6

MEMORY

If you are asked to tell the name of your favourite actor, actress or singer, it won't take more than a second to come out with the answer. In the same way we all remember our childhood friends, interesting incidents relating to them, our family members, relatives and so many other things. Have you ever wondered how we remember all these things, and do not forget them over long periods? All this is possible because of memory.

The human memory has immense potential. You must be knowing that before the Vedas were scripted, the oral tradition existed which means that the immense wealth of knowledge was passed on from one generation to another by the oral tradition. This was totally dependent on our memory. Memory is crucial in our life because it helps building bridges in the flow of experiences and allows us to have a sense of continuity. In this lesson we will study about this dynamic system which we call memory.

OBJECTIVES

After studying this lesson, you will be able to:

- explain the nature of memory;
- differentiate between the stages of memory;
- describe forgetting; and
- list some strategies for enhancing memory.

6.1 MEMORY AND FORGETTING

Psychologists consider memory and learning to be different processes, though both are closely related. While, learning refers to the acquisition of new behaviours through experience, memory refers to the process of storing the outcomes of learning in the form of information that can be retrieved when required. In this lesson you will learn

about memory and forgetting. You can very easily understand the significance of memory by visualizing a situation about a person who has lost his memory. He will lose his identity and cannot connect various experiences, events, and people. Such a person will lead a miserable life. This happens in brain damaged people or in old age when people develop some kind of memory loss, as in Alzheimer's disease.

Memory refers to the set of processes involved in storing information. This specific process is termed as retention. Memory can be defined as a perceptually active mental system that receives, encodes, modifies, and retrieves information. We can not directly observe the process of memory. It can be studied indirectly by measuring retention. Three basic methods of measuring retention are : Recall, Recognition, and Relearning. Let us briefly discuss these methods.

Measuring Retention: Recognition, Recall and Relearning

When you are not able to remember someone's name but you know that you have seen his/her face before, this is the process of **recognition**. In this process you are checking the stimulus (face) with your memory content to find a match. In the same manner when one tries to remember a name without a face in front, it is called **recall**. Recall is a process of using a general stimulus and finding the information about it from memory. When you are given a question in an exam you use the process of recall. When you answer multiple choice items, you are asked to match the information with the provided pieces of information. You have to identify and match it with the information which is already stored in your memory. Recognition is easier than recall. **Relearning** is the method of learning the material another time. It usually takes less time than original learning.

6.2 STAGES OF MEMORY

Psychologists have discovered that memory is not a single or unitary system. It has more than one distinct system. In other words, there are more than one type of memory. According to the most acceptable model of memory, there are three major systems of memory : Sensory Memory; Short-Term Memory (STM), and Long-Term Memory (LTM). Information moves successively through these three systems if attention is given to the material. If attention (focused awareness) is not given, information does not move further into the system.
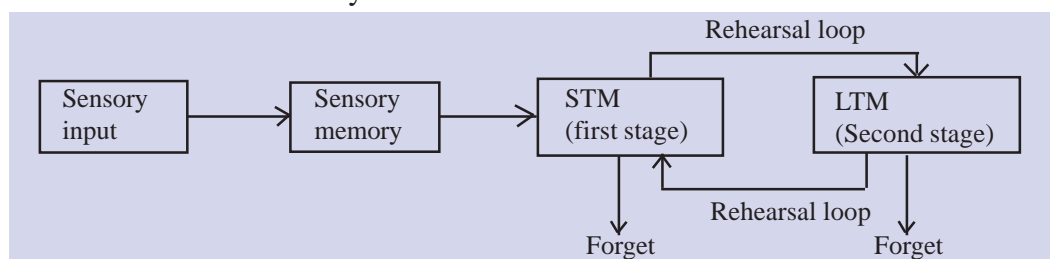

Fig. 6.1: *Stages of Memory*

Notes

Sensory Memory : Hold any object about 12 inches in front of you. Look at it steadily for a while. Close your eyes and notice how long the clear image of that object lasts. A clear visual image of any object will last in sensory memory for about half a second after the stimulus is removed. Sensory memory holds representations of sensory input for very brief periods of time, depending upon the modality involved. There are different sensory registers for each of the senses.

Short-Term Memory (STM) : Look up for a moment and note what attracts your visual attention. Try to identify the sounds and sensations that you are experiencing now. What have you identified is the content of short-term memory or STM. It holds relatively small amounts of information for brief periods of time, usually 30 seconds or less. This is the memory system we use when we look up the phone number and dial it. If we are connected on the first instance the telephone number is forgotten. However, if we get the line engaged for some time, we keep on dialing the number and through repeated dialing rehearsal of the telephone number we push it to the long-term memory (LTM) storage.

However, it has been found that short-term storage is more than a passive "holding area" (e.g. holding a telephone number). On the contrary, it involves active processing of information. This finding has led psychologists to use the term working memory. It means that something active goes on during the short-term memory. Attempt Activity 1 to understand the working of STM.

Activity 1

Working of Short Term Memory (STM) Read out aloud the following sequence of numbers to a friend and ask him/her to immediately write in the order the numbers that were spoken out aloud. After each set read the next set of numbers and so on. Note that the series begins with three digits and increases by one digit each time.

4	2	8						
1	4	6	3					
5	7	4	9	2				
6	0	8	1	3	5			
1	8	4	7	9	2	6		
3	5	0	1	7	4	2	9	
2	7	3	9	6	8	1	4	5

How many digits can your friend recall?

Probably, your friend will recall up to 7 ($\pm$ 2) digits.

STM has a limited capacity to hold information. In general it holds about 5 to 9 units (the "magic number" 7 ± 2) of information at one go. If the number of units goes higher, new information displaces or writes over the existing units. Thus in the example given earlier it is easy to remember a telephone number consisting of 7 to 9

digits. If more information is added we lose at least part of the phone number. However, this limitation in capacity can be effectively expanded by a process known as *chunking* i.e. several units of meaningful information are packed into one chunk. For example the number 194720021941 (12 digits) can easily he remembered if the 12 digits are chunked into three units 1947, 2002, 1941, all referring to calendar years.

Long – Term Memory (LTM) : It refers to the memory system for the retention of large amounts of information for long periods of time. It is the memory system that permits us to remember events that happened many years ago, yesterday, last year, and so on. It is the long-term memory that allows us to remember factual information making it possible for us to learn different subjects, appear for examinations and communicate with others. It brings continuity and meaning to our life.

When we pay attention to a piece of information and engage in active rehearsal the material is stored in the long-term memory (LTM). Information in the sensory memory enters short-term memory when it becomes the focus of our attention. If we do not pay attention to the incoming sensory information, the material fades and quickly disappears. We tend to pay attention to certain information and not to the other. Paying attention to certain aspects of our world is what we call. "selective attention". The information from STM is often rehearsed by us. This rehearsal helps the transfer of that information from STM to LTM.

Activity 2

How Long Term Memory (LTM) works.

Ask the same friend, without looking at the written digits, to recall the four-digit number (1462). Even if you were to prompt your friend by saying that the number starts with '1', it is highly doubtful that your friend will be able to recall even these four - digits.

Do you know as to why this happens? Because there was no rehearsal and therefore the four-digit number was not stored in the LTM.

