individual ability to make adaptive perceptual discriminator.

Maturation and Heredity: Maturation and heredity also influence perception. The maturation of sense organs is a very important factor in perception. Gestalt psychologists like Wertheimer and Kohler have tried to explain the principles involved in the organization of perception. Similarity is used when objects of similar shape, size or color tend to be grouped together. Auditory, cutaneous, olfactory and gestation are activated through sensory training and co-ordination.

Hear - Auditory
Touch - Cutaneons
3.1.2 VARIOUS VIEWS OF PERCEPTION

Perception as a much more complicated process and involves the organization and interpretation of the stimuli which have crossed the threshold of the attention process and get into focus of awareness to make them meaningful.

![Figure 3.1 The Three Stages of Perception](image)

<table>
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<th>I Stage</th>
<th>II Stage</th>
<th>III Stage</th>
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<td>Cognitive act only</td>
<td>Visual act</td>
<td>Complicating process and involves the organization and interpretation of the stimuli to make them meaningful</td>
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3.1.2.1 Phenomenological Views of Perception

According to E.G. Parameshwaran, c. Bene (2006) perception is a combination or discrete sensory stimulations compounded by experience. Perception is a total act necessarily bearing total resemblance to external stimulus characteristics. The process of perception is not totally logical but it is to a large extent, phenomenological, distinction between physical reality and experienced reality or phenomenal reality. Gestalt’s views of perception accounted that through the experiment conducted on animals and birds declared that they even at birth inherited with perceptive skills. The perception can be divided in the three components. Perceiving a chair means dissecting it into the elements of shape, size, and angle of the parts of the chair, bound together by meanings from previous experience.
3.1.2.2 Empiricistic and Nativistic View of Perception

A consequence of the certainties and uncertainties about human nature, their key concepts regarding the mind contradict each other and yet remain as the supporting pillars of these views to this day. Empiricist mind is “blank state” while nativism claims that it is like a “veined marble”. John Locke was the first philosopher suggested that the mind was initially a tabulation means a smooth wax table upon which impressions of external events prints themselves.

Functions of the Sensory Register: R.Read Hunt & henry.C. Ellis (2006) discussed the Perceptual process sensory register. We can determine the meaning of only one sensory pattern at a time. Guessing is identification of two objects from two different visual descriptions. Each sensory modality has a corresponding sensory register, but in human beings the most widely studied systems are visual and audition. The sensory registers allow the system to serve its range function optimally. The information is stored in a vertical form. The sensory register needs to be relatively large at least large enough to store all the information imprinting on the sensory receptor. The information must remain on the sensory register for a brief time. Sensory register store up all the information continuously; the sensory register must be clearly quickly to avoid superimposing information from the exposures.

Auditory Sensory Register: Auditory system may require a longer lasting sensory memory than vision. Echoic memories have taken modality effect. The Modality effect means to the higher level of recall of the last few items of a list when presentation is auditory rather than visual.

The suffix effect: Explanations of the modality effect as the operation of echoic memory have been strengthened by another discovery known as the suffix effect.

3.1.2.3 Cognitive Approach to Perception

Bruce Goldsten.E. (1996) declared the various approaches should be acknowledge to acquaint with perception, such as physiological, psychological and cognitive approaches to perception.
1. The person’s eye from where it can form image on the retina
2. Generates electrical impulses in the receptor
3. Neuro impulses travel along neuro fibers.
4. Reach the brain
5. Things are being processed there it enable the perceived to see true of Lotus’.
6. And the perceiver sees the “Lotus”.

e.x. we heard the trains’ whistle an checking of its wheels because sound energy traveled from the train into ears, saw the trains form, color and movement because the train reflected patterns of light energy into the eyes. We feel vibrations because mechanical energy was transmitted through the ground to the feet. And we smell the trains smoke
became chemical energy was released when chemical components of the smoke reached nose.

1. Light energy hits the train and is reflected into eyes. This light transmits into eyes because the light is structured by the train's shape and by the properties of its surfaces.

2. An image of the train is formed on retina a network of cells that lines the back of eye.

3. Electrical signals are generated by cells in the retina called receptors which change the light energy into electrical energy.

4. These electrical signals are transmitted their retina in a network of cells called neurons which transmit electrical nerve impulses in the nervous system.

5. These electrical signals are transmitted out of the eye along neurons and eventually reach the visual receiving area of the brain.

6. These electrical signals are "proved" or "analyzed" by neurons in the visual receiving area and in other areas of the brain.

7. We perceived the train. Perception is determined more than a sequence of physiological steps. It is also determined by cognitive processes such as thinking and memory, so the process of perception involves and interaction between the information. Stimulating the receptors and information form our past experience that is already intrigues eyes.

**Figure and Ground:** Our tendency to divide the perceptual world into two distinct parts discrete figure and the background against which they standout our perceptual processes, often allow us to perceive shapes and forms from incomplete and fragmental stimuli. World things are divided into two parts. Figure and ground. Figure it nothing but is has a definite shape and location in space. Ground in which has no shape, seems to continue behind the figure and has no definite location. The figure-ground relationship helps to clarify the distinction between sensation and perception. Although the pattern of sensory input generated in our receptors remains constant, our perceptions shift between the two figure-ground pattern.
Perceptual Tendencies

Perceptual tendency implies that tendency generated with the application of finding similarity, acquiring continuation, seeing proximity, commonality, moving to closures and simplicity, complex pattern etc. They lead to perception gaining.

Laws of Similarity

Tendency to perceive similar items as a group.

Law of Good Continuation

Tendency to perceive stimuli as part of a continues pattern. i.e.e Waterfalls, Railway track, China wall, Bridge

Law of Proximity

Tendency to perceive items located together as a group.

Law of Common Region: Tendency to perceive objects as a group if they occupy the same place within a plane.
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**Law of Closure:** Tendency to perceive object as whole entries, despite the fact that some parts may be missing or obstructed from view.

![Diagram of a circle]

**Law of Simplicity:** Tendency to perceive complex pattern in terms of simpler shapes.

Perception is more than the sum of all the sensory input supplied by our eyes, ears and other receptors. But perception like any other powerful process, can be a double edged sword. On the other hand perception sometime loads us into error.

![Diagram of a grid]

Our tendency to perceive physical objects as unchanging despite shifts in the pattern of sensations these objects induce

- **Size constancy,**
- **Shape constancy and**
- **Brightness constancy.**

**Size Constancy:** The tendency to perceive a physical object as having a constant size even when the size of the image it casts on the retina changes. It relates to the fact that the perceived size of an object remains the same when the distance is varied. Even though the size of the image it casts on the retina changes greatly.

**Shape Constancy:** The tendency to perceive physical objects as having a constant shape even when the image it casts on the retina changes. If we flip a coin into the air, we
continue to perceive the coin as being round, the image that actually falls into retina constantly shifts from a circle to various forms of an ellipse.

**Brightness Constancy:** The tendency to perceive objects as having a constant brightness when they are viewed under different conditions of illumination. Brightness constancy breaks down, however when changes in lighting are not equivalent for both the object and its surroundings. Sekuler & Blake (1990) revived that perceptual constancies are highly useful. Without them, we would spend a great deal of time and effort reidentifying sensory information in our environment each time we experience the information from a new perspective. Thus the gap between our sensations and the perceptions provided by the constancies is clearly beneficial.

### 3.1.3 ILLUSION

Illusion refers to instances in which perception yields false interpretations of physical reality or incorrect perception are called illusion. Due to the physical process and cognitive processes there are two types of illusions.

**Illusion of Shape/Area**

It can be quite powerful. In poggendorf illusion which of the three lines on the right continues the line on the left.

All of the horizontal lines straight are bent in the middle.

Moreover, learning seems to affect the extent to which our perception is influenced by illusions.
Shape/Area Illusion

Sekuler & Blake (1990) the moon illusion is the best example of shape or area illusion. Impart because when the moon is near the horizon, we can see that it is farther away than trees, houses and other objects. Thus the moon appears larger near the horizon because there are cues available that cause us to perceive that it is very far away. Astray is the best example of size constancy. Shape illusion can influence perception, sometimes producing some unsettling consequences. The real world example involving the pedagogy illusion. Illusions are not limited to visual processes-Indeed there are numerous examples of illusions for our other sensory modalities including touch and audition.

3.1.4 PERCEPTUAL PROCESSES

Perception is a practical process, for it provides organisms with information essential to survive in their normal habitat. Bottom-up and Top-down theories of pattern recognition, stems from our ability to recognize and combine basic visual features. In contrast, top-down theory emphasized the role the expectations play in shaping our perception.

Nature and Nurture Related to Perception

Both nature and Nurture are important determinant of the ways we perceive the world around us. Nature refers to genetic influences on perception whereas nurture refers to the relative effective of the environment and learning. (Marsolet & Burgund, 1997). New evidence seems to indicate that both are involved in pattern recognition. That the brain is organized into two halves. Each halves (Left brain & Right brain) is specialized to perform certain functions more efficiently than the other – In 1999 Marsolet suggested that this arrangement supports separate systems within each hemisphere that accommodate both the feature – based processing that is characteristic of bottom-up processing and the whole-based processing characteristics of top-down processing.

Distance Perception

Monocular cues

Binocular cues.
Conceptual Framework

Monocular Cues: Cues to depth or distance provide by one eye. Monocular cues to depth or distance include the following. Size cues, Linear perspective, texture gradient atmospheric perspective, overlap, height cues, motion parallax and also the larger image of an object on the retina, the larger it is judged to be in addition, if an object on the retina, if an object is larger than other objects it is often perceived as closer.

Linear Perspective

Parallel lines appear to converge in the distance the greater this effect, the farther away an object appears to be. Texture gradient is texture of a surface appears smoother as distance increases.

Atmospheric Perspective

The farther away objects are the less distinctly they are seen among, dust, haze get in the way.

Overlap (Inter Position): If one object overlaps another, it is seen as being closer than the one it covers. Cues are categorized by eight cues and Binocular cues. Height Cues (Aerial perspective): Below the horizon, objects lower down in our field of vision are perceived as closer, above the horizon, objects higher up are seen as closer.

Motion Parallax

When we travel in a vehicle objects far away appear to move in the same direction as the observer, whereas close objects move in the opposite direction. Objects at different distances appear to move at different velocities.

Binocular Cue: Depth information based on the co-ordinate efforts of both eyes. Binocular cues for depth perception stem from the primary sources:

1. Convergence
2. Retinal disparity

Convergence: In order to see close objects our eyes turn inward toward one another. The greater this movement, the closer such objects appear to be.

Retinal Disparity: Our two eyes observe objects from slightly different positions in space, the difference between these two images is interpreted by our brain to provide
another cue to depth. Schiffman (1990): He suggested that numerous perceptual abilities particularly auditory and visual abilities are present at birth or shortly afterward. Turkheimer (1998) revealed virtually all psychologists accept that both innate factors and experience are needed to provide a complete account of our perceptual abilities. Perception is plastic in the sense that it can be and often is, modified by our encounters with physical reality. However perception may also be strongly affected by innate tendencies principles.

**Extra Sensory Perception:** Perception without a basis in sensory input is called as sixth sense. We gain information about the external world without use of our five basic senses. Extrasensory Perception refers to perception without a basis in sensation that is called as ESP “Does it really exist?” otherwise, it is called as Psychokinesis (PSI). PSI an unusual process of information or energy transfer that are currently unexplained interns of known physical or biological mechanisms.

a. **Telepathy:** Reading others thoughts, perceiving distant object (clairvoyance) PSI is pre cognition the ability to foretell future events. Clairvoyance. Telepathy and PSI are the sixth sense of the human being.

b. **Clairvoyance** the ability to perceive objects or events that do not directly stimulate your sensory organs, is another form of PSI. A skill supposed by possessed by mind readers, involves that direct transmission of thought from one person to the next.

c. **PSI** is Psycho kinesis: the ability to affect the physical world purely through thought. People who bend spoons or move objects with their mind or perform feats of levitation (making objects rise into the air) claim to have powers of psycho kinesis.

**3.1.5 SENSATION VERSUS PERCEPTION**

A sensation is our first awareness of some outside stimulus. An outside stimulus activates sensory receptors, which in turn produce electrical signals that are transformed by the brain into meaningful bits of information. A perception is the experience we have when brain assembles and combine 1000’s of individual sensation into a meaningful
pattern or image. However our perceptions are rarely exact replica of the original stimuli. Rather our perceptions are usually changed, biased; colored or distorted by our unique set of experiences. Thus perceptions are our interpretation of the real world. A perception begins with some stimulus which is any change of energy in the environment. Light, sound, pressure. The stimulus activates sense receptor eyes, ears and skin. Once activated, a sense organ transforms energy into electrical signals or impulses that travel to the brain. Sense organs such as the eyes, do not produce sensations but simply transform energy into electrical signals. Depending on the sense organ oriented different signals into basic sensation. For vision, an area at the back of the brain called the occipital lobe produces visual sense. Sensation is the first experience of outside stimuli. Sensations consist of meaningful bits of sensory information Shape, texture, colour etc. Each of us has a unique set of experiences that may automatically odd meanings feeling or memories to our sensations. As a result use we most likely to perceive a changed, biased or distorted copy of the real world. Our brain automatically assembles many thousands of individual sensation into a meaningful pattern or image which is called a perception. The brain used past experiences and emotions to form the final perception. (Niedenthal & Setterlund (1994). Thus our perceptions are personalized interpretations rather than true copies of things in the real world.

A Perceptual Representation of Factors Affecting Motivation

Motivation is the pivotal role of perception.

Figure 3.3 A Perceptual Representation of Factors Affecting Motivation
A Perceptual Representation of Factors Affecting Attention

Intensity → A ← Needs
Size → T ← Values
Shape → T ← Attitude
Gesture → E ← Mood
Change → N ← Good Posture
Movement → T ← Preparation
Novelty → I ← Aptitude
Repetition → O ← Awareness
Systematic Form → N ← Planning

Figure 3.4 A Perceptual Representation of Factors Affecting Attention
3.1.6 INTROCEPTIVE SENSATION

M. Asch (2005) stated that within taking an indicating action. Interceptors are sensory near endings on the walls of the hollow organs of the body. Feelings or emotions and motivation are the little known types of sensory structures play a central role in the psychological process. These processes are maintained in relation to feeling and relation to motivation.

Relation to Feeling

Feeling or emotions result from the complex patterns of internal changes related to the operation of the sympathetic system and of the glands.

Relation to Motivation

Attention has also been called to the role of internal changes as the point of origin of urges three tissue needs. Hunger, thirst, and sex urges have been shown to be among the important sources of all human motivation.

Properceptive Sensations

There are 2 classes of properceptors

1. Kinesthetic sensations arising from the muscles, tendons, and joints i.e. Knee jerk
2. The sense organs of equilibrium in the inner ear.

Attention and Attitudes

Attention is a complete adjustment of organism preparatory to receiving and to reacting to stimuli of a certain class. Paying attention is not merely getting ready to hear, see, smell or feel something it also involves the getting ready to react to these stimuli as rapidly and as efficiently as possible. Attention is a complex biological process.

Attention and Concentration

Attention refers to a process of getting ready to carry out a given line of action. Attention is important therefore not only because it helps us to do the things are going to do more efficiently but because it helps us to avoid the doing of many nonessential things. The muscles involved are of course chiefly the muscles of the eye, the muscles involved in writing and sometimes the muscles used in speaking.
Three Stages of Attention

Attention normally passes the 3 stages 1st stage – attention is held by curiosity. The subject can be easily contacted. New course and new books as well as new instructor are the interest for the attention. II stage attention must be forced. The spontaneous interest related to curiosity has begun to lag and yet the student has not developed sufficient background to provide a purely basic interest in the subject. III stage of attention is that growing out of an intrinsic interest in the subject.

Absent Mindedness

Most people think of absentmindedness as representing a defect in the ability of the absent minded person to pay attention and to concentrate. Some factors of Advantages in Attention. We may consider six factors that result in attention value. They are Intensity, size, partition, novelty, movement, habits other organic condition.

Intensity: The more intense a stimulus the more likely it is to attract our attention. This accounts for these of brightly illuminated signs and the effort to devise bill boards in such a way that visual contrasts will give the effect of intensity. Size provides a greater total mass of stimulation. If the advertisement is large occupies an increased proportion of the visual field and hence eliminates just that much in the way of possible conflicting stimuli.

Repetition: Repetition also has a two fold fun. The one is the repetition of the input provides the equitant of greater intensity. It is called as summation effect by the psychologist. The next one is repetition provides a hint of animation or at least of movement which in any form is always important as a device for getting attention.

Novelty: Novelty in the form of unusual color combinations, unfamiliar types for print, striking pictures, and the like attracts attention.

Movement: Moving objects are prime attention getters.

Habits: Habits must take into consideration organic conditions in the form of urges.
3.1.7 PERCEPTION AS A SOURCE OF MENTAL MODELS

A primary source of mental representations is perception. Johnson Laird (1983) stated that the simplest creatures, such as single-cell organisms, merely react physically to their immediate environment. For instance, paramecia— for instance, bump into an obstacle, and the ensuing chemical changes cause their cilia to beat in the opposite direction. But evolution has produced creatures with a nervous system that detects energy from distant objects and that directly mediates the activity of the neurons controlling stereotyped responses. More complicated creatures use the information impinging on the sensorial to compute an internal representation that in turn is used in the processes controlling action. And the housefly’s visual system of example controls its flight pattern by way of a representing of the visual field, such as a rapid expansion as the fly approaches a surface. Human vision, as David Marr and his colleagues have emphasized, depends on the construction of a services of symbolic representations culminating in a 3 oil model of the spatial relation among objects. This model makes explicit what is ‘where’ to our conscious processes of judgment and thereby enables us to navigate our way through the world avoiding obstacles and hazards. Our models need to integrate the information from all the senses and from general knowledge. Namely, the Sights, Sounds, Smells and possibilities of the world.

Smells and Possibilities of the World: Our capacity to envisage different situations appears to be limitless, but the brain can not contain an infinite number of books. What we perceive depends on both what is in the world and what is in our head on what evolution has wired into our nervous systems and what we know as a result of expensive. The limits of our models are the limits of our world.

Mental Models of Discourse: Wittgenstein (1922 section 4.01) in his celebrated ‘picture’ theory of meaning wrote “The proposition is a model of reality as we imaging it when tell you say that these is a table in front of the store in my kitchen, you can imagine the arrangement even if you can not see it. John—Laird (1983) stated that model contains two mental tokens, corresponding to the spatial relation between them”. In short discover models make explicit the structure not of sentences but of situations as we perceive or imaging them.
Clark (1977) stated that 'bridging' inferences are rapid and automatic and people are seldom aware of them though they may show up in recalling the discourse. Bransford (1972) observed that when subjects were presented with the sentence three turtles rested on a floating log and a fish swam beneath them they later confused with “Three turtles rested on a floating log and a fish swam beneath it”. In order to the constructive model, three turtles rested beside a floating log and a fish swam beneath them. Oakhill, Garnham, Mani, Kannan (1982) stated that the description Spoon knife plate - The spoon is to the left of the knife, The plate is the right of the Knife. The fork is in front of the spoon and the cup is in front of the knife.

**Perceptual Learning:** Charles E. Skinner (2006) has proposed that motor development brings in at a time when the surface stimuli elicit movements of distant muscles. The infant’s early recognitions are of hunger stimuli parents, feeding equipment, toys and the like. Words become attached to experiences and recognized first by sound and, after schooling by sight. Perception develops in hierarchic units, for example, word recognition progresses to perception even when there are few cues. Memory ‘types’ correct variations in sensory presentations. Cues from various sensory modalities fuse into complex perception. For example, note’s item cues, and intensity cues fuse into to each single perception by the pianist. These complex perceptions are promote, habitual recognitions, and must be so to have the speed and accuracy essential for functional use. Verbal cues associated with perceptions by such a way the perceptions become identified by words. Then the attention proceeds perception. Paying more attention will be given to moving objects, colorful things, noisy things, lights and discomforting things also.

**Perception and Learning:** P. Rajamanickam (2005) exemplified that Gestall psychology and others are of the view that in perception there is integration of these two views, insight and human beings. Relationship with innate ability on idea as conceived by the nativists. An intuition give us the objects it its completeness.

**Factors of Perception:** Visual perception varies from individual to individual factors or independent variables that psychologically determine perceptual responses. They are set or motivation, Expectations, Culture and society.
Set or Motivation: Perception is influenced by set or motivation. The set of motive may be a goal seeking activity. According to Murphy (2005) since perceiving is influenced by the goals which one seeks, the set is within the individual and motivational is an important kind of set. Perception is greatly influenced by the individuals needs and desires. When the individual is in need of something he will perceive the same. His perceptual process is influenced by needs or something he will perceive the same. His perceptual processes are influenced by needs and motives. This process may be stated as perceptual set.

Expectation: Human perception are influenced by motivational factors. The role of sets or motives in various physiological assets make us to perceive what use need. Human beings have a tendency to look ahead for certain things when they are in need of them or or expect certain things out of their learning experiences of advance knowledge.

Culture and Society: The culture in which one is born and brought up make him to adapt the way of that culture and the individuals perceptions are very much influenced by that culture. An individual cannot act anything away from this culture. Our perceptual processes are always guided by our cultural norms. We receive suggestions from outside in the form of words and action indirectly.

3.1.8 THEORIES OF PERCEPTION

Many psychologists have tried to study and explain the nature of perception. There are four main trends in the explanation of perception.

1. Physiological theory or peripheral theory
2. Behavioristic theory
3. Gestalt theory
4. Hebbs theory

3.1.8.1 Physiological Theory

Early psychologists with learning towards physiology hold this theory. In this theory the sense organs play an extraordinary important role. It is the organ that receives the impression or the image. Perception is nothing but the translation of this image. The
image received by the organ is conveyed to the brain. According to this theory the brain
does not play any significant part, except for the co ordination centers that establish
difference links needed. The main area of experiment with theses psychologists was
vision, they give importance to the retina and the optic nerve and altered of retinal
images. This theory could not stand the list of further research in perception through
other sense modalities and as such not very.

3.1.8.2 Behavioristic Theory

Perception for behavioruist is not very different from any other pattern of
behaviour. Every behaviour is an action and reaction link established through learning.
So is the perception of different phenomena perception also much as habits formatives,
learning and generalization patterning and organization in perception has not been
explained satisfaction by this school of thoughts.

3.1.8.3 Gestalt Theory

This theory does not consider perception depended on sense organ on the contrary
it attaches more importance to the part played by the central nervous system. According
to this theory we perceive patterns or configuration only. This theory has stood test of
research because the neurological endurance has been helpful in substantiality of its
principles.

3.1.8.4 Hebbs Theory

Hebb, a Canadian psychologist has done a lot of work on the understanding of
person. Behaviorists have been placing of importance on learning while gestalt
psychologists have left very little to be contributed by learning. Hebb through certain
experiments has come to the conclusion that although certain characters are innately
determined, these are certain other characteristics that can be proved to be the result of
learning and long periods of practice. He has been able to separate effect of learning form
that of the innate ability and this process is hypotheses. His theory is more or less a
comparable between behaviouristic and gestalt theses perception.
Broadbent’s Theory for Vision

There would be processed through a number of parallel sensory channels. These channels were assumed to have distinct neural codes and could be selected on the bases of that code. For example, a high pitched signal and a low pitted signal presented simultaneously could be distinguished on the basis of their physical characteristics even though both would reach the brain simultaneously. More information can enter the system that can be processed by the limited capacity channel. Broadbent postulated that in order to avoid an over load in this system the selective filter could be switched to any of the sensory channels.

Physical energy that falls within the limited range of human detection stimulates the sensory system is transuded (Converted to neural energy) is briefly held in a sensory storage, is subjected to further processing by the central nervous system (CNS) and coded and may be passed on to memory systems for processing are as followed.
Figure 3.6 The Stages of Information Processing Showing External Phenomena and Internal Process and Structure

External Phenomena

- S.E: Stimulus Energy
- S.D: Sensory Deduction
- I: Iconic
- C.A.S: Central Nervous and Coding
- M.T: Memory Transformation
- O.A: Overt Activity

Brain Based Learning

Figure 3.7 A Typical Information Processing Model

LTM - Long Term Memory
Hart 1983 / Caire of Caire 1994 developed 12 principles that apply what we know about the functions of the brain to teaching and learning.

- The brain is a complex adaptive system.
- The brain is social brain.
- The search for meaning is innate.
- The search for meaning occurs through paltering.
- Emotions are critical to paltering.
- Every brain simultaneously perceived and creates parts and whole.
- Learning always involves conscious and unconscious process.
- We have two ways of reporting memory.
- Learning is developmental process.
- Complex learning is enhanced by challenges and inhibited by threat.
- Every behavior is untruly organized.

**Basics on Perception**

- People in organs are bromated constantly by 1000's of visual, auditory, tactile, gustatory and olfactory stimuli why the same world is viewed differently by different people.
- People's actions, emotions, thoughts and feelings are triggered by perceptions of their surroundings. Perception is the intellectual process by which a person acquires the information from the environment, organize it and obtain the meaning from it.
- Perception is the phase of operation that takes place after the information is being received but one that is well high indistinguishable from its. Though perception has been defined in a variety of ways, it basically refers to the manner in which a person experiences the world.
- Perception is the basic cognitive or psychological process. The manner in which a person perceives the environment affects his behavior.
> We define perception as the process by which people organize, interpret, experience, process and use stimulus materials in the environment. So that they satisfy their needs.

> Most of our acts are primarily based on our perception.

**Perceptual Mechanism**

Perception is a process that operates constantly between us and reality. There are three well known mechanisms of perceptions.

- selection
- organization and
- Interpretation.

**Perceptual Selection** takes account of only those stimuli that are relevant and appropriate for an individual.

**Perceptual Organization** is concerned with harnessing the perceived inputs and convert them with a meaningful shape or form perceptual interpretation deals with inference form observed meaning from the perceived events or objects. From it emirates the resultant behavior of individual.

**Selection:** Individuals can not assimilate all they observe so they engage in selectivity selection is the first fundamental step in perceptual process. They are numerous stimuli constantly conjoining everywhere all the time. Selectivity occurs because it is visually impossible for a human being to assimilate every thing he observes. Selectivity is an important means of handling the perceptual overload.

**Attention:** Numerous factors influence the attention process. There are seven types.

- size
- Intensity
- Frequency
- Contrast
- Motion
- Change
- Novelty

**Size:** The larger the size of a physical object, the more likely it is to be perceived.
Conceptual Frame Work

Intensity: The greater the intensity of a stimulus, the more likely to get attention than a quiet voice.

Frequency: The greater the frequency with which a stimulus is presented, the greater are the chances for attending. This principle of repetition is used extensively in advertising to attract the attention of buyers.

Contrast: Surroundings environment are more likely to be selected for attention than stimuli which blend with the environment. The contrast can be created by color, size or any other factor that distinguishes one stimulus form others.

Motion: Since movement tends to attract attention, a moving stimulus is more likely to be perceived than a stationary object.

Change: Objects are more likely to be noticed if they displayed some form of change. An object with lights blinking on and off such as a Christmas tree or sign attracts more attention than are without blinking lights.

Novelty: A stimulus that is new and unique will often be perceived more reading than stimuli that have been observed on a regular basis.

Selective Perception Involve two Psychological Principles.

Figure Ground Principles: The meaningful and significant portion is called the figure and the insignificant portion is labeled as ground. For instance the printed words on this page is figure and the white space is the ground.

Relevancy: It is one important criterion for selective perception, people selectively perceive things that are relevant to their needs and desires.

Organization: The perceived input incoming stimuli are organized into meaningful pictures to perceive organizing the information that is incoming into a meaningful whole is called organization. Method of organizing perception

- Grouping
- Closure
- Simplification and
- Interpretation
Conceptual Frame Work

Grouping: In 1923, Max Wertheimer who was gestalt psychologist to explain the organization of parts into wholes by the visual system. People or things can be grouped on the basis of similarity or proximity. The greater the similarity in the events the greater is the probability that use tend to perceive them as a group.

Closure: People when faced with incomplete information have a tendency to fill in the gaps themselves. When presented with a set of stimuli that are incomplete, people fill in the missing parts and make it more meaningful. The tendency to organize perceptual stimuli so that they form a complete message is known as closure.

Simplification: Simplification occurs when the perceiver subtracts less salient information and concentrates on important one. Simplifications is vital in the absence of this things may look implicated and the perceiver may be baffled.

Interpretation: Interpretation is the third most important mechanism of perception. Without the interpretation of the perceived events the perceived world would be meaningless. Interpretation is suggestive and judgmental process.

Factors of Organization, Interpretation

- Halo Effect
- Stereotyping
- Attribution
- Impression and
- Inference

Halo Effect: It is the process of using a single personality trait of an individual and drawing a general impression about him. Halo effect is a shortcut for making judgments about people quickly. In can have positive and negative effects. Halo effects are not always inaccurate, although, they probably are more often wrong than right.

Stereotyping: Judging people on the basis of the characteristics of the group to which they belong is called stereo typing this word ‘stereo type’ was first applied by Walter lip Mann to perception? Stereotyping greater influences perception in organizations.

Attribution: Where people attach cause and effect explanation to their behavior it is known as attribution. Attribution is an important factor in perception because it creates a
tendency to visualize identical behavior differently. The perception of a person depends to a large extent on whether he attributes. The observed behavior to internal causes and external factors.

Impression: People frequently form impression of others on the first sight. Even before knowing any of their personality traits, they start having impressions and perceive threat.

3.1.9 FACTORS INFLUENCING PERCEPTION

There are two factors are influenced perceptual mechanism.

i) Internal factors / endogenous

ii) External factors (exogenous)

3.1.9.1 Internal Factors

Among the internal factors the most important are the

- Needs
- Desires of Individuals
- Individual Personality and
- The Experience of People.

Needs and Desires: The needs and motives of people play a vital role in perception. Perception of a frustrated individual is entirely different from that of a happy going person. Atkinson have further pointed out that when pictures of individuals in social setting are shown to them, they perceived in different ways. Expectancy, motives or interest also affect people perception.

Personality: Individual personality is another internal factor that has a profound influence on perceived behavior. It is a fright saying that optimistic people perceive the things in favorable terms. Pessimistic being in negative terms. T.Morgan and Richard.A. King stated that, individuals who have real perceptive abilities can function effectively without being defensive about their ionizations in their personality. It stated that on the effects of individual personality on perception revealed many truths are as followed.

i) Secure individuals tend to perceive others as warm not cold.

ii) Thoughtful individuals do not expose by expressing extreme judgments of others.
iii) Person who accept themselves and have faith in their individuality perceive things favorably.

iv) Self-accepting individuals perceive themselves as like, wanted and accepted by others.

**Experience:** Experience and knowledge have a constant bearing on perception. Successful experiences enhance and test the perceptive ability and lead to accuracy in perception of a person whereas failure erodes self-confidence.

**3.1.9.2 External Factors**

Perception is also influenced or affected by the characteristics of the perceived object or even person.

- Size
- Intensity
- Frequency
- Status etc.

**Size:** Size establishes dominance and overrides other things and thereby enhances perceptual selection. i.e. A full page advertisement is more attention getting than a few lines in some corner of the newspaper.

**Intensity:** The greater the intensity of a stimulus, the more likely it will be noticed. An intense stimulus has more power to push itself air selecting fitters than does a weaker stimulus. For instance a shout is more attention-getting than abnormal speaking voice in the classroom teaching.

**Frequency:** A stimulus that is repeated has a better chance of catching us during one of the periods when our attention to a task is warning. Repetition increases our sincerity or alertness to the stimulus.

**Status:** Perception is also influenced by the status of the perceiver. High status people can exert influence of a perception of an employee than low status people. For instance when we are introduced to remember the name of the general manager of the bank than the name of the clerk.
Contrast: Stimuli that contrast with the surrounding environment are more likely to be selected for attention than the stimuli that blends in. For instance a bold word it contrasted with other words in the advertisement.

- to avoid perceptual distortion
- to make accurate self-perception
- to put yourself in another person's place
- to create good impression about yourself

The perceptual system must determine in the environment from clues contained in three types of information.

1. Properties of the physical environment
2. Electrical activity in the nervous systems
3. The prior experiences and knowledge of the perceiver

**Figure 3.8 The Perceptual System and Three Types of Information**

![Diagram](image)

This indicates the relationship associated with each of the 3 types of information. It indicates another relationship which is perception from practical reasons. Relationship between stimuli of nervous system activity and stimuli and perception.

**3.1.10 APPROACHES TO PERCEPTION**

**The Physiological Approach to Perception**

Modern ideas of perception have evolved from a logline of speculation and research regarding the physiological workings of the mind beginning with Aristotle and Galen in ancient time. Philosopher Descartes of Kepler (scientists). Modern approach began being development by 18th & 19th century. By early in the 20th century the structure
of the neuron was known and the basic components of the psychological basis of perception were established.

The Psychological Approach to Perception

It deals with the stimulus provide tools which can be used to help answer this question. Gustar Fechrer published a book “Elements of psychophysics describe a no of psychological methods for measured.

The Cognitive Approach to Perception

It focuses on how perception is affected by the meaning of a stimulus and by the subjects’ expectations. One idea of the cognitive approach is that the mind like a computer processing information.

Visual Perception

Our perception of even seemingly simple stimuli such as a rolling red ball, involves a large area of the cerebral cortex. We perceive things indirectly based on electrical signals in the brain.

Perceptual Segregation

Color serves a number of functions, including creating perceptual segregating and signaling.

Determine of Color Perception

Researches have proposed two basic ways that neural coding can represent stimulus properties, specificity coding and across fiber pattern coding.

Figure 3.9 Marr’s Computational Approach to Perception

<table>
<thead>
<tr>
<th>Raw Primal Sketch</th>
<th>2 Di – Sketch</th>
<th>3 Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify edges and Primitive</td>
<td>Group Primitive and Process</td>
<td>Perceive 3D Dimensional Object</td>
</tr>
</tbody>
</table>

Objects Image on retina → Identify edges and Primitive → Group Primitive and Process → Perceive 3D Dimensional Object
Table 3.2 Approaches to Objective Perception

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Proponents</th>
<th>Main Concern</th>
<th>Basic Principles</th>
</tr>
</thead>
</table>
| Gestalt    | Max Wertheimer           | Perceptual Organization  | • Laws of Organization  
|            |                          |                          | • Wholes and Parts                                      |
|            |                          |                          | • Figure and Ground                                    |
| Constructivist | Herman von Helmholdt  | Perceiving Objectives    | • Likelihood Principles    
|            | Richard Gregory          |                          | • Hypothesis testing                                    |
|            | Julian Hochberg          |                          | • Integration by eye movement                          |
| Textons    | Bela Julesz              | Texture Segregation      | • Private Processing                                    |
|            |                          |                          | • Textos                                               |

The Brain and Perception

Human brain, a structure that with its 100 billion neurons, has been called the most complex structure in the known universe (Thomson, 1985). This complexity comes not just from the number of neurons, but from the vast number of interconnections between them, numbering in the 1000’s for many neurons. There are two basics ideas for the connection between the brain and perceptions.