Table 6.1: *Nature of three systems of memory*

Characteristics	Sensory Memory	Short-term Memory	Long-term Memory
Duration	Iconic about ½ sec Echoic about 2 sec	20 seconds	Life time
Capacity	Large	7 ± 2	Unlimited
Forgetting	Trace decay	Decay, interference and displacement	Interference, Decay Lack of Cues
Encoding	Sensory (visual) (auditory)	Phonological or visual-semantic	Semantic and sensory
Retrieval	Parallel search	Serial exhaustive search	Parallel distributed search

Notes
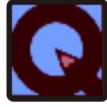
INTEXT QUESTIONS 6.1

1. What is recall?

_____

2. List the different stages of memory.

_____

6.3 TYPES OF MEMORY

In recent years psychologists have conceptualized memory into four types as given below:

Semantic : This deals with knowledge, meaning and generalized experiences. What ever we remember from books and information about world events and meanings of words are included in it.

Episodic : It refers to the experiences which are personal to an individual. You do so many things in a day. They are your unique experiences. Memory of such experiences is accessible by you only. They are part of your episodic memory.

Procedural : This deals with memory for actions or ways of doing certain things or performing certain activities.

Meta Memory : It is memory for your memory. We not only remember things but also remember that we can remember. People may be good or poor in understanding their own memories.

6.4 FORGETTING

It is a common experience that sometimes we are unable to remember information that we need at a particular time. We find that on some occasions this lets us down as we are unable to remember the information that we require desperately. During examinations we are unable to remember or retrieve what we had learned. This is what we call forgetting. Why does this occur? Many explanations have been offered to explain this kind of loss. Let us briefly consider some theories to explain the causes of forgetting.

(i) **Decay :** Some psychologists think that it is due to gradual fading of memory traces or decay that happens with lapse of time. This does not explain why certain memories fade forever while others seem to be well preserved. Passing of time cannot, therefore, be considered as the main cause of forgetting. You can see that in Table 6.1

(ii) Interference : A more useful explanation is found in the view called **interference theory**. It argues that memories are lost because of what happens to them during the period when we retain them. Thus inhibition or interference by subsequently learned material becomes the major cause of forgetting. There are two types of such interference – **Retroactive interference** and **Proactive interference**. Retroactive interference (acting back wards) occurs, when the current information interferes with what has been retained earlier. For example, you learn Punjabi language on Monday and Bengali on Tuesday. During a Punjabi test taken on Wednesday interference is expected from the learning of Bengali words. Forgetting may also occur due to (acting forwards) proactive interference. This is a situation in which earlier information in the memory interferes with the current information. Suppose you have been driving a scooter with gears. Now, you have a new scooter which has no gears (automatic drive). You will tend to change the gears in the new scooter and this habit can persist for long. Proactive interference thus explains one's inability to acquire new knowledge or habit because of the powerful interference from old habits.

(iii) Level of Processing : While learning some material we may attend to it in detail and process at a deeper level or neglect it and attend at a surface level. This may be a cause of forgetting.

Activity 3

Effect of Delay and Interference on STM.

Ask a friend to remember a sequence of three consonant letters, such as, FJQ, while counting backwards from a given number, such as 462. After the three consonant letters have been said and your friend has counted backwards for about 15-20 seconds, ask him/her to recall the three consonant letters, that is, FJQ. Does your friend will find it difficult because the counting task prevents him/her from rehearsing the letters and allows the memory trace to decay. Now give more three consonant letters (WCT, QRB) and ask the friend to count backwards (743, 947). You are likely to note that now your friend has greater difficulty in remembering the letters! Yes, this is due to proactive inhibition.

6.5 STRATEGIES FOR ENHANCING MEMORY

How good is your memory? We all would like to improve our memories so that we can retain more facts and information. This is possible with little effort and almost anyone can improve his or her memory. Here are some tips to enhance one's memory.

1. **Deep Processing :** If you want to learn something and wish to enter information into long-term memory, you have to think about it. You need to consider its meaning and examine its relationship to information you already have. Careful planning, considering the meaning of information, and relating it to existing knowledge is helpful in learning it and remembering it later. The retention of material is dependent directly upon the depth at which it has been processed. Deeper level in terms of meaning is very important. Second, the depth of

processing also refers to the rehearsal of material to be remembered. Greater the rehearsal, more the chances of recalling the material later.

2. **Attending carefully :** If you want to learn something well and ensure its retention in long-term memory you have to put in conscious effort to attend to it carefully.

3. **Minimize interference :** You have learned that interference is a major cause of forgetting and you should try to reduce it as much as possible. In general, the more similar the materials to be learned, the more likely they will produce interference. Thus, you should arrange your studies so that you don't study similar subjects one right after the other. For example, if you have to study two languages, study them on different days.

4. **Distributed practice :** While learning some material it is beneficial to learn it using distributed practice in which there is a gap between trials. Take rest after a period of study. If the chapter is lengthy, divide it into two or three parts and learn a part in one go. After mastering one part then go to the second and so on. Do not try to cram all the information you want to memorize at once.

5. **Using memory aids :** People use various cues, indicators and signs to connect events. This often facilitates remembering. You can use visual imagery to remember objects and places. For example, if you visit a new place, you can remember the location by remembering several associated objects and places. You may remember the place to be close to a cinema hall, in front of a signal post and so on.

6. **Shorthand codes :** You can develop your own shorthand codes to memorize long list of items. You can use the first letter of each word or item and construct a unique "word". For example, to remember the seven constituents of light we use VIBGYOR; where V stands for Violet, I for Indigo, B for Blue, G for Green, Y for Yellow, O for Orange and R for Red. During the school days. We used to forget the order of Mughal emperors in history subject. We developed a shorthand code : BHAJSA" where B stands for Babar, H for Humayun, A for Akbar, J for Jahangir, S for Shahjahan and A for Aurangzeb. It helped remembering the names in order.

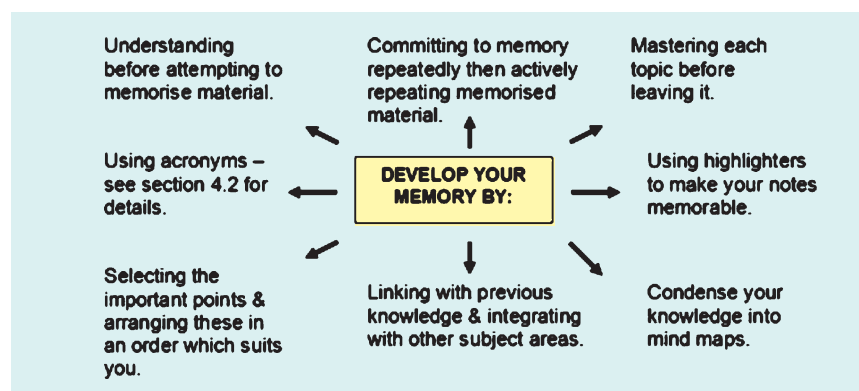You can use the tips in Figure 6.2 to help you memorize your course material

Fig. 6.2: *Tips to memorize course material*

6.6 REPRESSION : FORGETTING PAINFUL EVENTS

The events and experiences that are threatening or painful are eliminated from our consciousness. This is called repression. Freud believed that the repressed memories are pushed into hidden recesses of the unconscious mind. Such repressed memories may cause many psychological problems for the individual. Amnesia refers to a loss of memory due to illness, injury, drug abuse or other causes.
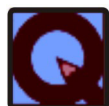
INTEXT QUESTIONS 6.2

1. Make a list of the major types of memory.

   _____

2. State any two causes of forgetting.

   _____

WHAT YOU HAVE LEARNT

- Memory refers to the set of processes involved in storing information and the specific process is termed as retention.

- Three basic methods of measuring retention are : Recall, Recognition, and Relearning.

- Sensory memory holds representations of sensory input for brief periods of time, depending upon the modality involved.

- Short – term memory or STM holds relatively small amounts of information for brief periods of time, usually 30 seconds or less.