1. Localization of function
2. Sensory coding

Localization of function

- Specific areas of the brain serve differences
- Sensory configuration: Nero firing represents characteristics of the environment.

Vision ➞ Occipital lobe
Hearing ➞ temporal lobe
Touch ➞ parietal lobe

According to Bernita Rabinowitz, a human perceives a stimulus (a sound, a taste) this is explained by the electrical impulse sent to the brain. This is so in comprehensible, so amazing and abstractly explained by differing electrical impulses.
Conceptual Frame Work

Deception will be based on the bottom-up approach and top-down processing because of the importance of the link between perception and cognition. Bottom-up processing refers to processing based on properties of the stimulus, such as the distribution of light and dark areas or the arrangement of contours in a visual scene. Palmer's (1975) experiment: Lines are arranged without any reference to the observer's knowledge of kitchens would be an example of a perceptual explanation based on bottom up processing.

Figure 3.10 Perceptual Explanation Based on Bottom up Processing

Top down processing is used to describe cognitive influences on perception. It occurs when perceptual processing is based on higher -level information such as a person’s prior knowledge as in the rat-man demonstration or the meaningful context in which a stimuli scene. i.e. Steven palmer (1975) using the stimulus palmer first presented a context scene such as the one on the left and then briefly flashed one of the target pictures on the right.

Figure 3.11 Perceptual Explanation Based on Top down Processing
When Palmer asked subjects to identify the object in the target picture they correctly identified an object like the loaf of bread 80% of the time but correctly identified mailbox or the drum. Two objects that don’t fit into the scene. Only 40% of the time.

**Figure 3.12 Two Objects that don’t Fit into the Scene**

*Did you see “a rat or a man”?

Perception is something we experience all the time and the studying perception will make us more aware of the environment around us and the processes that transform this environment in the experience called as perception.

Temporal pathway \[\rightarrow\] concerned with what an object

Parietal pathway \[\rightarrow\] concerned with where an object is

**Recognition by Components (RBC)** (3 dimensional shapes are RBC mechanism)

According to Irving Biederman’s (1987) RBC is concerned with how we recognize 3d’s objects based on our perception of the components that make up these objects. Biederman’s started that the building blocks of perception because it is possible to construct many thousands of objects by various arrangements of these components.
Symbols Perception by School Children and Adults

The perceptive process uses two general ways of information processing: detailed investigation and guessing. Experimental data confirm this notion. Junior school children's students and adult's ontogenetic characteristics are shown. Pedagogical psychological problems are discussed and the necessity of new pedagogic technologies taking into account the peculiarities of information processing is stressed. Rao, Zhenhui (2002) made a study on china student's perception of communicative and non-communicative. The study reveal that language courses results reveal the students sometime surprised their teachers and students perceived difficulties caused by communicative language teaching had their source in difference between the underlying educational theories of china and western countries. Barkhuizen, Gary. P. (1998). Hypothesized that the study "Discovering Learners Perceptions of ESL Classroom
teaching / learning. The school students perceptions of classroom activities in terms of their feelings toward the activities as well their valve in current and future learning using ores, interviews, observations, remits found that the learners perceptions often surprised their teachers. Particularly the student performance for more mechanical learning activities. Vanpatten, Bill (1998) worked in perceptions of and perspectives on the term communicative in Hispania. Suggests a gap between theory and practice and substantial differences between the perspectives held by scholars and those held by instruction publishers and others. Johnson, patricia, Arenas, Jaima (1995). Students perceptions of foreign language communicative teaching and class was undertook by Johnson, particia, Arenas, Jaima in the year 1995.

Errors of Perception

The perceptual process enables an individual to perceive things around him accurately and facilitate his smooth functioning. Two types of errors.

1. Illusions
2. Hallucination

Illusion: A mistaken perception or distortion in perception is called an illusion

Hallucination: A failure perception, a distorted perception of existing stimuli, sensory a perception is the absence if any corresponding external sensory stimuli.

Perception as Generated by a Closed Systems

- First, as stated above, only a minor part of the thalamus connectivity is devoted to the reception and transfer of sensory input.

- Second, the number of cortical fibers projecting to the specific thalamic nuclei is much larger than the number of fibers conveying the sensory information to the thalamus (Wilson et.al., 1984)

- Third the insertion of neurons with intrinsic oscillatory capabilities on this complex synaptic network allows the brain to generate dynamic oscillatory states which shape the computational events avoked by sensory stimuli.
3.1.11 ATTENTION

Definition

- Attention in process of getting an object of through cleared before the mind - Ross
- Attention is the concentration of consciousness upon an object rather than upon another - Dumville
- Attention is being keenly alive to some specific factor in our environment. It is a preparatory adjustment for responses - Morgan and Gilliland

Features of Attention

- Attention is focusing of consciousness on one object.
- Attention is constantly scripting. At a certain movement some objects or person who are at the central level shift to the marginal level and those who are at the marginal level shift to the central level
- Attention is selective
- Attention is a state of preparedness.

Types of Attention: Ross. J. S. has classified attention as Involuntary attention and (IA) Voluntary attention (VA)

- Enforced voluntary attention
- Spontaneous voluntary attention

Involuntary Attention: This type of attention is spontaneous. The individual attention to an individual, object/idea without making any conscious effort. Due to our instincts, the involuntary attention one workplace. It can be divided into two; EVA and SVA
EVA – Enforced Voluntary attention: A young man become alert and attentive when something activates around the environment.

SVA - Spontaneous voluntary attention. Attention is the remedy of our properly developed sentiments.

Voluntary Attention: This type of attention call forth the exercise of our will.

Three Components of Attention

Attention is a single entity but the name given to a finite set of brain processes that can interact, mutually and with other brain processes, the performance of different perceptual cognitive and motor tasks. These are 3 components of attention; Selection, Vigilance and Control.

Selection: Attention is thus important for many activities like perception, voluntary recall and the development of skill. When the brain carries our thoughts or other activities concurrently, the co-ordination of their execution to minimize interference also involves attention. The brain mechanisms of attention may be closely related to those of consciousness. A critical component is selection, which is perhaps the most widely studied area of attention. Attention in the human brain is the areas of the cerebral cortex of the human brain involved in attention. Intentional networks are shown by solid clouded shapes on the lateral (outside) and medial (cross section) surfaces of the right and left hemisphere. It appears that the parietal lobes are involved in the attentional network (Solid colored square)

Figure 3.14 Attention in the Human Brain
The right frontal lobes are related to vigilance and the diamonds are part of the anterior attention network. The oval, circle and word processing systems which are related to visual word form (ellipse) and semantic associates (Circle)

Human brain consisted to the following lobes

1. Primary motor cortex
2. Somatosensory cortex
3. Parietal lobe
4. Occipital lobe
5. Cerebellum
6. Temporal lobe
7. Lateral fissure
8. Frontal lobe

The areas of the cerebral cortex of the human brain involved in attention are shown. Attentional networks are shown by solid colored on the lateral (outside) and medial (cross section) surfaces of the right and left hemisphere. The brains left hemisphere, major anatomical features and regions are shown along with some of the more widely agreed upon cognition functions that these regions are through to support functions.

Figure 3.15 The Human Brain Involved in Attention
The Computer as an Analogy

The analogy between computer functioning and human cognitive functioning is obvious. Using the computer as an analogy, however, is far from suggesting that the human brain works like a computer. The brain processes that correspond to such activities as perception, memory, thinking and language are much more complex than those of any existing computer. The three components may all contribute to ongoing activity at any point in them. Regardless the information processing analogy has been a useful tool in the analysis of human cognitive functioning.

Figure 3.16 The Computer as an Analogy

Covert Attention

A small fraction of the information resisted by the visual system at any given time reaches levels of processing that directly influence behavior. Visual attention controls access to that privileged level and ensures that the selected information is relevant to behavioral priorities and objectives. Visual attention can be covert not directly observable form outside the organism, or it can be overt, as in the movement of the eye that accompanies visual monitoring.
Feature Based Attention

Architecture of the model of feature oriented attention developed by user and Necbur (1996) thus stages (rectangles) are modeled corresponding to sensory input; sensory and working memory. Stimulus known to the system are represented by cell assemblies (circles) in the sensory memory module those assemblies compete with each other via a pool of inhibitory numerous (ellipse) cell assemble in working memory provide feedback to corresponding population in sensory memory, which biases. The completion in favor of the selected stimulus. Excitatory and inhibitory synapses are shown as full and dot arrows respectively. In the situation shown object A and are in the visual field and object A is in addition, stored in the working memory. Module note in particular the absence of a counting structure corresponding to the saliently map. Attention is required because of the computational imitations imposed by fully parallel processing of all sources on any intelligent agent (animate or in animate). – (Nieur and Koch). The physiological properties of neurons in higher perceptual processing areas of the primate brain are also consistent with such a computational limitation (Desimore and Duncan 1995). Views differ on whether attention selection is facilitatory (Labergo & Brown, 1989) inhibitory (Tipper, 1985) or both (Posner, Dehaene, 1994). Object based as well as object token based (Kanisher and Driuer, 1992) the requirement for selectivity however is not disputed seriously. Without such selectivity, organisms should be ill-equipped to act coherently he face of competing and distraction sources of simulations is the environment.
Vigilance: Vigilance means sustained attention ensures that goals are maintained overtime. The needs for sustained attention define as component of attention that is distinct from selection. High rate of stimulus presentation increase selectivity and enhances focused attention (Posner, Cohen, Choate, Maylore, 1984) and associated brain electrical activity (Hillyard, 1996) it decreases vigilance.

Control: The ability to sustain information processing activity overtime in the face of distraction is only are means of maintaining goal-directedness. The term attention control has been applied to that function of attention.

**Figure 3.18 A Neural Network Model for Directed Attention**

Mesulam, Posner, Rothbart and Driver (1992) model gives greater weight to the cognitive functions performed by the different components. Both models however are based on the standard view of attention in which attention functions as a mental spotlight, enhancing the processing of the illuminated item. A separate spatial co-ordinate system is represented within each of those brain regions. the parietal components provides and parietal components provides and interval perceptual map of the external world, the cingulated component regulates the spatial distribution of motivation valence,
the frontal component coordinates the motor programs for exploration, scanning, reaching and fixating, and the reticular component provides an internal perceptual map of the external world, the cingulated component regulates the spatial distribution of motivational valence, the formal component coordinates the motor programs for excoriation. Scanning, reaching and fixating and the reticular component provides the underlying level of arousal. Refinement of attention network model will be required both at the macro level of interactions between cortical areas and at the micro level of local supnaptic interaction.

Varieties of Attention

Visual spatial attention is the Cued Target Detection (CTD) takes central (uses at the fixation point) and peripheral (uses in the peripheral visual field) versions of this takes have been used to measure Reaction Times (RT) to target stimuli.

Four Types of Cues

There are four types of cues are used in the most recent, peripheral version of this task (Witte, Davidson Marrocco (1997).

- Valid Cue
- Invalid Cue
- After Cue and
- Double Cue or Neutral Cue

Valid Cue is nothing but an accurate predict of the spatial location on most trails

Invalid Cue is nothing but an inaccurate predict of the spatial location on most traits.

Alter Cue and Double Cue or Neutral Cue: Both left and right cues are present simultaneously the target occurs near one of them

Sustained Attention

Attention shifting is among the fastest new cognitive events. At the opposite end of the temporal continuum is sustained attention in which subject may maintain an attentive state for minutes or longer. It is typically measured in vigilance task in which a subject attempts to acquire infrequent inflation from the environments (Broad Bent).
Attention and Working Memory

Attention is an integral part of the mnemonic process. It determines which information in the sensory store passes into working memory and it facilitates retrieval. As rational attention is problem required to facilitate the retrieval of information to the particular feature would minimize responses to incorrect objects. Because the delay between exposure and response may last for seconds, sustained attention during the trail is also required.

Visual Orienting Attention

The enhanced activation preceded their eye movement and was shown to be selective for the specific target of the movement and not for other potential targets presented at the same time.

A - Each paradigm started with the acquirement of steady fixation of a small target (+) that provided a fixed positioning of the receptive field (Dashed, Circle) from trial to trail.

Receptive field position and size were determined separately for each neuron.

B - The fixation paradigm required continuous fixation of the target.

+ - despite prevention of test stimuli (square)

C - In the saccade paradigm the target disappeared as the test stimulus appeared and the subject was required to saccade to and fixed on the test stimulus.

Wernikes and pre-frontal cortex are minimally active in Brocas area. More recently neuro – metabolic research has called it question the believed that decoding is central to successful reading. Visual processing and auditory processing are gone to angular gyres, wernick area, Brocas area to motor processing. The findings support the idea that most reading disability is caused by an attention field deflection the etiology of which is depicted word recognition, avoidance, continued demand, adoption, decoding drill and practice in embedded style to reading disability the graph is gone to gradually form movement touch auditory verbal and end at visual.
Successful readers are engaged in three activities: accurate saccadic eye movement, visual word recognition, and imagery.

Our method involves expansion of peripheral awareness to enhance saccadic accuracy, high recognition vocabulary through visual memory procedures, and most immortally enhancement of visualization skills.

Development of visual memory and visualization skills are best accomplished by introducing stimuli from converted to abstract as is depicted in the object, picture, symbol, word suffix.

Visual memory is enhanced with recall drills involving objects, pictures, symbols, and finally words.

Words are loaded in visual memory

Brother → rehtorb and inside
Out brother → tohrebr) demand

This technique forces visual as opposed to auditory thinking.

Visualization is clearly the most important reading sub-skill.

Both input and output flow are the following.

**Input Flow:** manipulative, spoken words, pictures, representational figures, and written words.

**Output Flow:** manipulative, pictures, spoken words, and written words.

Input and output flow joined with directly write to words as well as manipulative but other flows are interlinked with others. The student is encouraged to create stories from input stimuli of increasingly coupled stimuli. The output demand is likewise organized by complexity.

- Approximately 75% of students requiring compensatory educational services have abnormal eye movement characteristics
- 7/10 adult illiterates show abnormal eye movement patterns
- 90% of juvenile diligent males tested abnormally in regard to eye movement.
3.1.12 SEVENTEENTH CENTURY VIEWS OF THE STRUCTURE AND WORKING OF THE MIND

Renaissance philosophers and theologists seemed generally satisfied that knowledge was located in the brain. Knowledge is shown as acquired not only through the physical senses (mind us sensibilities - touch, taste, smell, vision and hearing), but also from divine sources. (mindus intellectual’s Deus). During 18th century when philosophy was brought to the print where scientific psychology could assume a role the British empiricists. George Berkeley, David Hume, and later James Mill and his son John stuart. Mil – Suggested that internal representation is of 3 types.

Figure 3.19 The Structure and Working of the Mind

1. Direct sensory event (ease set precepts or perception in reality)
2. Faint dim copies of percepts or those are stored in memory.
3. Transformation for the faint copies as in associate thought.

Computational Brain of Human Beings

Human use the computational brain to

- Perceive information about the environment.
• Attend to the world.
• Process information during the initial stages.

We begin our examination by looking at the perception of sensory signals because this is the initial step in the processing of information. At the alert of this process is the brain whose tasks are to understand and in effect make sense out of the thing being feed into it from the peripheral nervous system. That system is made up of nerves that the outside the spinal cord and the brain are involved in sensation and perception.

**Vision**

Through vision we drive rich understanding of what is in the world, where objects are located and how they are changing with time. Because we obtain this understanding immediately effortlessly and without conscious introspection, we can be decided into thinking that vision should therefore be fairly simple to perform.

There are three kinds of vision
- Low level vision (LLV)
- High level vision (HLV)
- Intermediate level vision (ILV)

**Low Level Vision (LLV)**

When the image is first captured by the retinal photoreceptors in the eye, it consists of some 120 millions individual point wise measurement of light intensity. In the field of computer vision and image processions, the dominant suggestion has been to begin the analysis of the incoming image by producing form the intensity array an edge representation using a process called edge detection.

**High Level Vision (HLV)**

The process we have examined, so far belong to the realm of LLV. Their goal is primarily to recover properties of the surrounding environment. It produced by the earlier stages, are used for tasks such as recognition, visually guided manipulation, locomotion, and navigation through the environment. H.L. Vision uses specific knowledge about objects in the world such as a catalog of objects in the world such as a catalog of objects stored in long term memory, whereas intermediate vision does not.
The left figure is recognized effortlessly and immediately as representing a face, as opposed to the jumbled face figure on the right. In this example the features comprising the face are highly schematic. The eye/nose by themselves for example is crude representation of a real eye or nose. The figure on the right contains similar parts in a different spatial arrangement through visual perception.

**Visual Pathways**

Visual Information processing begins when light stimulates photoreceptors (rods and cones) on the retina. Activities from the photoreceptors is then integrated in bi-polar and ganglion cells (Carlo part of the retina) from which make up the optic nerve. The optic nerve transmits activity to a number of different areas in the brain, but the best majority of its projections are to the lateral denticulate nucleus (LGN) of the thalamus, the brains major hub for distributing incoming sensory information. From their activity that started in the eye is transmitted to the primary visual cortex of the occipital lobe an area known as VI. (Located at the back of the head and named VI because it is the first cortical station for visual processing information related to form color, and motion. Although complexity of the neural (The ‘What’ system) areas underlying vision can be over-whelming, neuroscience now believe that these areas are organized into two anatomically district pathways each of pattern-recognition, the identification of ‘what; and ‘where’ are pathway starts in VI and then projects forward into the ventral (lower portions) of the temporal lobe known as the occipital temporal pathway, the ventral stream or more neurotically the ‘what; system this pathway is specialized for the identification of objects.
Conceptual Frame Work

Pure Vision

- The visual world what we see at any given movements is in general a fully elaborated representation of a visual seen.

- Tsotsos (1987) says, the goal of an image-understanding system is to transformation of two-dimensional data into a description of the three dimensional spatiotemporal world.

- Aloimonous and Rosenfeld (1991) note this characterization with approval, adding, Regarding the central goal of vision as scene recovery makes sense.

- Hierarchical processing signal elaboration proceeds form the various retinal stages, thence to higher and higher cortical processing stages. Pattern recognition occurs at that stage.

- Dependency relation: Higher level in the processing hierarchy depend on lower levels, but not, in general, vice versa.

- Yuille and Wilman (1990) says that the early vision involves determining what is an edge, what correspondences between right and what left images are suitable for stereo, principles creatures are implied by shading profiles and where there is movement.

Interactive Vision

Interactive vision includes vision with other sensory systems as partners in helping to guide actions. There are seven prospectus are interlinked in interactive vision.

- Evolution of perceptual system
- Visual semiworlds.
- Interactive vision and predictive visual learning
- Motor system and visual system
- Not a good-old-fashioned Hierarchy recognition.
- Memory and vision and
- Pragmatics of research.
Nevertheless, if the visual system is intimately and multifariously integrated with other functions, including motor control, approaching vision from the perspective of sensory motor representation and computations may be strategically unavailable. Pure blood/pure digestion, pure air, pure water the study of 'pure vision' may take us only so far. The visual environment functions as a sort of outside memory store.

Stages of Visual Perception and Attention

A model of the stage of visual perception and attention. Initially some basic properties of a visual scene (color, orientation, size and distance) are encoded in separate, parallel pathways that generate feature map. These maps are integrated into a master map. Focused attention then draws on the information from the master map to analyzed in detail the features associated it a selected region of the image.

Figure 3.21 Stages of Visual Perception and Attention

Visual Perceptual Weakness Associated with Reading Disabilities

Visual Perceptual Weakness

- Discriminating visual form
- Figure ground perception
Conceptual Frame Work

- Finding embedded figures
- Ability to reverse figure and ground
- Spatial adjust
- Spatial orientation
- Visual memory, visual imagery
- Time perception

Visual Perceptual Difficulties

Tarnopol of Tarnopol, 1977 stated that perceptual weakness the inefficient storage and recall of visual images seem to underlie in the 25% of children with language disabilities.

Visual Imagery

Teaching youngsters to mentally imagine the material they are studying has been very helpful in aiding language acquisition, reading comprehension and language of prose and word pairs (Ferro & Presselay, 1991).

Visual Perception

Visual perception is the process in which a person detects and gains meaning from visual material, the sequence in which visual –perceptual skills are acquired is important to appreciate because children with language disabilities who are maturing slowly in these areas tend to resolve their logs in a way that follows the normal continuum of adopt.

Smith (1991) knowledge of the order of visual perceptual development gives us many remedial hints-help discriminate verticals, perpendicular, up-down, and symmetrical figures before left-right reversal figures diagonals, or symmetrical figure draw attention to the border designs, and letter first hen to the internal elements and finally to both combined focus on 3 dimensional before 2 dimensional perception. Berk (1997) two months of age infants can discriminate colours, by three months in familiar faces, by four months simple shapes and by 6 months differences among sets having
difficult of objects. Akshoomoff of stiles (1995) by six years of age they orient
themselves to both the outer configuration and internal, which sharpens their letter
recognition and copying. (French & Rhoder 1992). Thinking means being able to find
that prior knowledge in memory when it is useful and integrate it with new information.
(Greeno 1989). The thinkers prepare to think, thinks, rethinks, checks, rechecks and
concludes. (Niedelman 1991). The teenage year the critical neured for improvement in
thinking skills. Already has passed, research on critical thinking and probleme solving
skills suggests that some students continue to be responsive to this types of instruction.

- A study of visual attention depicts a hypothesis for academic failure. The
European congress of behavioral optometry London in March 1997 by steven.J.
Ingersholl, O.D. in 1997 the study revealed the following.
- The recent development in the fields of optometry, neurobiology, psychology
education and medicine have shed new light in deficit disorder, attention,
hyperactive disorder, learning disabilities and dyslexia.
- The implication again is that the difference in metabolic function has structural or
anatomic origins.
- The underpinning soft the abnormal attentional distribution lie in delayed early
motoric development.
- There exists a one to one relationship between error and visual perceptive error. It
creates sensory incongruity between visual and tactile sensation.
- Due to the increasing age the overall synapse density namely visual, auditory and
tactile perception is increased gradually. But the visual is more than tactile and
auditory perception.
- At the same time the visual perception is low range than auditory and tactile
within below 10 years.
- The overall perception graph increased than visual, auditory and tactile
perception.
- Physical and cognitive development intersects within the visual system.
• Delays in development from the mentioned influences attentive field style and neuro muscular development is influenced the age.

• The visual cognitive competence has emerged will result in avoidance, adaptation and embedding of an inefficient learning strategies.

• An auditory driven processing style develops from inappropriate instruction task spelling, avoidance, continued demand, adaptation, drill and practice in embedded style took place to learning disability. Then the graph is grown up to top form movement touch, auditory verbal and visual scene.

• Many under achieving children compute or count up the basic maths fast, because the inappropriate instructional tasks in maths fact started from avoidance, continue demand, adaptation, computing drill and practice under embedded style in maths learning disability. The line grow from below level to higher level through movement touch, auditory verbal and visual.

• The children's delayed visual exploration that is less visually driven than the norm. Unreliable visual perception stands as an obstacle to visually driven exploration.

• The hyper active children are children who have not yet learned to explore their environment visually.

• Recent Functional Magnetic Resonance Imagery (FMRI) research has shown that individual with hyperactivity and attention problem have metabolism differences in the areas of the brain responsible for visual thinking.

• The multi-disciplinary collaborative effort of chuck stock well (edn) Bruce Christenson O.D., Mark noss O.D, Paul gammage od. George Zayed (Psy) Henry wood worth (Psychomatry) resulted in the body of diagnostic and treatment techniques that use refer to as Integrated Visual Learning (IVL). It is an extension of the concepts and procedures of behavioural optometry into the field of education.
• IVL is one of the best vision therapy for underachievers. It involved normalize
coulometer dysfunction, improve visual thinking skills and retrain cognitive
habits, especially as they apply to academic tasks.

• Smart Reading program is based on the central role of visual cognitive function
found in successful readers.

• Wernicke Geschwind (W-G) model exemplified to parietal lobe, and the pre-
frental cortex. Poor readers are highly active in Broca's areas and show low
activation in Wernikes and pre-frontal cortex while successful readers are highly
activated in Wernickes.

Visual Region of the Human Brain

The location of other human extratriate visual regions in which feature or object
selective modulations have been reported. In all cases the modulation consists of an rebut
enhance one for test task above that for the control task, matched for visual stimulations
for arousal.

Figure 3.22 Visual Region of the Human Brain

Visual attention deficits: a hypothesis for academic failure Steven J. Ingersoll, O.D.
Recent developments in the fields of optometry, neurobiology, psychology, education and medicine have shed new light on the etiology of a number of loosely used “diagnoses”. In particular, to Attention Deficit Disorder (ADD), Attention Deficit Hyperactive Disorder (ADHD), Learning Disabilities and Dyslexia. These abbe’s refer put what gave jostprocally been described as conditions involving “soft” neurological deficits. More precisely, the behavioral and cognitive characteristics of affected individuals seemed to point to some presumed but undefined organic, structural or biochemical dysfunction in central or peripheral neuronal function. Improved metabolic imaging techniques have confirmed a marked difference in CNS metabolic and electrical activity in therefore mentioned groups. The implication against is that the differences in metabolic function has structural or anatomic origins.

Coulometer development is part of a large sequence of general motor development. Attention development occurs in characteristic sequences as well. Studies of relative synapse density changes in various brain regions suggest a timetable of attention development depicted by the following diagram.

**Figure 3.23 The Relative Synapse Density Changes in Various Brain Regions**
Individuals with hyperactive and attention problems show less than normality in the visual thinking area (prefrontal cortex). We believe that by teaching these individuals to "do their touching visually" a change in behavior and brain metabolism results. The observed brain metabolism is a function of attention habits not brain structure. We often hear that different brain metabolism is the cause of ADHD behaviors. Different brain metabolism reflects the fact that the ADHD child is not engaged in the same neural activity as the normally behaving counterpart. The different brain metabolism is an outcome of different cognitive activity. We do not conclude that sweating causes running because we consistently observe moisture on the skin of runners. Why then would we conclude that the observed differences in neuro-metabolic activity cause children to move too much? ADHD children do not have abnormal brains; rather they are using their brain abnormally.

**Figure 3.24 Using the Brain Abnormally by ADHD Children**

**Persistence of Attention Field Deflections**

Although AFDs arise as a result of inadequate development the commonly persist as habitual cognitive pattern long after physical development has reached normal levels. Therefore, treating the underlying cause (Coulometer dysfunction), essential as it is, does not complete the remedial effort. A change in cognitive and attention habits must be effected to successfully deal with presenting symptoms.
Integrated Visual Learning (IVL)

The multi-disciplinary collaborative effort of Chuck tock well (Education, Bruce christense, O.D. Mark Noss, O.D. Paul Gamage, O.D. George Zayed, RTC (Psychology, Henry Woodworth, M.D. (Psychiatry) resulted in the body of diagnostic an treatment techniques that we refer to as Integrated Visual Learning. IVL is an extension of the concept sand procedures of behavioural optometry into the field of education, IVL seeks to change the student's learning style. Most unsuccessful students fail due to deflected learning strategies as opposed to lack of intellectual potential. These children need to learn how to learn. IVL treatment involves at three phase process: normalize oculomotor dysfunction, improve visual thinking skills and retain cognitive habits, especially as they apply to academic tasks. Oculomotor Skill building is crucial to normalize the accuracy of incoming visual information. Clearly the task of developing visual attention, visual discrimination and visual thing is blocked by visual perceptive error secondary to oculomotor dysfunction. Visual thinking skill development is the second phase of IVL treatment. Visual must be mastered as a tool for exploring real space before it can be used to process written language that represents real space. Cognitive retraining constitutes the final and most fruitful phase of IVL treatment. Normalized visual motor and visual cognitive function does not always translate it academic success. Many children persist in deflected non-visual learning strategies even after visual competence emerges through maturation and/or treatment. The most important component of this final phase of IVL treatment involves our uniquely reading program.

Our smart Reading Program is based on the central role of visual cognitive function found in successful readers. Recent neurometabolic research shows that successful readers and unsuccessful readers differ metabolically in Broca's area of the temporal lobe, Wernicke's area of the parietal lobe and the pre-frontal cortex. the following image the relevant anatomy. Sensory processing transitions form tactile (cudding) to auditory/verbal (language acquisition), to visual dominance in early development. There exists a relationship between attention progressions and motor development. The following diagram illustrates the relationship.
Visual dominance emerges once oculomotor competence is present. Physical and cognitive development intersects within the visual system. Abnormalies of development including time / delays form wide array for environment, genetic, nutritional, psychological and experiential present obstacles to the emergence of visual cognitive dominance. The following diagram depicts this concept.

Figure 3.26 Obstacles to the Emergence of Visual Cognitive Dominance
Delays in development from the above mentioned influences serve to defect learning and attention styles. The resultant anomalies of attention and learning styles as Attention Field Deflections (AFD). The following diagrams depict several common AFDs. Poor readers are highly active in Broca's area and show low activation in Wernicke's and pre-frontal cortex, while successful readers are highly activated in Wernicke's and pre-frontal cortex and minimally active in Broca's area. Pre-frontal cortex (PFC) activation correlates with the creation of imagery, Wernicke's with word recognition and Broca's with verbalization.

Historically, the accepted model of cognitive activity during the reading process is called the Wernicke-Geschwind (W-G) modal. The W-G model states that primary sensory input from areas 17, 18 and 18 of the visual cortex and/or areas 41 and 42 for the auditory cortex in the temporal lobe is conveyed to the associative area of the angular gyrus and subsequently to Wernicke's area where meaning is attached. The arcuate fascicules conducts information to Broca's for motor execution of speech. This process is depicted in the following diagram.
More recently, neuro-metabolic research has called to question the belief that decoding is central to successful reading. The research of Shaywitz cited above as well as scuffle beam supports the hypothesis that meaning and imagery occurs with pre-frontal cortical activation and word meaning is derived with little activation in Broca’s area among successful readers. This is, of course, consistent with the observation of struggling students. They spend an inordinate amount of efforts in decoding (Broca’s) while their successful counter-parts simply recognize words “by the look of them” (Wernicke’s) allowing more attention for the creation of imagery (PFC). These findings support the idea that most reading disability is caused by an attention field deflection, the etiology of which is depicted in the following diagram.
Etiology of Phonetic Spelling

Introduction of written language before visual cognitive competence has emerged will result in avoidance adaptation and embedding of an inefficient learning strategy. In the above example an auditory driven processing style develops.

Figure 3.28 Etiology of Phonetic Spelling

Etiology of Math Disability

Many underachieving children compute or count up the basic math facts. A much more efficient method of processing or remembering math facts is to use visual memory. Those who are successful in this skill, remember “the look” of the equations. Is not visual memory the strategy that you use to know the single digit math facts? The etiology of the computation learning habit is an example of an Attention Field Deflection (AFD) arising form mistiming of the introduction of the task relative to the child’s state of visual cognitive competence.
Smart Reading

The central strategy of our Smart Reading program is to change emphasis from auditory (excessive decoding) to visual (word recognition and imagery).

Figure 3.30 Development of Visual Memory and Visualization Skills
Development of visual memory and visualization skills are best accomplished by introducing stimuli from concrete to abstract as is depicted in the object, picture, symbol, word sequence in the above figure.

**Figure 3.31 Delayed Visual Exploration**

The student is encouraged to create stories from input stimuli of increasingly complex stimuli. The output demand is likewise organized by complexity. The Big? Refers to the instructors responsibility to be cognizant of the processing style the student uses to create the story.
Approximately 75% of students requiring compensatory educational services have abnormal eye movement characteristics. Seven of ten adult illiterates show abnormal understand of recent studies relating substantial improvement in test scores utilizing the above mentioned treatment start. Abnormal attention distribution habits related to oculomotor inaccuracies seems to explain the observed symptomologies in many underachieving children and adults. This model for understanding the development of therefore mentioned symptomologies had led to some promising modifications and applications of optometric procedures, presented at the proceedings of the European Congress of Behavioural Optometry, London, England in March, 1997.
3.2 THINKING

Thinking is language or symbolic behavior, although all symbolic behavior is not thinking. Language is used in two ways – to communicate with other people and to talk to ourselves about places, happenings and events that may be absent in either present or to present is called as recall thinking. Thinking is the crown jewel of cognition. It is spectacularly brilliant, in some people, even sub lien among average folks and the fact that it happens at all one of the great wonders of our species. Thinking about thinking what some call meta-thinking may seen an insurmountable task, since it seems to engage all of the themes mentioned previously the detection of external energy, neuro-physiology perception, memory, language, imagery and the developing person. Thinking is a process by which a new mental represented is found through the transformation of information by complex interaction of the mental attributes for judging, abstracting, reasoning imagining and problem solving. (Leonard Talmy, 2001). Thinking is the form of information processing that goes on during the period between a stimulus event and the response to it. Thinking is the set of cognitive process that mediate or go between, stimulates and responses. The teacher and the taught make up the backbone of the teaching learning environment amidst a host of other contributing factors. In this step-up, a teacher should led the learners towards the development of knowledge, positive attitudes and vocational and relational skills. Thinking is the pivotal role in any action of the human being. Thinking is one of the best cognitive ability to human being. The powers of thinking and reasoning may thus be contributed to be essential tools for the welfare and meaningful existence of the individual as well a society.

- Thinking is a cognitive process like perceiving and remembering. It arises when we become confronted with perplexities or problems.
- Neil Botton (1972) sharp that “Thinking results when there is persistent effort to examine the evidence which supports any belief, solution or conclusion which is suggested of acceptance, together with implications and further conclusions of the evidence”. According to Ross, “Thinking is mental activity in its cognitive aspect or mental activity with regard to psychological objects”.

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Garrett says "Thinking is behaviour which often implicit and hidden and in which symbols (images, ideas, concepts) are ordinary employed."

According to Moshin (1976) thinking an implicit problem solving behaviour, "From the beginning till the end there is some problem around which the whole process of thinking resolves. There problems give birth to thinking and thinking helps in finding out their solutions."

According to Dewey (1973) thinking begins in a forked-road situation, a situation which present one with a problem or dilemma. For a situation to stimulate thinking there must be an obstacle in the way of goal directed activity.

**Imaginative Thinking**

It may range from the simple description of events that never occurred and places, people and thing that never existed is called imaginative thinking.

**Creative Thinking**

Creative Thinking means that the predictions and/or inferences for the individual are new, original, ingenious, unusual. The creative thinker is one who explores new areas and makes new observations, new predictions, new influences. (Charles E. Skinner, 2006).

**There are 5 Stages in Creative Thinking**

1. Preparation
2. Incubation
3. Illumination
4. Evaluation
5. Revision

Thinking consists of the cognitive rearrangement or manipulation of both information from the environment and the symbols stored in long-term memory. A symbol represents of stands for some event or item in the world. Thinking can also be considered a process that mediates or goes between, stimuli and responses.
3.2.1 Characteristics of Thinking

- Thinking is cognitive activities
- It is always directed towards achieving some purpose.
- In genuine thinking we can not let our thoughts wander aimlessly as happens in the case of day dreaming and fantasizing.
- Thinking is described as a problem solving behaviour. It is related only to the inner cognitive behaviour.
- There is mental exploration rather than motor exploration.
- Thinking is a symbolic activity. In thinking, a mental solution of the problem is carried out through some signs, symbols and mental images.
- Thinking can shift instantaneously over a span of time and space.