- **Long – Term Memory** is a memory system for the retention of large amount of information for long periods of time.

- Forgetting is loss of memory or failure to recall. It is caused by several factors including decay, level of processing and depression.

- Memory can be enhanced with the help of mnemonic stragegies

TERMINAL QUESTIONS

1. Describe briefly the three stage model of memory.

MODULE - II

*Basic
Psychological
Processes*

Notes

Memory

2. Describe the properties of short term memory.

3. List the main causes of forgetting.

ANSWERS TO INTEXT QUESTIONS

6.1

1. Recall is a process of using a general stimulus and finding the information that is in the memory.

2. Sensory memory, short term memory, long term memory

6.2

1. Semantic, Episodic, Procedural and Meta memory.

2. Decay, Interference, Level of processing

Hints for Terminal Questions

1. Refer to section 6.2

2. Refer to section 6.2

3. Refer to section 6.4

7

THINKING AND PROBLEM SOLVING

Have you ever thought about how you have acquired knowledge about all that you know today? It may instantly come to your mind that your teachers have taught you about this, your parents made you learn all these things, or you read about all these in books. In all these situations you have learnt something to build your knowledge base. Thus the process of knowing or of acquiring knowledge is called cognition. The process of acquiring knowledge is facilitated by cognitive processes such as attention, thinking, remembering, and reasoning. These cognitive processes are controlled and regulated by higher center of the brain, the cerebral cortex. The cognitive processes are very much specific to human beings and are guided by concepts, facts, propositions, rules, and memories. All these cognitive activities are governed by thinking. Hence, in this chapter you will learn about what is thinking, stages of problem solving, stages of creative thinking, and processes involved in making decisions.

OBJECTIVES

After studying this lesson, you will be able to:

- understand the nature of thinking;

- describe various stages of problem solving;

- explain creativity and its role in life; and

- explain the process of decision making.

7.1 THE NATURE OF THINKING

Thinking is perhaps one aspect of our mental activity which continues even when we are asleep. The difference between what is thinking and what is not thinking is just our awareness about the particular thinking process. Hence thinking is a complex mental process which involves manipulation of information. Such information is

MODULE - II

*Basic
Psychological
Processes*

Notes

Thinking and Problem Solving

collected through our senses (such as vision, hearing, smelling etc) from the environment, as well as the information which is stored in our memory because of our encounter with many events and situations in the past. Thinking is a **constructive process** in the sense that it helps us to form a new representation of any object or event by transforming available information. It involves a number of mental activities, such as inferring, abstracting, reasoning, imagining, judging, problem solving, and creative thinking. Such activities take place in our mind and can be inferred from our behaviours. Thinking is usually initiated by a problem and goes through a sequence of steps such as judging, abstracting, inferring, reasoning, imagining, and remembering. These steps are often directed towards solution of the problem. The example given below will help you to understand this in a better way.

In order to reach your new school on time suppose you are trying to find out the shortest route from your home to your new school. Your choice will be guided by many factors such as condition of the road, the density of traffic during your school time, safety while walking on the road etc. Finally you take a decision about the best possible shortest route after considering all these factors. Thus, a simple problem like this also requires thinking. The solution to this problem emerges after processing information that is available to us from the environment and our past experience. Thinking relies on a variety of mental structures such as **concepts** and **reasoning.** We will briefly learn about these mental structures.

Concepts: Concepts are one of the key elements of thinking. Concepts represent objects, activities, ideas, or living organisms. They also represent **properties** (such as "sour" or "brave"), **abstractions** (such as "anger" or "fear"), and **relations** (such as "smaller than" or "more intelligent than"). Concepts are mental structures which allow us to **organize knowledge** in systematic ways. We cannot observe them directly, but we can infer them from behaviour.

We as human beings have the capacity to abstract the essential characteristics of objects, events or whatever we perceive. For example, when we see a Potato we categorize it as 'vegetable', and when we see a towel we categorize it as 'cloth'. Whenever we encounter a new stimulus we tend to treat it as a member of a familiar or remembered category and take the same action toward it and give it the same label.

Reasoning: Reasoning is also one of the key aspects of thinking. It is a process that involves inference. Reasoning is used in logical thinking and problem solving. It is goal directed, and the conclusions or judgments are drawn from a set of facts. In reasoning, information from the environment and the stored information in the mind are used following certain rules. There are two types of reasoning: deductive and inductive. In **deductive reasoning** we try to deduce or draw conclusion from a set of initial assertions or premises; where as in **inductive reasoning** we start from available evidence to generate a conclusion about the likelihood of something. Most cases of scientific reasoning are inductive in nature. Scientists and even lay people consider a number of instances and try to determine what general rule covers them all. For

example, the person is a priest, because he is wearing plain cloth, prays and eats simple food.
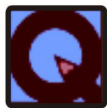
INTEXT QUESTIONS 7.1

1. What is thinking?

2. What are the different mental components of thinking?

7.2 PROBLEM SOLVING

Problem solving is part and parcel of our daily life. Every day we solve a number of problems ranging from simple to complex. Some problems take little time where as some take much time to solve. We look for alternative solutions if do not get the right kind of resources to solve the problem in hand. In the case of solving any type of problem our thinking becomes directed and focused and we try to use all the resources, both internal (mind) and external (support and help of others) to arrive at the right and appropriate decision. For example if you want to score good marks in an exam, you study hard, take the help of teachers, friends, and parents and finally you score good marks. Thus problem solving is directed thinking focused towards dealing with a specific problem. This thinking has three elements: the **problem**, **the goal**, and **the steps to reach the goal**. There are two methods which are used prominently in problem solving. These are- "**Means-end-analysis**" and "**Algorithms**". In the case of Means-end-analysis a specific step-by-step procedure is followed for solving certain types of problems. In the case of '**heuristics**' the individual is free to go for any kind of possible rules or ideas to reach the solution. It is also called rule of thumb.

Problem Solving and Mental Set: Sometimes we use a particular strategy/technique to solve a problem but we may or may not succeed in our effort to solve the problem. This creates a set to approach future problems that are incountered by a person. The set continues even if the problem is different. Despite this, we use the same strategy/ technique when ever we come across the same problem and again fail to reach the solution. Such phenomenon in problem solving is called mental set. A mental set is a tendency on the part of an individual to respond to a new problem in the same manner that he or she has used earlier to solve a problem. Previous success with a particular rule produces a kind of mental rigidity/fixedness/set, which hinders the process of generating new ideas to solve a new problem. A mental set inhibits or affects the quality of our mental activities. However, in solving our real life problems we often rely on past learning and experience with similar or related problems.

In Activity 1 You may not be able to solve the problem, because of the mental set that one has to keep the lines within the grid of nine dots. By going outside the boundaries, you will succeed.
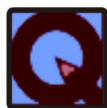
INTEXT QUESTIONS 7.2

1. Define problem solving. Discuss the two types of problem solving.

   _____

2. Discuss the role of mental set in problem solving.

   _____

7.3 CREATIVITY AND ITS ROLE IN LIFE

Do you know whatever you see around you, the things which you use for work in everyday life, the transport you use for commuting from one place to another etc are all the products of human thinking? Creativity is a particular kind of thinking which involves reaching out to the solution of a problem in a unique and novel way which was nonexistent earlier. Creativity is the mother of all inventions and discoveries in the world. Unlike routine solutions to the problems, creative solutions are novel, original, and unique, that others have not thought of before. The creative solutions or productions are sudden or spontaneous and are the outcome of a lot of work and preparation already done consciously and unconsciously. The sudden appearance of new ideas is called insight. The creative thinker can be any more such as an artist, musician, writer, scientist or sports person.