Thinking is Maintained in Two Category of Definitions (i) Problem solving behavior (C.Fantino) (ii) Internal representation of external events belonging to the past, present or future. Thinking may be defined as a pattern of behavior in which we make use of internal representation of things and events for the solution of some specific, purposeful problem.

3.2.2 Types of Thinking

- Perceptual or concrete thinking
- Conceptual or abstract thinking
- Reflective thinking
- Creative thinking
- Convergent thinking
- Divergent thinking
- Synthetic thinking
- Inverse thinking
• Converse thinking
• Symbolic thinking
• Productive thinking
• High order thinking and etc.

**Perceptual Thinking/Concrete Thinking**

This is the simplest form of thinking, the basis of this type of thinking is perception i.e. interpretation of sensation according to one's experience. It is also called concrete thinking as it is carried out on the perception of actual or concrete objects and events.

**Conceptual /Abstract Thinking**

Unlike perceptual thinking its does not require the perception of actual objects or events. It is an abstract thinking where one makes use of concepts, the generalized ideas and language. It is regarded as being superior to perceptual thinking as it economizes efforts in understanding and problem solving.

**Reflective Thinking**

This is a somewhat other form of thinking. It can be distinguished form simple thinking in the following ways.

- It aims at solving complex rather than simple problems.
- It required reorganization of all the relevant experiences and the finding of new ways of reaching to a situation or of removing an obstacle instead of a simple association of experience of ideas.
- Mental activity in reflective thinking does not involve the mechanical trial and error type of efforts. There is an insightful cognitive approach in reflective thinking.
- It takes all the relevant facts arranged in a logical order into a account in order to arrive at a solution of the problem in hand.
Creative Thinking

This type of thinking is chiefly aimed at creating something new. It looks for new relationships and associations to describe and interpret the nature of things, events and situations. It is not prescribed by any pre-established rules. The individual himself usually formulates the problem and is also free to collect the evidences for its solution. The thinking of scientists' inventories is an example of creative thinking.

Non-directed or Associative Thinking

Non-directed thinking in which pertains to reasoning and problem solving procedures aimed at meeting specific goals. However there are times when we find ourselves engaged in a unique type of thinking which is non-directed and without goal.

Convergent Thinking and Divergent Thinking

Thinking that is directed toward on correct solution to a problem is convergent thinking. Guilford (1967) a problem requiring convergent thinking ask only one or a various solution for example a math problem problems that have no single correct solution and that require a flexible, inventive approach.

Thinking that is directed towards various solution to a problem is divergent thinking. For example how many unusual uses can you think of for an ordinary object like a brick.

Figure 3.33 Illustration of Convergent and Divergent Thinking
Synthetic Thinking

Thinking is incredibly compulsory and produced by an artificial one.

Inverse Thinking

Thinking is behavior which is often implicit and reverse of the mental process or the contrary mental activity called inverse thinking.

Converse Thinking

In which behavior or an activity which consists essentially of connected flow of the ida sby counterpart of conversely called converse thinking.

Symbolic Thinking

Thinking that meet the criteria of originality, inventiveness as well as symbols or signs of the mental process called symbolic thinking.

Productive Thinking

In which mental process are something produced by nature. For example: when a violent brightening and thundering occurred, immediately the human beings are shut their eyes and ears.

High Order Thinking

Those thinking is behavior which is cognitive aspects or mental activity at higher hierarchy level.

3.3 THINKING SKILLS

Thinking skills is important to recognize at least three things

- Thinking skills are not learned as an automatic outcome of instruction that emphasizes subject matter learning.
- Without thinking skill nothing is learned to any degree of proficiency as a result of only a single lesson or bit of instruction in that skill.
- Students rarely transfer thinking skills on their own beyond the context or setting in which they are originally encountered.
Thinking Skills Involves

- Observing
- Describing
- Developing Concepts
- Interpreting Concepts
- Differentiating and Defining
- Questioning
- Hypothesizing
- Comparing & Contrasting
- Evaluating
- Testing and Making Judgment
- Forming Supportive Arguments
- Persuading
- Generating New Ideas
- Transforming / Recombining Old and New Ideas
- Deciding How to Go about Remembering
- Deciding Time Managements

3.3.1 Thinking Skill is One of the Cognitive Ability

Thinking is an incredibly complex process and the most difficult concept in psychology to define or explain.

- Valentine (1965) stated that thinking for an activity which consists essentially of a connected flow of ideas which are directed towards some end or purpose.
- Ross (1951) stated that it is mental activity in its cognitive aspect or mental activity with regard to psychological objects
- Garret (1968) thinking is behavior which is often implicit and hidden and in which symbols (images, ideas, concepts) are ordinarily employed
- Mohsin (1967) thinking is an implicit problem solving behaviour.
- Gilmer (1970) thinking is a problem solving process in which we use ideas or symbols in place of overt activity.
Conceptual Frame Work

- French & Rhoder (1992). Thinking means being able ‘to find’ that prior knowledge in memory when it is useful and integrate it with new information.
- Niedelman (1991) the teenage years the critical period for improvement in thinking skills already has passed, research on critical thinking and problem solving skills suggests that some students continue to be responsible to this type of instruction.

3.3.2 Definition of Thinking Skill

Thinking skills are context-free, open ended cognitive process that allow student to transform information in a strategic manner, developing the following skills (Anderson and Winston, 1977)

- Critical thinking
- LSRW
- Locating, gathering, organizing, interpreting, evaluating and information
- Interpreting graphic materials
- Developing a sense of time, place and space, location, features
- Developing inter-personal skills

Furthermore, these skills, all involving complicated thought process; require that students develop and practice the skills of interpretation, comparison, classification, generalization and inference Analysis, synthesis, hypothesis, perdition and evolution (Beyer, 1987).

Thinking skills are an issue of major concern to educators in our country and around the world perhaps in response to the long-standing emphasis on basic skills, the need for people to cope with technological change, the increasing information orientation of our society, and the world’s ever expanding body of knowledge (Beyer – 1984; Link 1985; Costa 1985).
Thinking is a complete act composed of attitudes, knowledge, and skills by which the individual can relate and also shape the environment more effectively than intuition alone would allow.

Kanchak and Egem (1993) define skills as Cognitive strategies that allow us to process information in some useful fashion. The strategies are free to context and content; they can be generalized across a broad span of situations. Skills are functional; they provide the means to complete some kind of task.

3.3.3 Types of Thinking Skills

- Perceptual / Concrete Thinking Skill
- Abstract / Conceptual Thinking Skill
- Logical / Reflective Thinking Skill
- Creative Thinking Skill
- Associative Thinking Skills
- Inductive Thinking Skill
- Deductive Thinking Skill
- Critical Thinking Skills

Perceptual Thinking Skills

Perception is the basis of this type of thinking where perception is defined as the process of interpretation of sensation according to one's experience. It is also known as concrete thinking skill since it is carried over the perception of actual or concrete objects or events. This kind of thinking is less directed towards a goal or conclusion and most affected by the environment. The student shows a photograph of a sun spot and may 'think' sun or spot. This is not higher level thinking, but it does not involve selection of certain items from many presented.

Abstract Thinking Skill

Abstract thinking skill is nothing but, one make use of the concepts and does two recurred the perception of actual objects or events. It is considered as the supervisor type
Conceptual Framework

of thinking as it economizes effort in understanding and helps much in discovery and invention.

Logical Thinking Skill

This type of thinking skill has a definite purpose or end and it is considered as higher than the above two types.

Creative Thinking Skill

This type of thinking is in search of new relationships and avocations to describe and interpret the nature of thing, events, and situation. It is chiefly aimed to create something new. It is not bounded by any pre-established rules.

Associative Thinking Skills

This occurs when an object or idea triggers the memory to link to it objects and ideas. Sun may simulate the student to think of summer or base ball. Such thinking is not directed consciously towards, a goal but is influenced by the student's memories of past experiences and dominant interests at the moment.

Inductive and Deductive Thinking Skills

This thinking occurs when a student tests out an idea either by checking to discover if examples 'fit' a given rule or principle (deductive) or to discover the principle by an experiment (inductive) both are goal-directed and may be define din terms of the six stages.

Problem Solving

This type of the thinking it best defined in term of sixth stages. The student

- Senses a problem
- Defines it
- Gathering relevant data
- Forms hypotheses
- Critiques the hypotheses and
- Tests out the best ones.
Meta Cognitive Knowledge

Thinking skills also require metacognitive knowledge. Metacognition is individual’s awareness of their own thinking. Metacognition has also come to annotate the management of one’s own cognitive resources, the monitoring and evaluation of one’s intellectual performance. C. Nikerson, (1988) Pressensen (1987) suggested that the emphasis on metacognition is what sets the present thinking skills movement apart from previous efforts.

Constructive Thinking Skills

Constructive thinking skill is nothing but contributes to the effective management of change and adversity. It is an important component of effective problem solving. It contributes to positive self-esteem and resilience whereas destructive through erodes the self-concept and makes the person more vulnerable to change and adversity (V.K. Nanda, 1998).

Productive Thinking Skill

Productive thinking skill is a complex processes which require direct attention in and of themselves. They are not just the additive and products of simpler cognitive processes. It is not simply trainable and based on the assumption that the marked individual differences found at all ages in ability to think and solve problems to the successful promotion in the upper elementary grades.

Master Thinking Skill

The ability of the individuals to manage all these diverse and disparate requirements in the problem-solving process has been termed the master thinking skill. This is a meta skill which enables the effective co-ordination integration, and utilisation of the many specific skills. Thinking represents the most complex form of human behaviour. It is the highest form of mental activity (Mischel. W, 1981).

Thinking is a complex mental activity initiated by a problem, and goes through a sequence of mental steps involving judgments, obstruct inference, reasoning, imagining and remembering. Thinking skills are nothing but the set of basic and advanced skills and
sub skills that govern a person's mental processes. These skills consist of knowledge, disposition cognitive and metacognitive operation. Thacker operation lists twelve recommended teacher behaviors all of which will be familiar to good teachers for fostering a climate conducive to the development of thinking skills.

- Settling ground rules well in advance
- Providing well-planned activities
- Showing respect for each student
- Providing no threatening activities
- Being flexible
- Accepting individual differences
- Exhibit a positive attitude
- Modeling thinking skills
- Acknowledging every response
- Allowing students to be achieve participants
- Creating experiences that will ensure success at least part of the time of reach student.
- Using a wide variety of teaching modalities.

Thinking represents the most complex form of human behavior. It is the highest form of mental activity. David T. Shaffer (1998) defined thinking is a complex mental activity initiated by a problem and goes through a sequence of mental steps involving judgment, obstruction inference, reasoning, imagining and remembering

Other Types of Thinking Skills

- Convergent Thinking skills
- Divergent Thinking Skills
- Creative Thinking Skills
- Synthetic Thinking Skills
- Inverse Thinking Skills
- Converse Thinking Skills
- Symbolic Thinking Skills
- Productive thinking skills
- Higher Order thinking skills
Convergent Thinking Skills

Thinking a skill that is directed toward one correct solution to a problem. A problem requiring convergent thinking has only one or a very few solutions.

Divergent Thinking Skills

Thinking skills that meet the criteria of originality, inventiveness and flexibility.

Thinking Skills

For Kathleen Cotton (1991) thinking skills are viewed as crucial for educated persons to cope with a rapidly changing world. For Beyth – Maron et.al. (1987) thinking skills are necessary tools in a society characterized by rapid change. Many alternative actions, and numerous individual and collective choices and decisions are also available in developing thinking skills.

Creative Thinking Skills

The process of determining the authenticity, accuracy, or value of something, characterized by the ability to seek reasons and alternatives perceive the total situation and change one’s view asked on evidence, also called logical or analytical thinking. Creative thinking is characterized by four components fluency, flexibility, originality and elaboration.

Synthetic Thinking Skills

Those mental opinion or consideration in artificial ideas are called synthetic thinking skills.

Inverse Thinking Skill

It is the process of thinking where are reversed mental process are manipulating information either collected or explicit or implicit memory.

Converse Thinking Skills

It is the process of thinking contrary or opposite or counterpart mental process involved in manipulating information either collected or semantic memory, episodic memory implicit memory or explicit memory.
Symbolic Thinking Skills

It is the process of thinking completed and involved in manipulating information from representation by signs and symbols.

Productive Thinking Skills

It is the process of thinking about something produced by nature only.

Higher Order Thinking Skills (HOTS)

HOTs is a computer laboratory program for the student. It uses readily available computer software in concert with specific teaching process to enhance skills in metacognition, inferencing and decontextualization (Pogrow and Baum, 1990).

Various Type of Thinking Skills

- Integrating the teaching of thinking skills with subject matter teaching leads to improved student thinking and more meaningful content learning.
- Most teachers want their student to be more skillful at thinking than the student seem to be if left on their own.
- Most teachers or teachers to be have received precious little per-service training or instruction in how to teach thinking skills to any degree of proficiency using instructional and assessment strategies based on the latest research and theory.

Wertheimer argues that many are of the opinion that men do not like to think; that they will do much to avoid it that they prefer to repeat instead. But in spite of many factors that are inimical to real think that suffocate it, here and there it emerges and flourishes and often one gets the strong impression that men, even children long for it.

Devine finds that thinking seems to include six general stages or steps.
- The student's environment some how stimulates mental activity, objects or person in the environment, perception, memories, his or her physical or emotional state, or combinations of these create tensions and stimulate thinking.
• Some direction for the thinking is established. From all possible direction for another, begins to thinking in one way neglecting alternatives.

• Parker offered suggestions to teachers for developing specific thinking skills.

• Get students to define the problem clearly

• Aid them to keep the problem in mind.

• Get them to make many suggestions by encouraging them

• Get them to evaluate each suggestions carefully by encouraging them

• Get them to organize the material by proceeding.

Russell pointed out, that thinking is an omnibus term. “When a philosopher is philosophizing, a poet contriving a sonnet, a house wife balancing a budget, a child painting a picture of a bus, an infant using for his cereal – in all these activities some sort of thinking is taking place”.

Ingram and Warrall (1993) are critical of the fact that think skills are not prompted in large numbers of classrooms, which are still run along traditional lines, where the teacher does most of the learning, in term of hunting out information books, preparation reading, thinking through and reflecting on how best to transmit and organize the children’s experiences and knowledge all skills that children are themselves capable of learning and applying.

3.3.4 Thinking Skills Programmes

The following programmes are cited here because they are widely known and used, are representative of the kinds of thinking skills programs

CSMP - Comprehensive School Mathematics Programme
CORT - Cognitive Research Trust
HOTS - Higher Order Thinking Skills
ICE - Institute for Creative Education
IE - Instrumental Enrichment

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3.4 PERCEPTUAL THINKING

Perceptual thinking is an intellectual process by which a person acquires the information from the environment and organize it to obtain the meaning and the process by which people organize, interpret, experience, process and use stimulus materials in the environment so that they satisfy their needs.

Figure 3.34 Perceptual Thinking Process

How do develop perceptual skills?

- Avoid perceptual distortion
- Make accurate self-perception
- Put yourself in another person’s place
- Create good impression about yourself.

3.4.1 Perceptual Thinking Skills

The physical senses vision, hearing, touch, smell and taste are different forms of perception. Perceptual thinking

Advantages

- Visual perception in one of the best tool for student achievement why because

  “Thousand time reading is better than one picture” – Chinese proverb.
Those who wish to sharpen visual perception, they should be capable of high achievement.

Hearing perception is also most important tool of student achievement. Rhythmic poems are stored in our mind. e.g. Hermits’s pooja slogans sagasra namas, lakharchana, Asta pooja.

Smelling perception is most important tool for academic achievement especially ie. Chemistry student – practical chemistry, Home Science student cooking practical.

### 3.4.2 Visual Perception

Visual perception is the process whereby a person detects and gains meaning from visual material. Visual perception is important to appreciate because children with learning disabilities, who are maturing slowly in these means tend to resolve either lags in a way that follows the normal continuum of development.

Smith (1991) knowledge of the order of visual perceptual development give use many remedial hints, helps student discriminate vertical’s perpendicular up and down, and a symmetrical figures before left-right reversal figures diagonals, or symmetrical figures, draw attention to the borders of objects, designs and letters first then to the internal elements and finally to both combined focus on 3 dimensional 2 dimensional perception.

Berk (1997) two months of age infants can discriminate colors, by three months familiar and unfamiliar faces by four months simple shapes an day 6 months differences among sets having differing numbers of objects. Akshoonoff & Stiles (1995) By six years of age they orient the muscles to both the outer configuration and internal elements, which sharpens their letter recognition and copying.

*Symbols and sings* are thus with which the great game of thing is played it could not be such a remembered and successful game without them.

*Language* is the most efficient and developed vehicle used for carrying out the process of thinking. Reading and writing of documents and literature also help in stimulating and promoting the thinking process.
Muscle Activities: Thinking is one way or the other shows evidence of the involvement of some incipient movement of groups of our muscles.

Brain Functions: The mental pictures or images can be stored, formed, reconstructed or put to use only on being processed by the brain.

Set: The sets induced in our process of thinking. The persons think are influenced and circumscribed by this previous experiences, habits, interest and attitudes.

Perception is based on attention. But attention is a complex adjustment of the organism preparatory to receiving and to receiving and to reacting to stimuli of a certain class. Paying attention is not merely getting ready to hear, see, smell or feel something it also involves the getting ready to react to these stimuli as rapidly and as efficiently as possible. Concentration is one of the most important tools for perception and the habit of attention. The muscles involves are of course chiefly the muscles of the eye, the muscles involved in writing and sometimes the muscles used in speaking.

3.5 GEOGRAPHY TEACHING

Most research suggests that teacher behaviour toward high and low achieving student differs more in the quality than the quantity of interaction (Alues & Gottlieb, 1986). When frequency of interaction does differ, it usually favors the high achievers (Brophy, 1982). Higher achieving students are more active participants in the classroom and receive more positive teacher contact and feedback. Teachers smile, nod, maintain eye contacts, call on, give feedback and lean forward the pupils more often when they are told that he or she is high than low achievers.

Geography is concerned with five central themes like location, place, relationship within place, movement and region. Location describes the positions of people and place on the surface of the earth. Place refers to the physical characteristics of places of earth. Relation within places refers to cultural and physical relationship of human settlement. Geography is an old as well as a new science. Civilization is geographic, world events are tied to specific places on the globe. Geography is the study and interpretation of the distribution of the physical and cultural features on the surface of the earth.
Modern geography is partly physical and partly social science. It seeks, among other things to relate facts of the natural environments to facts and problems of the socio-economic environment. In this respect geography is one of the few sciences that attempts to bridge the apparently widening gap between the physical and the social sciences. Its position, although a difficult one is of rapidly increasing importance in the modern world.

Geographical facts influence various developments of the society social, economical, cultural, moral religions etc. ways of living are very much determined by the geography of a region. Knowledge of geography enables us to have an idea of the ways of living of the people of a country. Geography influences human character indirectly and social institutions influence people directly. Geography also studies population distribution, environment and boundaries, which are concerned with social studies also.

3.5.1 Some Top Requirements in Geography Teaching

- Geography teaching is as much about passion as it is about reasons, facts, cause and effect
- Consuming of knowledge
- Bridging the gap between theory and practice
- The creative balance between being an authoritarian dictator on one hand and a pusher on the other.

3.5.2 Seven Core Abilities of are Identified by the Teacher - Wisconsin in USA.

- Working productivity
- Learning effectively construction clearly
- Working co-operatively
- Acting responsibility
- Valuing self positively
- Thinking critically and
- Creatively.
Geography is a challenging subject. There are many reasons for this, not least it involves the study of multivariate environment interactions which are by definition complex. Challenges Facing Geography Teachers Could be Reduced to Four Broad Areas

- What to teach? – The curriculum changes and the discipline itself continues, evolves as society changes.

- How to teach? – The strategies and techniques that are available and appropriate to organize and maximize pupil learning and these need careful selection.

- How to judge success? The effectiveness of teaching and the level of pupils achievements requires careful judgment, communication and interpretation.

Figure 3.35 Four Broad Areas of Challenges Facing Geography Teachers

Sensory Perceptual Thinking Enriches the Learning of Geographical Content among Students in the Following Ways:

- If the students learn through sensory perceptual thinking instead of learning by heart, they will not forget what they learn.
Conceptual Frame Work

- Learning by perceptive thinking give direct experience for instance if we go high; above certain height, we feel the atmosphere becomes cool. So we easily understand that the hill resorts are collar than plains (Miller & Miller, 1986).

- While gaining knowledge through vision, hearing, smelling, tasting and feeling self learning takes place which helps to retain the things in memory. The earth gets heat energy from the sun through concluding, conviction and radiation. In the same way with the co-ordination of multi-sensory organs, learning is reinforced and the learning concepts are registered in the mind very deeply.

- Imagination is the basic factor for perceptual thinking when the imagination is felt through mind, eyes and the movement of the body, the experiences of the perceptual thinking (the perceptual experiences) are registered in the sub conscious mind deeply.

- Illustration: The change of day and night is due to the rotation of the earth and the sun this concept is explained by demonstrating a boy as the sun and another boy as the earth rotate the boy as sun & make the student understand that they day time in India is nigh tin America with the above demonstration.

- The main factors for the registration. Visual sensory perception in mind are size consistency, shape consistency, colour consistency, figure and ground consistency and structural consistency

The above factors help to attain the geographical achievement by teaching geographical locations, division of stage, symbols, in map through geographical maps. The integrated learning of multi sensory organs lifts up the level of understanding the content. Sensory perception helps to symbolize learning one with the other. i.e. sensory perceptual thinking is shown by comparing the structure of coral with the calyx of jasmine. The shape of the Indian states in the map is compared with any relevant figures or shapes to simplify the comprehension. In the same way, if the districts of Tamil Nadu are also compared with similar shapes, that that the achievement level of the students would be enhanced.
Thinking process are well organized in the human being, totally they were collapse in any thing, any idea, and any action. A person under the influence of many delusions may think or believe that he is a millionaire, the ruler or a great inventor, a noted historian or even god. In the opposite case a person in the grip of delusion may be inclined to consider himself to be the most incapable unworthy and unwanted person and may develop quite feelings the most incapable, unworthy and unwanted person, that he is the victim of some incurable physical or mental disease. It can be defined as the impetus to do well related to some standard of excellence. A person with strong need achievement wants to be successful at some challenging task not for profit or status but merely for the sake of doing well.

McClelland found that too much pressure or tour much perceived pressure may result in low achievement, to her variables while are influential are sex of the child, size of the family and reoccupation of father, achievement depends upon culture (J.K. Pillai C., 1999).

Thinking skills should be taught using specific searching strategies designed for those thinking skills.

Thinking Process is a psychological and logical point of view and concludes, while the processes of thought are psychological and hence subject to psychological analysis, the product and the content of through must be assessed by logical criteria and evaluated by their rules of logic. Hilda Taba identifies three postulates about thinking: 1. Thinking can be taught. There is evidence for and against this postulate but we will not debate it here. 2. Thinking is an active transaction between the individual and data. 3. Process of thought evolve by a sequence that is lawful, she postulates that in order to master and this sequence can not be reversed this concept of lawful sequences can not be reversed.

Inductive Thinking Skills

Inductive thinking is nothing but it is the mingling of mental process are concept formation, specific concepts, attention to logic, sensitivity to language and also awareness of the nature of knowledge. Both of them instructional and nurturing effects inductive thinking model.
3.5.3 Specific Aims of Teaching in Relation to Geography

The aims of the Teaching in geography under the following:

- Geography develops the knowledge of international understanding. It makes us to learn that the regions of the world are interdependent.

- It develops knowledge about mental discipline the observer must have sufficient grounding in the techniques and methods of geographic study. It puts a man thinking on certain lines.

- Geography develops tolerance among the students. The best principle is unity in diversity.
Conceptual Framework

- It develops democratic thinking. It creates a strong desire among its students to serve the country.

Bining and Bining stated that "The point of view of the geography taught in the school today centers on the study of the relationship between man and his environment. The development of skills necessary to sound geographic thinking and needed for an understanding of social data should also play a part in the specific aims of geography".

It is not at all unreasonable to expect that those who are proposing to teach geography in school should first address themselves to three questions before they start. These are

- The nature of their subject
- The aim which they have in view
- How to set about their job.

They should be able to arrive at an answer backed by the considerable weight of competence authority, because these questions have been occupying the minds of the geographers and of teachers for the last half-century. Before 19th century the universities would gave none of it, apart from the quite considered the first to introduce geography in the university of Oxford in the reign of the first Elizabeth. Ritter, Humboldt and Von Richtofen were the outstanding person in geography and its teaching. Geography implies a compendious description of all the prominent conditions of the country.

The Aims of Geography Teaching

Useful knowledge the speed of events, the speed of travel, the obvious dependence of the nations upon each other—all these things make a study of geography useful if not quite essential. Useful knowledge which enables us to keep abreast of the times certainly has something positive to offer to education, but it is not enough. A knowledge of geography makes for better international understanding and good will amongst men, do not necessarily arise from constantly impressing these virtues upon the children in the school, they are inclined to be impatient of over much persuasion, and a teacher may well defeat his object by an excess of zeal.
**Conceptual Frame Work**

**Contribution to General Education**

There is no end to the list of things we are educating for and they all imply that the educative process is primarily concerned with the preparation of children for something which is to follow in the future.

- The teaching of geography is of great significance in the building of a nation mostly the geography focuses on the forces shaping society and places in proper perspective in the traditions people have adhered to.

- Every individual is a part of the community and it is not merely a history on geography or a civics or an economics that matters, but rather the man himself who influences and is influenced by his geography and his community.

- Geography teaching is the functional approach, which emphasizes, the adopt of certain basic understanding certain essential skills both intellectual and social, and certain desirable attitudes for improved social living in every child that studies the subject

**S - Social relationship and social efficiency is also result of Geography Teaching**

Objective attitude Citizenship training, constructive and critical thinking integrated knowledge, intelligent understanding adaptability, appreciation of others view point language

- Geography is based on sensitiveness to social issues environmental studies. It is considered an approach based upon the Child's investigation of his locality which leads to the progressive deposit of skills, concepts and attitude regard for the study of other environments in time and space.

- To develop the children’s learning level COL (Concrete Operation Level) & FOL (Formal Operation Level) Geography Teaching is essential.

**Sensitiveness to social issues**

**Tolerance**

**Unbiased attitude**

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Devotion to ideas
Inter relationships
Emotional balance
Self discipline
Social attitude.

- COL
- Concrete to abstract form known to unknown
- FOL
- Particular to general.

Skills

James high of the University of California has stated “A skill is where withdrawal to gain, an end in social studies, this is to learn to facts, generalizations and formulation of social relations.

Prof. Charles A. Beard has analyzed studies as under

- Skill in methods of obtaining access to informative
  - use for libraries and institution
  - use of encyclopedias hand books, documents, serves, authorities, statistical collections etc.
- Skill in the sifting of the materials and the discovery and determination of authentic evidence in the use of primary sources
- Skill in the observation and description of contemporary occurrences in the school of community.
- Skill in methods of handling information
  - In analysis-breaking down large themes or masses of data in to manageable units and penetrating to irreducible elements.
  - In synthesis-combining elements, drawing inference-logical and systematic organization
Conceptual Frame Work

- In map and chart making and graphic presentation skill in memorizing result of study with consciousness application to new situations by exact reference and analogy.
- Skill in scientific method-inquiring spirit, patient weighing evidence, tentative and precise conclusion.

3.5.4 Wight Principles for the Achievement of Skills

- The acquisition and improvement of skill learning activity must focus or skill development.
- To promote growth in skills must be geared to the maturation level of the learner.
- Reinforcement of learning is essential for the successful learning.

Objectives of Geography Teaching

- To acquire the knowledge (information of facts, terms, concepts, conventions, trends, principles, generalizations, assumptions, hypotheses, processes etc. in Geography teaching.
- To develop an understanding of facts, terms, concepts and conventions.
- To apply the acquired knowledge of social science of its understanding in unfamiliar situations.
- To acquire practical skills essential for the study of social science.
- To develop interest in the subject and problems related to social science and political life of the people of ones city with those of other cities.
- To develop desirable positive attitudes necessary for developing a broader outlook.
- To recall the facts, terms, concepts, principles and trends to recognize, read information from various data map, chart and graph.

3.5.5 Curriculum Approach in Geography

Geography in the middle school stage has to perform two distinct functions.
Conceptual Frame Work

1. Introduction of the students to geography as a school subjects so as to develop their interest and

2. Reinforcement of values, attitudes and general understanding that would promote the objectives of citizenship education.

At the middle school stage, the course would necessary be more descriptive and within the broad framework, would concentrate on imparting knowledge about India in the content of the world, which we have to share with other peoples, should being home to the pupils the independence of the various regions of the country and the world. They should begin to appreciate that it is only through sharing with others that the peoples of the world can really enjoy the blessings of the mother earth. Curriculum suggested by Ishwar Bhai patel committee (1977), General Geography of the world with special reference to India consist of the following;

1. Landforms – continents, mountains, plateaus, plains, landforms in India
2. Climate – climate zones, in the world and India
3. Natural regions of the world: Tropical, temperate, cold lands
4. National resources: Soil vegetation, animal’s minerals and water in world and India.
5. Major occupations: Primitive, pastoral, agriculture and industrial
6. Agriculture: Principal agricultural areas, scope and practices in India.
7. Minerals and Power: Major minerals and mining areas, water and nuclear power.
8. Industries: Important area and locations, heavy and light industries production and output.
12. Case studies: Life of the people in various part of the world and India.
Conceptual Frame Work

Geography at the lower primary stage may form a part of the composite area of instruction called environmental studies. Gradually the child's mental horizon is extended to the study of these features in relatively distant places starting from his/her village/town/taluk/union/district/state/country/continent/world at a large.

Objectives of Geography Teaching

- To promote an understanding of the different elements of the physical environment which, in fact, affect man's ways of living.
- To help the student realize that human of their environment, including gifts provided by nature to satisfy their needs.
- To help the student appreciate the role of man armed with science and technology in developing the natural resources for raising the standard of living of the people.
- To help the student realize that man's interaction with the environment has resulted in emotional degradation
- To help the student understand the variety of ways of living in different parts of the world and interdependence of regions.
- To develop an appreciation of the value of the co-operative effort at the local national and world levels for developmental activities.
- To help the pupil learn from the experiences of other peoples/nations and understand their relevance to India in developing its own resources.
- To acquaint the student with the political map of the world location of difficulties distribution of major resources and major economics products entering into internal trade.
- To develop an ability to use the tools of the geography such as maps, globes, charts.
- To acquaint the student with elementary methods of study used by geographers such as field study/project work.
Some of the core curricular areas as mentioned in POA (Programme of action) such as protection of environment, inculcating scientific temper and small family norm have been integrated it in the course content of geography at appropriate places. Roberts (1996) also suggests because it relates more to the researchers particular educational aims of philosophy. Roberts illustrates this point by quoting Renwick (1985) who suggests that the geography for the young school leaver projects. Naish et.al. (1987) The project envisaged a continuum of approach to teaching and language scope of effective balance of both teacher-directed work and more independent enquiry. Job (1996) suggests a variety of less structured fieldwork activities that can be used to encourage deeper thinking about landscape and environmental issues. Steering as starting points for fieldwork investigations raising pupils awareness of and environment based on their own personal experiences and perceptions. Whitaker (1995) who suggests that it

- Creates a climate in which pupils can work with a sense of security and self confidence.
- Facilitates the growth of understanding by offering the optimum opportunity for pupils to talk reflectively with each other
- Promotes a spirit of co-operation and natural respect.

Webb (1989) argues that high-attaining children gain both academically of socially form the opportunity to work with and tutor lower-achieving colleagues. To respond to their challenge the of New Castle introduced to help geography teachers designs activities rise levels of pupils achievement in geography (University of New Castle school education, 1995). David Leat defines the broad aims of the thinking through geography project as being - to devise adaptable strategies and curriculum materials that track geography lessons more stimulating and challenges.

3.5.6 Geography in the National Curriculum

Aims:

- To acquire a frame work of knowledge about locations and places that will help them to set local, national and international events within a geographical context, and that will support their developed of geographical understanding
• To understand some of the important characteristics of the physical systems—its landforms, weather and climate, hydrological and ecological systems and the interaction among those systems.

• To understand the significance of location and of distribution patterns in human activities and physical. How places are linked by movements of people, materials and information and by physical, economic social and political relationships and the interdependence of people, places and environment thought the world.

• To understand some of the relationships between people and environment's including both the influence of environmental conditions on human activities and varied ways in which societies with different technologies, economic systems and cultural values have perceived, used, altered and created particular environments.

• To develop a sense of feeling for place and what is to be liked to live there.

• Acquire knowledge and understanding about the physical and human processes that being about changes in place, space, and environments, and a critical appreciation of the consequences of those changes.

• To develop awareness and appreciation of the ethnic, cultural, economics and political diversity of human society and its geographical expression

• To acquire the knowledge and develop the skills and understand necessary to identify and investigate important cultural, social and political issues relating to place, space and environment, with sensitivity to the range of attitudes and values associated with such issues.

• To acquire techniques and develop skills and competencies necessary for geographical enquiry and of value for other purposes, especially the making and inter predation of maps, the use of information technology and the conduct of fieldwork and

• To develop intellectual and social skills, including the ability to obscene analyses and communicates.
Conceptual Frame Work

Geography is the range of intellectual skills and abilities that are acquired through use of its learning resources. Students-Teacher should develop competence in their intellectual skills.

- Assessing the merits of contrasting theories, explanations and policies
- Analyzing and problem – solving
- Decision making
- Critically judging and evaluating evidence
- Critically interpreting data and text
- Abstracting and synthesizing information
- Developing a reasoned argument
- Taking responsibility for their own learning and developing habits of reflection upon that learning.
- Planning, designing and executing a piece of reforms research or enquiry, including the production of a final report
- Undertaking effective field work (with due regard for safety and risk assessment.
- Working safely in a laboratory
- Preparing effective maps and diagrams using a range of appropriate technologies
- Employing a variety of survey and interpretation analysis and understanding of information from human world.
- Employing a variety of technical and laboratory based methods for collection, and analysis of spatial and environmental information.
- Combining and interpreting different types of geographical evidence
- Recognizing the moral and ethical issues involved in debates and enquiries.
Key Skills

Student – Teacher should enhance skills in the following area through geography teaching.

- Learning and Study
- Written Communication
- Verbal Presentation
- Numeric and Computation
- Spatial Awareness and Observation
- Field and Library Studies
- Information Technology (Spread, Database, Word Processing, E-mail, and www)
- Online Computer Technology

Personal Attributes and Social Skills

Geography fosters the development of a range of personal attributes that are important in the world.

- Motivation
- Ability to work autonomously and with others
- Self-awareness, self management
- Empathy of insight
- Intellectual integrity
- Auditory perception

Questioning is Another Vital

Power of teacher trainee. By asking questions and building on pupils response by the teacher in the classroom activities. Rovert and carter 1997 takes this idea further identifying a range of question types from closed recall question. Closed questions are very useful to check pupil’s ability to recall geographical terms and information.