Stages of Creative Thinking: Graham Wallas , one of the leading psychologists of early twentieth century stated that there are five stages of creative thinking. These are *Preparation, incubation, illumination, evaluation,* and *revision*. We briefly discuss these five steps of creative thinking in the subsequent section.

1. **Preparation:** This is the first stage in which the thinker formulates the problem and collects facts and materials necessary for the solution. He/she finds that the problem cannot be solved after days, weeks, or months of concentrated effort. Unable to solve the problem the thinker deliberately or involuntarily turns away from the problem, initiating stage two i.e. incubation. At this stage of problem solving, it is important to overcome negative consequences of mental set and any kind of mental set or bias.

2. **Incubation:** This is a stage of no solution and involves a number of emotional and cognitive complexities. However, the negative effects of mental set, functional fixedness, and other ideas that interfere with the solution tend to fade. Perhaps, fatigue and too much of concern with the problem also mount up during this

period. Further, the unconscious thought processes involved in creative thinking are at work during this stage.

3. **Illumination:** In this stage a potential solution to the problem seems to be realized as if from nowhere. It is about having the insight about the possible solution. Illumination occurs with its "**aha**" experience when a sudden idea or solution appears into consciousness.

4. **Evaluation:** In this stage the obtained solution is verified or tested to see if it works. Frequently, the insight may turn out to be unsatisfactory, and may need some modification in the strategy of approaching the problem.

5. **Revision**: Revision is required in the case a solution which is not satisfactory.

It has been found that creative people are generally talented (e.g. artists, musicians, mathematicians etc.), and have specific abilities. Creative people have been found to have some specific personality characteristics such as they are independent in their judgments, self-assertive, dominant, impulsive, prefer complexity, etc.
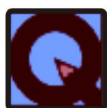
INTEXT QUESTIONS 7.3

1. What is creativity? What are the possible characteristics of a creative person?

   _____

2. Discuss in brief the stages of creative thinking.

   _____

7.4 DECISION MAKING

We make several decisions in our day-to-day life, such as decisions pertaining to our personal life, social life, education, career etc. When we take a decision which gives us success where as our faulty decisions do not yield the desired result. Decision making is also related with another term 'judgment'. Let us discuss these two aspects of thinking separately.

Decision Making: Decision- making is a kind of problem solving in which we select an appropriate alternative out of a number of alternatives available to us. For example, you have the option to choose between History and Psychology courses in your eleventh grade. You attend classes in both the subjects to decide upon the course to choose. Suppose you find that the contents of psychology are relevant, interesting and new and the teacher is intelligent, friendly, knowledgeable, and having good verbal ability; all qualities that you value in a teacher. So, on the basis of judgment about the subject and qualities of the teacher you decide to choose the psychology course.

Notes

Judgment: Judgment is a process of forming opinions, arriving at conclusions, and making critical evaluations about objects, events and people on the basis of available information. The process of judgment is often automatic and spontaneous. It does not require any prompting. Some judgmental choices are habitual like need for going for a morning walk before getting ready. Judgments involve evaluating information about the world (objects, events, persons, etc.), while decisions require making choices.

INTEXT QUESTIONS 7.4

1. What is the difference between decision making and judgment? Discuss in brief.

WHAT YOU HAVE LEARNT

- The process of knowing or acquiring knowledge is called cognition. The process of acquiring knowledge is facilitated by processes such as attention, thinking, remembering, and reasoning. These cognitive processes are controlled and regulated by higher center of the brain, the cerebral cortex.

- Thinking is a complex mental process which involves manipulation of information. Such information is collect through our senses (such as vision, hearing, smelling etc) from the environment, or is based on information which is stored in our memory because of our encounter with many events and situations in the past.

- Thinking is a constructive process in the sense that it helps us to form a new representation of any object or event by transforming available information. It involves a number of mental activities, such as inferring, abstracting, reasoning, imagining, judging, problem solving, and creative thinking.

- Concepts are one of the key elements of thinking. Concepts are mental structures which allow us to organize knowledge in systematic ways. We cannot observe them directly, but we can infer them from behaviour.

- Reasoning is another key aspects of thinking. It is a process that involves inference. Reasoning is used in logical thinking and problem solving. It is goal directed, and the conclusions or judgments are drawn from a set of facts.

- There are two types of reasoning: deductive and inductive. In *deductive reasoning* we try to deduce or draw conclusion from a set of initial assertions or premises; where as in *inductive reasoning* we start from available evidence to generate a conclusion about the likelihood of something.

- Problem solving is directed thinking focused towards dealing with a specific problem. It has three elements: the problem, the goal, and the steps to reach the goal.

- A mental set is a tendency on the part of an individual to respond to a new problem in the same manner that he or she has used earlier to solve a problem. Previous success with a particular rule produces a kind of mental rigidity/ fixedness/set, which hinders the process of generating new ideas to solve a new problem.

- Creativity is a particular kind of thinking which involves reaching out to the solution of a problem in a unique and novel way which was nonexistent earlier. Creativity is the mother of all inventions and discoveries in the world. Creative solutions are novel, original, and unique that others have not thought of before.

- There are five stages of creative thinking. These are *Preparation, incubation, illumination, evaluation,* and *revision*.

- Decision- making is a kind of problem solving in which we select an appropriate alternative out of a number of alternatives available to us. Judgment is a process of forming opinions, arriving at conclusion, and making critical evaluations about objects, events and people on the basis of available information.

TERMINAL QUESTIONS

1. Give any 2 examples each for (a) Concepts (b) Reasoning (c) Problem solving.

2. Identify any 5 creative persons who are famous in India.

3. Explain the concept of decision-making and its importance in daily life.

ANSWERS TO INTEXT QUESTIONS

7.1

1. Complex mental process involving manipulation of information.

2. Concepts and reasoning

7.2

1. Directed thinking focussed towards dealing with a specific problem Means-and - analysis and Algorithms

2. Mental set inhibits the quality of mental activities.

7.3

1. Thinking which involves reaching out to solutions in a uniqe and novel way

which was nonexistent earlier. Creative persons can be self-assestive, dominant, impulsive, may prefer complexity etc.

2. Preparation, incubation, illumination, evaluation revision.

7.4

1. Decision making is a kind of problem solving. Judgement is a process of forming opinions, arriving at conclusions and making critical evaluations.

Hints for Terminal Questions

1. Refer to section 7.1 & 7.2

2. Refer to section 7.3

3. Refer to section 7.4

8

MOTIVATION AND EMOTION

Have you noticed how each one of us is busy in one or the other activities? We try our best to achieve certain goals; and, if some difficulty comes in the way we feel frustrated. These statements show that our daily life is influenced by our needs such as hunger, thirst, achievement, affiliation etc. Not only that, we also feel happy, sad, angry or violent. The former aspects refer to motivation and the latter refer to different types of emotions. This lesson explains the relevance of motivation and emotions in human life. Motivation helps in answering the question: why do people seek to do certain things?. This helps us understand why people differ in terms of their behaviour. Emotions play an equally important role in everything we do, affecting our relationships with others and health. Both concepts are important because they help us understand the reasons for the various activities we indulge in and help determine the unique personality of each person.

OBJECTIVES

After studying this lesson, you will be able to:

- define the concepts of motives and needs;

- understand goal directed behaviour;

- describe the different aspects of emotions; and

- explain the role of emotions in organizing behaviour.

8.1 NATURE OF MOTIVATION

Have you wondered as to – 'Why does your father/mother go to work everyday?' 'Why do you study for long hours?' 'Why do you like to play with your friends?' or 'Why does your mother stay up the whole night and care for you when you are feeling unwell?'

Each of these questions has an answer as there is a reason or motive behind each

type of activity mentioned. Working, studying, playing and caring are some important activities which are considered purposeful. **Motives,** wants, needs, interests and desires help explain our movement towards the chosen goals. A need or motive directs us to act or behave in a particular way towards a certain goal. Thus you study for long hours to achieve good results and your mother looks after you because of the affection and concern she has for you as her child.

A. The Concept of Motivation

Motivation plays an important role in directing human behaviour. There are several characteristics of motivation. First, it pushes us to reach the goals we have set for ourselves. In order to reach our goals we need to be **aroused** or **feel active**. Too little arousal will make us feel dull and relaxed, whereas, too much arousal may make us withdraw from our goal. Hence we must be motivated to maintain a balanced **or optimum level of arousal**. Second, people are motivated to behave in certain ways because of the pleasing and pleasant properties of external stimuli, such as, money, good grades, food, which motivate the person to act in a purposeful/focussed manner. Third, motivation is the result of the person's thoughts and expectations. It can be of two types: **intrinsic motivation** that comes from within the person, based on personal enjoyment of any task, and **extrinsic motivation** which is based on external rewards such as money, pay and grades. You will find that sometimes we work hard and produce high quality work when motivation is intrinsic rather than extrinsic. On the other hand, we are also influenced by the external rewards. In life, both types of motivation are important. Finally, motivational needs are ordered such that basic needs such as hunger and thirst are satisfied first and then other higher-needs, such as need for achievement and power are fulfilled. Let us now learn about the hierarchy of needs.

B. The Hierarchy of Needs

According to psychologist **Abraham Maslow**, there are several levels of needs that each person must strive to meet before he or she can achieve the highest level of personal fulfilment. Thus, a person must be able to fulfil the **primary (biological) needs** at the lowest level, as indicated in Figure 1. Once these needs are met then **safety** becomes important, followed by **need to belong** and **to love and be loved.** The desire to belong to groups such as family, friends, and religious groups makes us feel loved and accepted by others. If we succeed in satisfying the mentioned needs then we feel the need to have **self esteem**, **confidence**, and **feeling of self-worth.** Next come **cognitive needs** which include need for **knowledge** and **understanding**, followed by need for **order** and **beauty**. Finally a person moves towards reaching the full potential called **self-actualization**. Such a person has the qualities of **self awareness**, is **socially responsive**, and is open to the **challenges of life**. This type of organization of needs is called a **hierarchy,** or ranking in a series.

Figure 8.1: *Maslow's hierarchy of needs*

As life goes on people gain wisdom and knowledge of how to handle situations, thus they move up the ladder or hierarchy. A person may move up and down the hierarchy depending upon the situation he or she finds himself in. This hierarchy may not hold true for different cultures. It has been found that in countries like Sweden and Norway quality of life is very important and social needs are more sought after than self-actualization. In some cultures security needs are more dominant than self-actualization making job security more important than job satisfaction.

C. Primary Needs

'Need' refers to a lack of something that is necessary for us. We feel hungry when our blood sugar level is low, thus we need to eat food to satisfy our hunger. Motives or needs are characterized in terms of **primary** and **secondary** needs or motives.

Important **primary needs** are **biological needs** such as hunger, thirst, oxygen, rest, sleep, temperature regulation, warmth, shelter, excretion, and sex. These needs have to be satisfied for us to stay alive. Needs such as hunger and sleep are cyclical in nature or are repetitive. Thus we need to eat and sleep regularly. Attempt Activity 1 to understand the effects of not eating or sleeping for a long time.

Activity 1

Primary Needs

a) *Effect of lack of sleep on performance. Try to keep awake for a long period of time, for example for about 16 hours. Now list your experience on two aspects: i) how long you take to learn a lesson and ii) your feelings at this point of time.*

b) *Effect of not eating for a long period of time. Try not to eat for a long period, for example, 8 hours. List your experience in terms of how you feel. Rate your feelings on a five point scale in terms of: i) extent of low feeling, ii) level of irritation and annoyance. Also try to concentrate on reading a new lesson. Are you able to read the lesson? If not, why is this so?*

The starting point of many biological needs is an imbalance in the physiological conditions of our body. Our body tries to maintain a state of balance called **homeostasis.** This balance is crucial. There must be enough water content in our body, body temperature must not be high or too low, glucose levels must be adequate and so on. Without maintaining this balance we would not be able to function properly in our daily life activities. Can you recall when you or a family member suffered from high fever and had to rest in bed for a few days? A state of balance must be maintained within our body to carry out our daily activities.

Why do we eat or feel hungry? There are several factors involved in the hunger need. Stomach contractions or 'hunger pangs' indicate that the stomach is empty and low levels of glucose and protein in the blood make us hungry. In addition, the smell, taste or appearance of food may lead to a desire to eat. When you reach home the smell of your favourite dish makes you feel hungry! Many factors work together to make us feel hungry. It is interesting that you can go hungry for long periods but not without water. We feel thirsty because we lose water content due to perspiration, breathing and urination.

Influence of Culture and Environment on Primary Needs

Do you know that our biological needs, such as hunger, are influenced by environmental factors? Often we are likely to feel hungry because of a number of reasons rather than due to low glucose levels in the blood. Environmental factors that have an effect on hunger and eating are:

- Learned liking and habits, for example, a person who enjoys having pizza will want to eat it even if not hungry.

- Stress can lead to eating, for example, examination stress makes some students eat more than is required.

- External cues, such as when it is dinner time or your mother calls out for dinner you are likely to feel hungry. The smell and attractive appearance of food may also make you feel hungry.

Notes

- Dietary restraints, if the doctor has advised a patient to avoid sweet foods there may be an increased desire to eat sweets.

D. Secondary Needs

Secondary needs lead to **psychological or social motives**. They are called social motives because they are learned in social groups, particularly the family. As children grow up and interact with others they acquire certain needs which can be fulfilled in a group setting. For example, achievement motivation is acquired by children through their parents, role models and socio-cultural influences. Some common social motives are:

Achievement: To strive for success and excellence, carry out difficult tasks.

Affiliation: To seek and enjoy the company of others, to make friends.

Power: To strive for impact on others, to influence, control and persuade others.

Nurturance: To help and take care of others such as children, elderly or sick persons.

Aggression: To fight, forcefully overcome opposition, to hurt and ridicule.

Exploration: To seek a variety of stimulation, to explore novel things.

The type and strength of social motives differ from person to person. For example, you may have high needs for achievement and affiliation, whereas your friend could have a moderate need for achievement and a low need for affiliation. Or, you could have a high need for affiliation and your friend a high need for exploration.

Mother Teresa's concern for the poor, sick and helpless made her open the Missionaries of Charity in 1950. It provides food for the needy and runs schools, hospitals, orphanages, youth counselling centres, and, homes for lepers and the dying. Mother Teresa's work has touched the lives of thousands of people. Her concern for others makes her high on need for nurturance. Do read the poem written by Mother Teresa as shown on www.youtube.com.