Types of questions

- a data recall questions - to identify the remembering facts, information.
**Conceptual Frame Work**

- A naming questions - to name an event/process/ phenomenon without showing insight into how it is linked to other factors. What do we call this process of coastal deposition?
- An observation question - to describe what they see without attempting to explain. What happened when the soil dried?
- A control question - to modify pupils behavior.
- A pseudo-questions - to accept more than one clearly response but in fact he has clearly made up his mind? In this an integrated regularly network, them.....
- A speculative question – to speculate about the outcome of a hypothetical situation. Imagination a world without trees how would this affect our lives?
- A reasoning question - to give reasons why certain things do or do not happen. What motivates these people to live near a vollpao.

**Auditory and Visual Skill to Teach Geography**

**Card Sorting Activities**

Cards can be used effectively to support observational activities where pupils are identifying geographical terms.

**Card sorting activities merits**

- Quick and simple method
- Clear and focused task opportunities
- Flexible method for age and ability of the trainees
- To develop the skill of communication and co-operation
- To enable the student teacher contacts

**The curriculum Staircase of Geography**

William (1997) has represented these principles as a curriculum staircase. Pupil climbs this staircase as they move through the years of compulsory schooling. Each step will aim to build on what has been learned before and what will be learned on the next step.
Key Stages

- The emphasis on the study on places
- The attention given to location, spatial pattern and with the relationship between people and their environment
- The use of maps and the investigation of places and themes.
- That progression in geographical learning should involve the following.
  - An increase in the breadth of studies, there should be a gradual extension of content to involve different places, new landscapes, a variety of geographical conations and a range of human activities.
  - An increasing depth of study associated with pupils growing, capacity to deal with complexities abstraction. As pupils mature intellectually they are able to make sense of more complex situations, to cope with more demanding information, to take account of more intricate webs of inter-relationships and to undertake more complicated task.
  - An increase in the spatial scale of what is studied. The growth in pupils abilities to take account of greater complexities and to make use of general ideas enables them to undertake successful geographical studies of larger areas.
• To develop the cognitive abilities to the students.

• Increasing opportunity to examine social, economic, political and environmental issues.

Using Map and Atlases

Maps are one of the geographers most important tools, providing useful ways of storing and community information about people and places. If geography involves the study of the relationship between people and places then maps help geographers to present, describe and explain the spatial information, patterns and processes that they observe in the world around them. Weeding has classified the purposes of maps into four main functions

• Location, enabling the user to find a place.
• Route-displaying, allowing the user to get from A to B. (road atlas, underground map, street map).
• Storing and displaying information, allowing the user to isolate and sort information from a wide range of different items. (O.S. — ordance survey (foreign — UK map).
• Problem solving helping the user to solve problems by interpreting from the information provided.

Weather maps are called synoptic chart. A summary of the weather conditions being experienced in particular places at a particular point in time. It exemplified an indication of our atmospheric pressure, temperature, velocity of the wind, direction rain fall. The pupils are interpreted weather patterns.

Atlas

Wiegand (1996) reminds us that atlas maps only show a limited amount of information and that abstract thinking is often required in the interpretation problems that can be associated with the use of these maps including.

• Complex patterns of colours and
• A wide variety of type symbols faces and type styles
• High density of information which can make the maps difficult to read
Conceptual Frame Work

- The undercutting of map difficult to read
- The intercalating of map labels and labels with lines and colour
- Foreign place names that can be difficult to spell and pronounce
- The use of colours with ambiguous meaning green refers to vegetation red cultural features.

The following skill are developed for the student through atlases and map using

- Locational Skills - using the index and system of co-ordinates understanding latitude and longitude.
- Symbol skills – learning about the different uses of colour and point symbols, using the key to interpret symbols.
- Sense of scale – using scale to compare areas and to estimate distances.
- Interpretation of data – describing, retrieving, using and comparing information about places shown on the magic maps.

Electronic Atlas Currently available either on is or Cd-ROM. The multimedia versions of these atlases offer a vast amount of information in a range of formats including maps, text, statistics and both photos as well as video images. Electronic atlases are enhanced the students learning.

Using Images

- Aerial photographs image.
- Satellite images are the best learning tool for the pupils.

Figure 3.38 Using Images in Teaching Geography
Conceptual Frame Work

1. Where was this photograph taken?
2. What type of landscape does it show?
3. What is the climate like in this place?
4. What is being grown in this field?
5. What are they doing?

Photographs and Slides

- Photographs and slides are important sources of visual material their help geography achievement tot the students.
- The key role of that visual images play in helping pupils to acquire knowledge about and perceptions of people and places means that, as teachers, we need to give careful attention to the strategies we employ when using these images with pupils.
1. Mapping careful visual observations and verbal comments.
2. Acquiring information from a visual source.
3. Analyzing and evaluating information.
4. Relating one’s own views to the image.
5. Recognizing the value of different interpretation.
6. Producing a written oral interpretation of an image.
7. Empathizing with the people or situations portaged.
8. Forming links between photograph.

Models

- Models are a means of cognition.
- Models are representative for the original object which are more appropriate for learning about that object in someway.
- Models retain the main characteristics of the original.
- Models are specific to each original object.

Mass Media

- Robinson and Sert (1997) stated that the TV dominates the lives of many of our pupils, appearing to have an almost hypnotic power over some individuals. There is a real danger that it may also dominate our lessons.
TV resources help us to bring some reality into our classroom. The images that pupils see in video influence their perceptions of other cultural groups. Visual impression can become very strongly rooted and may need to be questioned if pupils are to go through school examination. They warned of these dangers when commenting on the effect of TV or geography evident in many pupils' answers.

**Figure 3.39 The Process of Image Creation of Viewer Coding**

Using Cartoons

Cartoons have become an increasingly used resource in geography teaching. Cartoons are flexible resources which like other visual material can be used in a wide variety of ways. Bill Marsden (1992) raised concerns that cartoons could become the 'new stereotyping' in geography. Comic type of cartoons are very useful for the pupils. Caricaturing is the art of pictorial ridicule which, through greatest exaggerations of human features into debased likenesses, implicitly dehumanized. A narrative talking head explained the points of geography content.

**CD ROMS**

**Internet**

**Geographical Software**

CD roms are interconnected to students thinking skills. It is flexible and it will support differentiation.
The NCET/GA Survey (1997) classified the geographical software reviewed into content rich, skills-based and simulation and modeling resources. Diana Freeman observes that although simulations do not necessarily require pupils to use higher level ICT skills (1997).

**Types of Geographical Software Content Rich Resources**

Image and information may be presented – an image bank with picture. Captions and a search mechanism – statistical data with an interrogation program with map presentation. An electronic book of images and explanation of different topics and places.

**Skill Based Resources**

Programs dealing directly with geographical skills such as

- Collecting and analyzing memory.
- Using data logging devices to collect local data.
- Global data collection from the satellite

Imaginary (from www, meteorological office)

Developing and using manual,

Mapping program

Geographic information system (GIS)

**Special Significance of Geography Teacher**

The teacher of geography deals with attitudes, ideals and appreciations to a large extent than is the case in other branches of study.

**Essentials of a Geography Teacher**

These may be categories as

1. Scholarship,
2. Professional training,
3. Personality,
4. Teaching skills,
5. Human relations.

**Scholarship Includes**

- Acquaintance with problems of present day life.
Conceptual Framework

- Background of a liberal education.
- Reader of magazines and newspapers.
- Sound knowledge of the subject taught.

Professional Training Incorporates

- Desire of improvement,
- Professional attitude,
- Reader of professional books,
- Reader of educational magazines,
- Sound professional training.

Personality has Three Aspects

- Physical aspects,
- Passive virtues,
- Executive abilities,
- Physical aspects these include,
- Personal appearance including.
  1. Dress,
  2. Carriage,
  3. Social expression,
  4. Mannerism and
  5. Personal cleanliness.
  a. Etiquette inducing good manners, observance of social forms, courtesy and refinement.
  - Voice, rich and mellow
  - Good language command including pronunciation, enunciation and grammar
  - Health
  b. Passive virtues
  - Enthusiasm
  - Fairness
  - Friendliness
  - Optimism
  - Patience
  - Self-control
  - Sincerity
  - Sympathy
  - Tact
  - Understanding
c. Executive abilities
   a. Adaptability
   b. Directive ability
   c. Initiative
   d. Organizing ability
   e. Resourcefulness
   f. Self-confidence
   g. Self-radiance

Teaching Skills
a. Skills of class management
b. Skills of communication
c. Skills of interaction
d. Skills of attitude, behavior
e. Skills of the use of teaching aids

3.5.7 Special Significance of Geography Teacher

The teacher of geography deals with attitudes, ideals and appreciations to a large extent than is the case in other branches of study.

Essentials of a Geography Teacher
1. Scholarship
2. Professional training
3. Personality
4. Teaching skills
5. Human relations

Scholarship Includes
- Acquaintance what problems of present day life
- Background of a liberal education
- Reader of magazines and newspapers
- Sound knowledge of the subject taught

Professional Training Incorporate the Following
- Desire of improvement
- Professional attitude
- Reader of professional books
Conceptual Frame Work

- Reader of educational magazines
- Sound professional training

**Personality it has Three Aspects**

- Physical Aspects
- Passive Virtues
- Executive Abilities
- Physical Aspects theses include
- Personal Appearance including
  1. dress
  2. carriage
  3. social expression
  4. mannerism and
  5. personal cleanliness

**Etiquette Inducing Good Manners, Observance of Social Forms, Courtesy and Refinement.**

- Voice, rich and mellow
- Good language command including pronunciations, enunciation and grammar
- Health

<table>
<thead>
<tr>
<th>Passive Virtues</th>
<th>Executive Abilities</th>
<th>Teaching Skills</th>
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<tr>
<td>- Enthusiasm</td>
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<td>- Understanding</td>
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Figure 3.40 The Role of Geography Teacher

**Role of Geography Teacher**

- **Determine Goals / Pattern of Work**
- **Plan for Activities and Assignments**
  - Produce student assignment guides and work materials
  - Implement work situation so that students
    - study
    - respond to
      - direction
      - guidance
      - teaching
    - evaluate their learning
- **Encourage Students to do work in areas that interest them**
- **Organise resources**
- **Evaluate students' achievement**

**Teacher as Manager**

**Special Qualities of Geography Teacher**

- Art of development of human resource
- Objectivity
- Deep knowledge
- Application of field study
- A well informer
- Widely traveled person
- Interpreter
- Technologist
- Communicator

*Conceptual Frame Work*
Special Qualities of Geography Teacher

- Personality/personal appearance. A good teacher have a good personal appearance
- Good physical health essential for efficient teaching.
- Clear and pleasant voice. It must neither be far low nor unnecessarily loud and shrill.
- Friendliness sympathy and understanding
- Honesty sincerity and impartiality Gandhiji had said, “Woe to the teacher who teaches one thing with the lips and carries another in the heart”.
- Sound mental health, stability and control over emotions
- A sense of humour with which he may use on his pupils in tense moments. On such occasions a good laugh will relax pent-up feelings and exhausted nerves and will thus a way for further actions and concentrated efforts to illustrative talent to draw sketches, outline maps, diagram and graph etc.
- Initiative and resourcefulness: A good teacher should be able to collect material and adopt his plans accordingly as the circumstance permit

Organizing and Directive Capacity

It should be able to prepare his plans into a workable form.

- Faith in his subject
- Mastery knowledge of the subject
- Handling the audio visual aids, computer and so on
- Up to date knowledge seeker. (B.D. Shaida and J.C. Sharma, 1992).

Teaching and learning are so intertwined in the present fast growing fields of education that besides teaching student, teacher himself needs learning in order to acquire latest knowledge and techniques of teaching so that they may effectively teach his student making them successful in their future life. A successful teacher believes that effectiveness of instruction can be increased by offering a variety of intellectual challenges to meet students needs. For this purpose the teacher utilizes various levels of
cognition; comprehension, knowledge, application, analysis, synthesis and evaluation (K. Mehrotra, 2005, David Lambert and David Balderston, 2003).

3.5.8 Role and Purpose, Philosophy of Geography

Walford (1991) stated that “In twenty years from now, will the subject have sorted itself out or committed suicide? It is a not untypical expression of the insecurity sometimes felt by geographers, geography has secured a place in the National Curriculum for England and Wales.

Objectives of Teaching Geography

- To gain a recent historical perspective on the evaluation of geography as a school subject
- To achieve insight into the professional debates concerning the nature of geography in the school curriculum.
- To gain an understanding of the significance and of what it means to be an advocate for geography and geography as a medium of education
- To consider and perhaps reconsidered; the aims of geography in education.
- To respond to a personal view on the direction geography.
- Should take in its development within the education system.
- To clarify can make towards the achievement of educational goals.

Characteristics of School Geography

Geography is the foundation subject in the national curriculum for 5 to 14 years olds that is key stage 1 to 3. The new national curriculum requirements show a clear expectation that pupils will be given the opportunity to develop their information technology skills through geography.

The Role of Geography in Education

Fargrieve (1926) stated that the function of geography in school is to train future citizens to imagine accurately the conditions of the great world stage and so to help them
to think sanely about political and social problems in the world around. School geography staped the development of students discipline and needs of pupils on other hand.

**Figure 3.41 Some field work approaches in Geography**

Field trips are an appreciation of a sense of place, a sense of wonder and a density to the environment

### 3.5.9 Geography in the National Curriculum

Prime Minister Margaret Thatcher coded that geography is the general knowledge subject, students have factorial grounding about the world in which they live (BD Shaida, J.C. Sharma, 1992).

**Values and Importance of Geography**

Geography is a very important and valuable discipline for any country. It helps in developing scientific temper, outlook and attitude without them; no country can make
any scientific as well as technological advancement. Geography is necessary because of its immense value in the student individual life as well as in society. The most importance of geography is understanding, skill and application of geographical principle and process. The values, importance application and advantages are discussed following.

Figure 3.42 Values of Geography

- **Intellectual Value**: The study of geography sharpens our intellect. It enhances our power of observations independent thinking, sell study and mature judgment. It inculcate a habit of analyzing and synthesizing various facts. Being a science it inculcates a scientific attitude among it students.

- **Utilitarian Value**: No subject can be compared with geography as far as its importance and utility in our day to day life. We are living in an age of information and scientific exploration.

- **Disciplinary Value**: It develops and contributes the method, the habits of truthfulness, sense of logical receiving creature and critical thinking. It trained the mind and develops the habit of spending disciplinary life and working with confidence.

- **Vocational Value**: Knowledge is for the sake of knowledge, which has, now become very obsolete. In the past perhaps acquiring knowledge for the sake or knowledge. These persons were highly respected not for their wealth or power but of their scholarships. In the modern times with mass education the above slogan no longer holds good. The
education administrators are now round to the idea that education should be job —
oriented. Besides teaching profession, a geographer, surveyor of India. Metrological
department, town, regional learning and also country planning officers. Cartographer,
field investigators of census department

**Economic Value:** The study of geography has a lot of economic values for its student. As student of geography it is exposed to have a comprehensive knowledge of the natural resources an the man power of the country. Geography teacher him how to make the best use of these resources for the maximum benefit of his country men. Geographer have more knowledge about agricultural crops, industries, exporting and importing commodities of our country as well as neighboring countries.

**Civic Value:** The study of geography make as man democratic in his thinking and in his working. He knows his country its natural resources and it people. A student of geography has a natural instinct of serving his country. His loves his country and his countrymen. It helps the student to become responsible citizens of their country as well as of the world.

**Social Value:** Geography and society have become two sides of a coin. Geography give impetus to the program of the society by its new ideas, thoughts, discoveries and invention.

**Moral and Cultural Value:** The natural environments affect not only the occupations of the people but also their culture like food, dress house type etc., It is also true that any plan aimed at the betterment of the people must take in to account not only the economic conditions of the people at their cultural pattern also. Thus geography plays a vital role in the development of cultural and civilization of any community. It teaches its student truthfulness and tries to inform them a sense of sympathy for others. It teaches him to be humble but firm. Thus it enhances the moral standard of this reader.

**Aesthetic Value:** Map drawing, map interpretations are important parts of the study of geography. In a map, neatness is as important as accuracy. A map should not only be accurate and meaningful, it must look beautiful and must appeal to the mind. Thus the study of geography develops the aesthetic taste of its readers. Geography deals with
nature and nature is beautiful. Thus the mental outlooks of geographers also become beautiful.

**Geography is the Queen of Sources**
- Geography embraces every fact on earth.
- Aspects of composition
- Occupation and history of the plant.

**Three Vital Variables of Geography**
- the extent to which legal structures enable or disable the subject within the future framework of the school curriculum
- The extent to which the teaching of the subject continues to capture the intensity of school students
- The extent to which the subject exhibits intellectual coherence and a persuasive rational within the shoal curriculum

**3.5.10 Features of Progression Implanting of Year 7-11.**
- Increasing the breadth of the study
- Increasing the depth of study
- Increasing the spatial scale of study
- Developing geographical skills
- Developing in enquiry skills and strategies
- Increasing opportunity to examine geographical issues and relevant attitudes and values.

**Teaching Skill in Geography**

G.C. Bhattacharya (1997) stated that a teaching skill though has been define differently by different exponents, specifies a group of teaching acts or behaviours intended to facilitate pupils learning directly or indirectly. According to Gage (1968) teaching skills represent an analysis of the teaching process in to relatively discreet
components that can be used in different combination in the continuous flow of the
teachers performance.

The Asian Institute for teacher education (1972) encompasses specifically those
activities of teaching that are especially effective in bringing about desired changes in
pupils where as Mcintyra and white (1971) tried to specify that teaching skill is a set of
related teaching behaviours which is specified types of classroom interaction situations
tend to facilitate the achievement of specified types of educational objectives.