Nelson Mandela dedicated himself to the struggle of African people and was imprisoned for 27 years before he achieved freedom for his people. In fact he did not want personal freedom but fought for the setting free of common people. He was influenced by Mahatma Gandhi's way of thinking. For him it is important to live in peace and harmony and have equal opportunities for all people. Nelson Mandela was able to achieve difficult goals and his commitment helped him accomplish his purpose in life. Watch the video on www.youtube.com 'Making Poverty History – Nelson Mandela' and 'First Nelson Mandela Interview'

We can also classify needs into three basic types: **existence needs** that include all primary needs that are essential for survival; **relatedness needs** include safety, belongingness, esteem and other social relationships needs; and, **growth needs** include those aspects that help people to develop their full potential. It is important to understand that biological and psychological needs do not work in isolation. They influence each other and determine human behaviour.
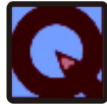
INTEXT QUESTIONS 8.1

1. Explain the concept of motivation.

   _____

2. Differentiate between primary and secondary motives.

   _____

3. Describe Maslow's hierarchy of needs.

   _____

4. Discuss the role of culture and environment in our needs and motives.

   _____

Quiz 1

1. The process by which a person moves towards fulfilment of wants is called:

   a. need   b. incentive   c. motivation   d. goal

2. Secondary needs are acquired through

   a. biological needs b. social interaction   c. intrinsic procession d. innate needs

3. According to Maslow the most basic needs are:

   a. safety   b. cognitive   c. love   d. biological

4. Reema gets Rs. 20 for every good grade she obtains in school. Reema is receiving:

   a. intrinsic motivation b. extrinsic motivation c. primary need d. growth need

5. Ashok has a high need for …………….. because he likes to study and investigate new things.

   a. love   b. nurturance   c. exploration   d. achievement

8.2 NATURE OF EMOTIONS

Each one of us has experienced strong feelings that are associated with pleasant or negative experiences. Examples of emotion are feeling happy when enjoying a movie, or getting embarrassed when we break a neighbour's beautiful vase, or sadness after an argument with our best friend. Emotions influence our everyday behaviour.

A. Functions of Emotions

Emotions play several important functions in our lives.

- **Emotions prepare us for action**: When you see a person with a gun coming towards you, the emotion of fear and the accompanying bodily changes will help you run away from the situation.

- **Emotions help arrange our activities and future behaviour in some order**: Emotions help us to gather information and increase our chances of making the right response in the future. When a person threatens us we will try to avoid meeting that person out of fear. Positive emotions can act as reinforcement such as, wanting to repeat an action which brought us praise and joy.

- **Emotions help us interact effectively with others**: When we show our emotions other people watching them may come to be familiar with our way of behaving and know how we are likely to act again in the future. Similarly, others' emotional expressions help us understand how to behave with them.

Activity 2

In column A are some situations which we all go through. In column B are emotions we might experience in these situations. Try and match column A to column B.

A	B
(i) You had fight with your best friend	(i) Surprise, excitement
(ii) You are about to go for an interview / exam	(ii) Fear, nervousness
(iii) You and your family are going for a picnic	(iii) Sorrow, sadness
(iv) You are about to receive the results of an exam that you do not think you did well on.	(iv) Disgust
(v) You have received an unexpected gift	(v) Scared, nervousness
(vi) You see a man chewing pan/tobacco and spitting on the road	(vi) Excitement, happiness

---

Notes

Fig. 8.2: *Emotional Expressions*

B. Components of Emotions

Emotion has three basic components or parts:

1. **Physiological changes:** when a person feels an emotion certain changes take place in our body such as increase in heart rate, blood pressure, pupil size is increased, perspiration takes place, breathing is faster and the mouth may become dry. Think about the last time when you went to the examination centre to write your exam or when you were angry at your younger brother. You may have experienced these bodily changes.

2. **Behavioural changes and emotional expression** refer to the outward and noticeable signs of what a person is feeling. These include facial expressions, bodily postures, and gestures with the hand, running away, smiling, frowning, and slumping in a chair. The six primary emotions in facial expressions are: fear, anger, sadness, surprise, disgust and happiness. This means that these emotions are easily recognized in people from all over the world.

3. **Emotional Feelings:** Emotion also includes the personal/individual feeling. We can **label the emotion** felt as: happy, sad, angry, disgusted and so on. Labelling

of a feeling is shaped by **past experiences** and the **culture** one belongs to. On seeing a person with a stick in his/her hand we may run away or prepare ourselves to fight, whereas, if a well known singer is in your neighbourhood you will go to the place to hear him sing your favourite songs.

Cognition or understanding of the situation is the most important part of emotional experiences. Some psychologists feel that we think and then feel, while others believe that our emotional reactions are so fast that thinking about the situation does not arise. Attempt Activity 3 to check which explanation is correct according to you? Human emotions involve so many things, past experience, culture, individual differences therefore at times we may first act and then think about it, whereas in other situations we can first think before reacting.

Activity 3

Emotion and Thinking

Think and answer: when you suddenly see a dog snarling near by do you first run away or do you first think 'What should I do?' and then decide to run? Make a list of other situations where you are likely to first react and other situations where you are likely to first think and assess the situation and then you will respond.

Most of the times we feel a **mixture of emotions**. For example, when a person wins a lottery she may show the emotions of shock, disbelief, surprise and joy. We are also familiar with each other's feelings and know what it means to him or her. Hence you know when your friend is happy to receive a gift and sad when you have had an argument with her. However your **experience of emotions** of joy and fear is different from your friend's. Going for a walk may provide you with pleasure whereas for your friend a hug from her mother gives the feeling of pleasure. The meaning a feeling has for you or your friend is influenced by past experiences and memories.

Activity 4

There are many ways by which we describe our feelings. Prepare a list of the various emotions people feel. Make your own list of emotions. Also ask your family members and friends. You will realize that the list is very long for human emotions have a wide range.

C. Emotions and Culture

Do people in all cultures express their emotions similarly? Yes, research indicates that the six basic emotions are expressed universally. Therefore, Indians, Americans, Germans or Japanese express joy and fear in the same basic way. Each primary emotion is associated with a unique set of facial and muscular movements.

Yet you must understand that the behaviour of people from various countries is different from your behaviour. Japanese tend to show very little emotional display as compared to Italians. Why does this difference in display exist if there are basic universal emotions? The answer is that as we grow up we come into contact with family members and others. The social experiences lead to the development of **display rules** which are approved way of showing of emotions. These rules are learnt during childhood and this learning becomes noticeable in the expression of emotions. Can you recall any instance when you have received a gift that you do not like? Have you not thanked profusely with a smile 'pasted on your face'? This is known as 'making of emotion'. Interestingly there may have been instances when you have been able to note the difference between a made up smile and a true smile.
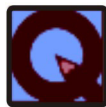
INTEXT QUESTIONS 8.2

1. State the functions of emotions in our lives.

   _____

2. With the help of examples identify the components of emotions.

   _____

3. State how display rules are influenced by culture.

   _____

Quiz 2

State whether the following statements are true or false:

1. Emotions prepare us for action. T/F
2. When a person feels an emotion no bodily changes take place. T/F
3. Emotional expression is only shown through facial expressions. T/F
4. Labelling of emotions is influenced by past experience and the culture one belongs to. T/F
5. Display rules are approved ways that are noticeable in the expression of emotion. T/F

8.3 ROLE OF EMOTION AND MOTIVATION IN HUMAN BEHAVIOUR

Can you imagine a situation when you are about to appear for an important examination or are going to receive a prize for securing the first position in class and you do not feel anything? Or, you are walking alone down a dark street at midnight and someone is following you and again you are not feeling anything? Absence of not being motivated to do something and absence of feelings is likely to make us act in a robotic fashion.

We have tried to understand motivation and emotions as two distinct concepts. In real life both are closely related and connected and separating the two concepts is a difficult task. In this unit you have learned that along with motivation we also feel our experiences. In the examples provided above the act of studying long hours and the experience of success provides you with a sense of achievement and happiness. The emotional feelings of love and affection your parents have towards you also motivate them to care for you. The death of a loved one brings on the emotion of sadness whereas we experience anger at being treated unfairly. Emotions not only motivate us, they also indicate the reason for motivation. They play an important role in our lives.

Hence your motivation is also accompanied by emotions. Any situation that brings about a strong emotion is likely to motivate you to either repeat it or to avoid it. Thus both motivation and emotion are forces that push us towards action. Primary needs like hunger, thirst and sleep and secondary needs like achievement, power or approval are accompanied by emotional reactions of satisfaction, joy and pride. It can be said that:

- Both motivation and emotion move, activate and help control and plan human behaviour.

- The feeling part of emotion has a motivational component. It helps us to get what we want and to avoid what we do not want in life.

- Emotions can serve as motives. For example, a frightened child may cry out for help and seek comfort and security from a loved one, such as, a mother or father.

WHAT YOU HAVE LEARNT

- Motivation is a want or need that helps us move towards our goal. It moves us to act or behave in a particular way.

- Motives and needs are characterized in terms of primary motives (biological) and secondary (psychological) motives. Primary needs are due physiological imbalance while secondary needs are influenced by social experiences of the individual.

- According to the hierarchy model, biological needs must be fulfilled before psychological needs.

- Emotions play three important functions: prepare us for action, organize our behaviour and future, and, interact effectively with others.

- Emotions have three interrelated components: physiological changes, behavioural and emotional expression and subjective feelings.

- Basic emotions and their expressions are universal in nature yet culture provides guidelines towards how and when to show emotions.

- Motivation and emotion together activate and organize our life. Motivation leads to emotional experience and this further motivates (reinforces) a person to act.

TERMINAL QUESTIONS

1. Write three examples of motivated action. Now identify the important characteristics of motivation.

2. Identify the important components of Maslow's hierarchy of needs. Which motives are satisfied first? Provide reasons as to why this is so.

3. With suitable examples describe the role of motivation and emotion in organizing our behaviour.

Activities/Exercises

1. Interview a person who has achieved prominence in his or her field. For example, the president of a company, a sports person, a dancer or a physically challenged person. Ask the person about his/her life – starting from childhood to the current position, incidents that influenced them, the various challenges and how they were overcome. Prepare a case study.

2. Collect a number of magazines, and newspapers. Cut photographs which show different facial expressions. Make a collage of these photographs to understand the different emotions in human life.

3. Interview a dancer or theatre person. Ask the person about different emotional expressions and how they are used to communicate specific emotions. Try to note how the body posture, gestures, and facial expressions communicate emotions.

ANSWERS TO INTEXT QUESTIONS

8.1 Refer to Section 8.1

Quiz 1

1. c
2. b
3. d
4. b
5. c

8.2 Refer to Section 8.2

Quiz 2

1. T
2. F
3. F
4. T
5. T

Hints for Terminal Questions

1. Refer to section 8.1

2. Refer to section 81

3. Refer to section 8.3

Web Sites

The following websites will help you to further understand motivation and emotions.

1.   http://thesituationist.files.wordpress.com/2007/10/emotions.jpg

   Types of emotions: (a) In this site robots have been used to depict different types of emotions. Study in detail how each part of the face (forehead, eyebrows, size of eye pupil, etc.)

(b) https://sfari.org/image/image_gallery?img_id=136061&t =1241787803666

   Whereas in this site humans have been used to show six different emotions. Can you identify them?

(c) http://www.scribd.com/doc/12910868/Paul-Ekman-Emotions-Revealed-Recognizing-Faces-and-Feelings-to-Improve-Communication-and-Emotional-Life

   This E-book by Paul Ekman has a number of photographs which you can observe to understand different types and display of emotions. On page 236 in the appendix there is a test 'Reading Faces' consisting of 14 photographs that you can attempt . At the end of the e-book answers with explanations are also provided .

9

NATURE AND DETERMINANTS OF DEVELOPMENT

One of the most important features of all living beings is change. The changes are most striking when we see the transition in human life spanning from conception to death. The journey from an unborn baby to an adult and then on to an old person is very fascinating. Even a casual observation of the human lives around you will make it clear that several changes happen each day in our bodies and psychological functioning. Some changes are noticeable while some can not be immediately or clearly observed. Some of these changes are determined more by hereditary or genetic factors, while some depend more on environmental and cultural factors. Different cultures hold different goals for development and use different strategies to bring up children. In order to help individuals develop in the best way possible, it is important to understand the nature and process of development throughout the life-span.

OBJECTIVES

After studying this lesson, you will be able to:

- describe the nature of development and distinguish it from other related concepts;

- describe the important domains and stages of human development;

- identify major genetic and environmental influences on human development; and

- learn about the effects of environmental factors on pre-natal as well as post-natal development.

9.1 NATURE OF DEVELOPMENT

In this section, we will try to understand what is meant by the term "development", distinguish it from other related concepts, and identify its main characteristics.

A. The Concept of "Development"

The term "development" is generally used to refer to the dynamic process by which an individual grows and changes throughout its life-span. It is often thought of as the process of qualitative change taking place from conception to death. In this way development is a broad term and deals with all areas including physical, motor, cognitive, physiological, social, emotional and personality. It should be noted that developments in all these areas are inter-related. For example, a 13 year-old girl undergoes physical and biological changes in her body and such changes are in turn related to her mental, social and emotional development.

Life begins at conception when mother's ovum fertilized by the father's sperm and a new organism is created. From that point till death an individual keeps on changing. Such changes are not random but orderly and generally follow a pattern. It may be noted that the developmental changes are not always incremental or evolutionary. They may also involve a decline in the functioning called "involution". A child loses milk teeth in the process of development while an old person may show decay in memory and physical functioning. Development, therefore, is best viewed as a gain-loss relationship in which newer and different kinds of changes take place. Older behavior patterns may lose their salience while new ones may emerge.

Development is shaped by the joint influences of both nature and nurture in a cultural context. Nature refers to the hereditary contribution a child receives from parents at the time of conception. Genetics determines several aspects of a person's physical structure and functioning as well as some psychological characteristics to a certain extent. Nurture refers to the influences of the complex physical and social ecology in which we develop and grow. Various aspects of the child's ecology (e.g. physical facilities, social institutions and rituals, and school) influence the developmental outcomes in important ways.

B. Key Developmental Concepts

The term "**development**" is often used interchangeably with "**growth**" and "**maturation",** but these terms need to be carefully distinguished.

"**Growth**" generally refers to the quantitative additions or changes in the organic structure. For instance as we become older, the body size, height, weight, proportion of parts of our body change in measurable ways. Also, the vocabulary increases. "**Development**" on the other hand, is a broader term which often includes growth, but is used more to refer to functional and qualitative changes in cognitive ability, perceptual ability, personality and emotional development and so on.

"**Maturation"** is a term that refers to the natural unfolding of changes with increasing age, e.g. hormonal changes as the individual reaches puberty. An example of this

can be seen in breast development which is influenced by release of estrogen when a girl reaches adolescence. Maturation refers to the changes which are primarily biological in nature and occur due to our genetic programme. Our biological structure follows a predetermined course of changes with time. This can be seen in the development of teeth during childhood. Changes in body proportions with age provide an example of such predetermined universal trends. The size of the head is roughly half of the whole body at birth, but the proportion keeps decreasing until adulthood, when it is less than one-fourth of the whole body. Therefore, maturational changes in our body are primarily due to the ageing process rather than learning or other factors such as illness or injury.

It must be noted that changes in behavior also occur due to **"learning"**. Learning takes place as a result of a person's interaction with the environment. Maturation provides the raw material and sets the stage for learning to occur. Taking the case of learning to read, the child needs to be biologically ready. The eyes need to develop proper focusing ability before a child can learn to read. Therefore, maturation and learning jointly bring about changes in a person's behaviour.