Allen (1966) has pointed out that the identification and practice of teaching skills
will help teachers not only to become adopt in the skills themselves but also to improve
their general competencies as well. Even various models for integration of teaching skills
were found much effective and suitable by Bhattacharya (1975) and Das (1982) and
Singh (1982).

Skills and Competencies Required by Secondary School Teachers

Good practice in Education is essencial

- To encourage contact between students and faculty
- To develop reciprocity and co-operation among students
- To encourage active language
- To give prompt feedback
- To emphasizes time on task
- To communicates high expectation
- To repeat diverse talents of ways of learning.

Six Powerful Forces in Education

Activity, expectations, co-operation, interaction diversity and responsibility.

Principles of Good Practice

1. Encourage contact between students and faculty frequent contact in and doubt of
classes in the most factors in standard motivation of involvement.
2. Sharing own ideas and responding others reactions sharpens thinking and deepens understanding.

3. They must talk about what they are learning/write about it relate it to past experiences and apply it to their daily lives.

4. The student need chances to reflect on what they have learned (feedback)

5. Time plus energy equals language – effective time management.

6. expect more and our will get more high expectations for themselves and wake extra efforts.

The Top Ten Requirements of Good teaching

• Good teaching is a much about passion as it is about reason.

• Consuming of knowledge

• Bridging the gap between theory and practice

• Listening, questioning, being responsive and preferring

• Rigid with flexible, fluid, experimenting to react and adjust to changing circumstances.

• The creative balance between being an authoritarian dictator on the one hand of a pushier on the other.

• Entertaining the class room teaching (Orchestra).

• Geography teaching is about humor. So that the ice breaks and states learn in a more relaxed atmosphere. Where you like them are human with your own share of faults and shortcomings.

• Geography teaching is caring, nursing, developing minds of talents.

• Strong of visionally leadership. Mentoring between junior, senior faculty.

The ISTE – International Society for Technology Established the standards for Teachers demonstrate an ability to operate a compute system.
Conceptual Frame Work

- Evaluate of use computers and related technologies to support the instructional process.
- Explore evaluate to use technology based materials.
- Design of develop integrate teaching based instruction in the curriculum.
- Identify the resources, current application of ICT.

Core abilities are identified by the Moraine park technical college model in Wisconsin, USA to the teacher’s competencies. Working productivity, language effectively, conceptualizes clearly, working co-operatively, acting responsibly, valuing self positively, and thinking critically and creatively (David Lambert and David Balderstone, 2000). The skills are needed by the geography teacher to enhance achieve among the students

- Location of the places
- Map making
- Atlas reading
- Pictorial representation
- To identify the transport lines.
- To find out the latitude and longitudes.
- To prepare the charts
- Flowcharts
- Concept mapping for the content area
- To do the non-working models and working models and working models
- To understand the theory & principles

The following aspects of geography teaching involves the use of perceptive thinking skills

- States and capitals
- Solar family
- Moon-waxing & warning moon
- Lunar, solar eclipse
- Latitude & longitude
- Coral
Conceptual Framework

- Rotation & Revolution
- Fluvial cycle of River, Underground water, glacier, wind, waves.
- Personal characteristics needed for the geography teacher.

Achieving the Aims of Geographical Education

For the pupils to achieve both the broad and the more specific aims outlined in paragraphs above, it is not sufficient merely to build on existing good practice we believe that:

- The basic content of geography should be clearly established.
- Place studies should be an important element
- The place and status of the physical and scientific elements of geographical study should be reaffirmed.
- There should be greater clarity about the character and value of enquiry in the teaching and learning of geography. (David Lambert & David Balderstone, 2003).

Sensory Perceptual Thinking Enriches the Learning of Geographical Content among Students in the Following Ways.

If the students learn through sensory perceptual thinking instead of learning by heart, they will not forget what they learn. Learning by perceptive thinking gives direct experience. For example, if we go high, above certain height, we feel the atmosphere becomes cool. So, we easily understand that the hilly terrains are cooler than plains. It is well known that Kovai is hotter than Ooty. While gaining knowledge through vision, hearing, smelling, tasting and feeling self learning takes place which helps to retain the things in memory. For example, the earth gets heat energy from the sun through conduction, conviction and radiation. In the same way, with the co-ordination of multi sensory organs, learning is reinforced and the learning concept registers in mind deeply. Imagination is the basic factor for perceptual thinking. When the imagination is felt through mind, eyes and the movements of the body, the experiences of the perceptual thinking (the perceptual experience) are registered in the sub conscious mind deeply.

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Illustration: the change of day and might in due to the rotation of the earth and sun. This concept is explained by demonstrating a boy as the sun and another boy as the earth. Then make the boy as earth rotate the boy as ‘sun’ & make the students understand that the day time in India is night in America with the above demonstration. The main factors for the registration of visual see you perception in mind are size consistency, shape consistency, color consistency, figure and ground consistency and structural consistency. The above factors help to attain the geographical achievement by teaching geographical locations, divisions of state, symbols in map through geographical maps. The integrated learning of multi sensory organs lifts up the level of understanding the content. Sensory perception helps to symbolize learning one with the other. Sensory perceptual thinking is shown by comparing the structure of coral with the calyx of Jasmine. The shape of the Indian states in the map is compared with any relevant figures shapes to simples the comprehension.

In the same way, if the districts of Tamilnadu are also compared with similar shapes, it is undoubtful that the achievement level of the students would be enhanced.

3.5.11 Definitions of Geography

- Prof. A.Z. Herbertson was considered the father of Geography

- Geography means the description earth - Prof. E.A. Macnee

- Geography is the study of earth as the home of man/in other words

- Geography is the study of the environment of physical, social, particularly in its relation to human actives

- Prof. J. Fairgrieve defines the functions of geography is to train future citizens to imagine accurately the conditions of the great world stage and so to help them to think safely about political and social problems in the world around.

- Revised definition of geography is the science which treats the influence on the man of local conditions and space relations.

- Prof. Dudley stamp, “Geography is a description of the world and of its inhabitants."
Conceptual Frame Work

- Geography is the comparative study of earth regions.
- Edmund Burke “Geography is an earthly subject but a heavenly science.
- E.G. Steal “Geography is the science of initiative, for by means of it we establish our relations with the world and without if we may establish our relations with the world and without it we may easily lag behind in the march of progress.
- Prof. Ellstead - geography is the science, which investigates macro – organizing and space relationship of its component parts.
- Geography deals with actions and reactions that occur within the hydrosphere.
- Dudley Stamp stated, the old geography worked form effect to cause. Modern geography works form cause to effect.

Hartshorn “Geography is essentially the science of distributions, a field whose purpose is to study the distribution of different phenomena, separately and in relation to each other, over the earth. The Glossary Committee of British Geographies says geography is the science that describes the earth’s surface with particular reference to the differentiation and relationships of areas Carl Ritter - geography is that department of science which deals with the globe in all features and phenomena and shows the connection of this identified whole with mans creator. R.J. Smith today geography is recognized as a science which involves a study of the relationship that exists between man and his environment. Welpton the study of earth as the home of man.

3.5.12 Need for Inclusion of Geography in Curriculum

The following objectives are framed in geography

- To promote in the student an understanding of the different elements of the physical (natural) environment which affect man’s ways of living.
- To help the student realize the human being severe where try to make the best possible of their environment.
- To help the student appreciate the role of man, armed with science and technology, in developing the natural resource wisely.
Conceptual Frame Work

• To help the student understand the interdependence of people living in different regional counties leading ultimately to the regions, countries leading ultimately to the promotion of international understanding.

• To develop in the student an understanding of the value of co-operative effort at the local, national and world levels for development activities.

• To help the student learn from the experiences of other people/nations and understand their relevance to India in developing its own resources.

Curriculum Approach in Geography

Geography at the middle school stage has perform two distinct functions

• Introduction of the student to geography as a school subject so as to develop their interest in the same.

• Reinforcement of values, attitudes and general understanding that world promote the objectives of citizenship education.

Map Work

Nearly all geographical information Mr. Fairgrieve says 90% can be put on a map. Many years ago Rudyard Kipling remarked that as soon as men begin to talk about anything that really matters, someone has got to go and get an atlas.

• Map spelling corresponding roughly to the map work which is done in primary school below 11 years of students

• For above students of 11-15 years map reading is useful in secondary school

• Map interpretation which is undertaken when a pupil has become facular with the mechanics of map reading and when he is intellectually mature enough for relational thinking of a high order.

Significance Terms in Geography Teaching

• Purpose

• Interest

• Actively engaged in searching

• Individual aptitudes and abilities
The Queen of Sciences

Geography has played a rather restricted or conservative curriculum role and in any case failed to match the politician’s perceptions of geography in the curriculum. Simon Jenkins: Embraces every fact on Earth, every aspect of the composition, occupation and history of the planter. It is the monitor of our abuse for our environment and our guide to its preservation. Without a clear grounding in the known characteristics of the earth, the physical sciences are mere game playing, the social sciences mere ideology geography should be declared a core (Zimmermann, 1990).

Intellectual Development through Geography

Pupils learnt geography, they get intellectual development. Knowing what is appropriate for pupils of different ages and abilities to learn in geography will help us to match learning tasks to the different abilities of pupils answered to plan for progression in their learning. Jean Piaget’s studies in child development provide a general framework within which are can a structure our undressing of children mental development children thinking develops as they mature and gain more experience of their environment. This frame work, in relation to concept acquisition and local thinking, suggests that mental development passes through a series of stages,

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David Leat points out that in relation to school work; formal operational thinks have district advantages as they can deal with more complex relationships, formulate hypotheses and synthesize apparently unconnected information (1997, p.151). Leat suggest that this implies that pupils can not successfully deal with some tasks because they are beyond the revel of intellectual development. Pupil whose things is mainly at the concrete level tend to adopt rigid and over simplistic views and descriptive accounts of issues. In short they concentrate more on what happens rather than why it happens. Concrete thinkers also find it difficult to hypothesize or to deal with a number of...
variables. Stage three pupils are making the transition between concrete and formal operations thinking.

3.5.13 Importance of Geography

- Geography derives a lot of material from such subject as Biology, Anthropology, Sociology, Economics, Mathematics, Chemistry and other sciences. Geography is the study of natural environment. So it is unparalleled by any other subjects.

- Geography had many importance such as political importance practical importance. Cultural important, intellectual importance, economic importance and social importance.

- President Eisenhower of America Called geography ‘the foundation of humanity’.

P.E. James give the following reasons for the importance of geography.

- Geography helps us to have a proper picture of man and his environment.

- Geography give us information bout various types of climates, natural various types of climates, natural conditions, mineral wealth etc. of the various nations.

- With the knowledge of geography we can read and discern the maps sketches, diagrams to develop power of observation.

Teaching Pupils to Think

Some people consider geography as an intellectually challenging subject. David Leat suggests that there is particularly serious problem in some geography teaching. No much concern with teaching and not enough with learning, too much emphasis on substantive aspects of geography and not enough on the intellectual development of pupils. As out later discussion about the development of an answer culture in geography education. And the re-establishment of geography as a content –rich. Subjects after the introduction of the national curriculum shows, this is a view that we feel has credibility.

Peter Smith when reviewing the 1995-1996 OFSTED – inspection findings, reports that where standards in geographical education are low, teacher often use unsuitable activities or geographical contexts to promote thinking. Leat (1997) draws our attention to some of the possible impacts on pupil attainment.
David Leat argues that adopting this change the pupil approach requires us to change our view of teaching and learning to one that assume that intelligence in fixed to one that assumes that it is not fixed and can therefore be developed.

University of Newcastle School of Education (1995) — To respond to this challenge the university of New castle introduced the ‘thinking through geography project (TTGP), which aims to help geography teachers design activities that raise levels of pupils achievement in geography. Rather than ‘water-down’ the curriculum to improve the student’s ability to cope with intellectually challenging task, leading to improved self-esteem through genuine achievement — University of Newcastle school of education (1995). This project draws its inspiration from some of the cognitive acceleration in science education (CASE) as well as the more generic some set thinking skills there is a growing body of evidence that we implemented successfully these thinking skills programmes can bring about significant gains in achievement and motivation (Adey and Shayer, 1994). David Leat defines that broad aims of the thinking through geography project as being

1. To devise adaptable strategies and curriculum materials that make geography lesson more stimulating and challenging.

2. To help pupils understand some fundamental concepts in geography in an explicit way to that these can be transferred to new contexts.

3. To aid the intellectual development of pupils so that they can handle more complex information and achieve greater academic success. (1997).

Interaction and Language

They are searching for tactile kinesthetic information helps them begin the solve problem and to evaluate the effects of their actions. A lack of tactile-kinesthetic information causes a lack of interaction experiences and as a result the world does not become a surrounding world. Frequently the visual information allows them to recognize problems, but it appears not to provide them the necessary information to solve the problem. The touching obviously consists of unfamiliar information. The deviancy of information received which results from the lack of tactile-kinesthetic interaction
Conceptual Frame Work

experiences, causes, and other difficulties are possible. The ‘tack’ of contact refer to a tactile input, to touching the con-means with touching with.

The temporal delay between touching and looking becomes shorter as the experiences broaden and the time spent looking at what the had is doing becomes longer. This is often called hand is eye co-ordination. The reference here is to the co-ordination of the different sensory modalities – inter modal integration.

Figure 3.43 Visual Pathways from Eye to Brain

Limbic System and Its Functions

If the four lobes of the cortex are removed our limbic system could be seen. The limbic system refers to a group of about half a dozen interconnected structures that make up the core of the forebrain main functions of the different parts of limbic system is detailed below

Hypothalamus

The hypothalamus is located near the bottom middle of the brain and is involved in many motivational and emotional behaviour.
**Conceptual Framework**

**Amygdala**

The analyzing data which is located in the tip of the temporal lobe is in which in emotional behaviours.

**Hippo Campus**

The hippocampus which is a curved structure inside the temporal lobe is valued in transposing memory, kinds of fixing memories into permanent stages.

**Thalamus**

The thalamus located in the middle of the forebrain is involved in receiving sensory information, doing some initial processing and then relaying the sensory information to the areas of the cortex, the somato sensory cortex, primary auditory cortex and primary visual cortex.

**Perception as Generated by a Closed System**

Several factors suggest that the brain is essentially a closed system capable of self-generated oscillatory activity that determines the functionality of events specified by the sensory stimuli

1. Only a minor part of the thalamocortical connectivity is devoted to the receptions and transfer of sensory input.

2. The number of cortical fibers projecting to the specific thalamic nuclei is much largest than the number of fibers conveying the sensory information to the thalamus (Willson et al., 1984).

3. The insertion of neurons with intrinsic oscillatory capabilities into this complex synaptic network allows the brain to generate dynamic oscillatory states which shape the computational events evoked by sensory stimuli Wakefulness (REM Sleep and other sleep stage) appear to be particular examples of the multiple variation provided by the self-generated brain activity.

4. Much neuropsychological evidence also supports this view of the brain as a closed system in which sensory input plays an extra-ordinarily important but, nevertheless, mainly modulator role patients are dreaming of faceless characters.
Teaching Skills

- Skill of introducing the topic
- Skill of dealing with pupils answers
- Skill of inciting stimulus variations
- Skill of in the use of black-board or the chalk-board
- Skill in handling to aids and other equipments
- Skill in non-verbal uses
- Skill in reinforcement
- Skill in the use of illustration and examples
- Skill in exposition of teaching
- Skill in explanation
- Skill in encouraging geography discussion
- Skill in answering student queries.

Achievement

The term achievement can be understand as one’s learning attainments, accomplishments or proficiencies in performing a give task. Achievement is directly related to the growth and development of pupils in educational situations, where teaching and learning go hand in hand. The concept of achievement involves the interaction of three factors, namely.

- Aptitude for learning
- Readiness for learning and
- Opportunity for learning.

Achievement in education implies one’s knowledge, understanding or skills in a specified subject or a group of subject. N.M. Downie stated that the any measures the attainments or accomplishments of an individual after a period of training or learning is called an achievement

Functions of an Achievement

- To determine the level of attainment of a student in the class in a given subject or in performing a particular task.
- To provide basis for promotion of candidate to the next higher grade
Conceptual Frame Work

- To motivate the student before taking up a new assignment
- To make an assessment of the performance of a teacher to what extent he/she is successful in his/her teaching.

Perceptive Thinking Skills and Enhancing Geography Achievement

The role of perceptive thinking skills in predicting achievement has been long known to educational and psychological researchers. This is not surprising since perceptive thinking skills measures were specifically in different forms. In the modern world the important and significant of geography and geographical achievement are no to-worthy. The impact of geography in human life in tremendous. The progress, welfare and security of a nation depend on the progress it has made in geography and technology. But the importance of geography is magnificent, in the modern world. It points to the need of the study of geography and its allied subjects. It is necessity for children to have better geographical knowledge (Sunija.P., 1995).

The present study, being one aimed at identifying some important predictors of geography achievement of DIET teacher trainees, an attempt was made to survey the important cognitive and affective correlates of achievement. Since the choice of predictor variables to be used in the study will have to be governed by the available research evidence the studies against their possible use for prediction of achievement. The general survey indicated a wide variety of factors which are related to school achievement – psychological, personal, environmental, sociological and demographic the investigator did not proceed to examine all these categories of variables because of the important practical constraint that variables because of the important practical constraint that variables which are not capable of very objective and precise measurement will not be of use in prediction. Hence the investigator decided at the very outset to limit his survey to psychological variables only with in this area, the investigator has confined his survey to important variable in the cognitive and affective domains of behavior.
REFERENCE