"Evolution" is a term that refers to species-specific changes. Evolutionary changes happen very gradually and are passed on from one generation to the other so that the species is better equipped for survival. The evolution from apes to human beings took place over a period of about 14 million years. Changes that occur at the level of species are called **phylogenetic** and those that occur at the level of individual are called **ontogenetic**. The term evolution is also used to describe the incremental changes that take place in the course of development.

C. Characteristics of Development

We can now summarize the characteristic features of development to help us distinguish it from other kinds of changes.

- Development is a **life-long process**, spanning from conception till death.

- Developmental changes are often **systematic, progressive and orderly**. They usually follow a pattern, proceeding from general to specific, and from simple to complex and integrated levels of functioning.

- Development is **multi-directional**, i.e. some areas may show a sharp increase while other areas may show a decline. Developmental changes usually involve an increase in maturity towards higher levels of functioning, e.g. increase in vocabulary's size and complexity. But it may also involve a decrease or loss, such as in bone density or memory in old age.

- Moreover the rate of growth and development is **not always constant**. 'Plateaus' are often seen in the pattern of development, indicating periods of no apparent improvement.

- Developmental changes can be **quantitative**, e.g. increase in height with age, or **qualitative,** e.g. formation of moral values.

- Development is both **continuous** as well as **discontinuous** process. Some changes may occur very rapidly and be overtly visible, such as appearance of the first tooth, while some changes may not be sharp enough to be observed easily in day-to-day functioning, such as understanding of grammar.

- Developmental changes are **relatively stable**. The temporary changes due to weather, fatigue or other chance factors will not qualify as development.

- Developmental changes are **multi-dimensional** and inter-related. They may happen together in many areas at a time, or can occur one at a time. During adolescence there are rapid changes in the body as well as in emotional, social and cognitive functioning.

- Development is highly **plastic or flexible**. This means that the same person may suddenly show greater improvement in a particular area than expected from the past rate of development. An enriched environment can produce unexpected changes in the physical strength, or in memory and intelligence levels.

- Development is **contextual**. It is influenced by historical, environmental and socio-cultural factors. The loss of a parent, an accident, a war, an earthquake and child-rearing customs are examples of factors which may influence development.

- There are considerable **individual differences** in the rate or tempo of developmental changes. These differences could be due to hereditary factors or environmental influences. Some children can be very precocious for their age, while some children show developmental delays. For example, though an average child begins to speak 3 word sentences around 3 years of age, there will be some children who have mastered this much before 2 years, while there will be some who are not able to speak full sentences even by 4 years. Moreover, there will be some children who are not able to speak even beyond the upper limit of the range.
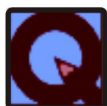
INTEXT QUESTIONS 9.1

1. Write True/False against each statement:

    a. Development refers to both quantitative and qualitative changes.   T/F

    b. Development follows a constant rate.   T/F

    c. The study of development does not cover old age.   T/F

    d. A person may show increase in some aspects and show decline in other aspects at the same time   T/F

    e. Enrichment of the environment can produce dramatic changes.   T/F

2. Write short answers to the following questions:

   a. Explain the concept of development.

   _____

   b. State any 3 major characteristics of human development.

   _____

9.2 DOMAINS OF DEVELOPMENT

As we have noted development is an inclusive term that incorporates changes in several areas. These areas or domains deal with 3 broad categories:

1. **Physical and motor development**: It refers to changes in body-size and structure, functioning of various body systems, brain development, perceptual and motor development.

2. **Cognitive development**: It refers to the development of cognitive and intellectual processes, including memory, attention, intelligence , academic knowledge, problem solving, imagination and creativity. It also includes development of language.

3. **Socio-emotional development**: It refers to how we develop relationships with other people, and how our emotions emerge and change as we grow older. It includes emotional communication and self-control, understanding of self and others, interpersonal skills, personality, and emergence of friendship and moral reasoning.
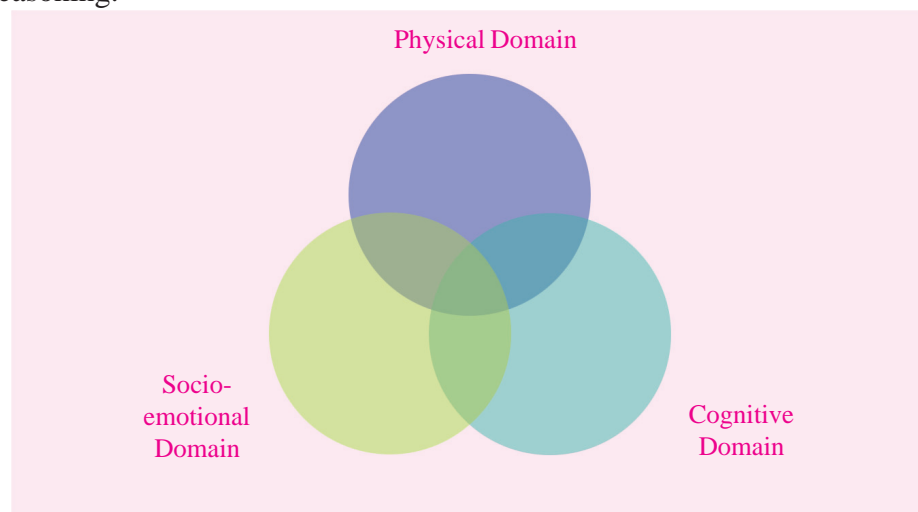

Physical Domain

Socio-emotional Domain

Cognitive Domain

Fig. 9.1: *Inter-relatedness of the domains of development*

These domains or areas are inter-related and combine in a holistic manner to make a person's developmental pattern unique. Each domain influences and is influenced by others. As a baby develops physically, several motor skills are acquired. As the

baby becomes capable of grasping, reaching, sitting, crawling, standing and walking, he/she is able to better explore the environment, resulting in further cognitive development. Improved thinking and understanding helps formation of better social relations as well as emotional expression and comprehension. On the whole, each domain helps the child move towards enriched experiences, learning and overall development.
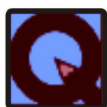
INTEXT QUESTIONS 9.2

1. Fill in the blanks in the following statements:

   a. Improvement in memory and language indicates development in the ————domain.

   b. Interpersonal relationships fall in the _____ domain.

   c. Changes in size and structure of the body fall in the _____domain of development.

   d. _____ broad domains of development can be categorized for the sake of convenience.

9.3 STAGES OF DEVELOPMENT

Even though development is a continuous process, some theorists believe that various stages can be identified for the sake of locating major shifts and determining the developmental tasks. This helps in monitoring the pace of developmental changes. It must be pointed out that there is no sharp dividing line between them. Each stage has certain characteristic features and prepares the ground for the next stage. Some theorists have suggested stages in specific areas of development. For instance Piaget who identified stages of cognitive development and Freud who suggested stages of psycho-sexual development. These theories are explained in other lessons.

A. Developmental Stages: A Life Span Perspective

Most psychologists identify the following stages of development:

- **Prenatal period** (from conception to birth) : In this period, the single-celled organism changes into a human baby within the womb.

- **Infancy and toddlerhood** (birth-2 years): Rapid changes in the body and brain help several sensory, motor, social and cognitive capacities to emerge.

- **Early childhood**: (2-6 years): Motor skills are refined, language develops, ties are formed with peers, and the child learns through play.

- **Middle childhood** (6-11 years): These are the school years when the child acquires literacy skills, thought processes are refined, friendships emerge and self-concept is formed.

- **Adolescence** (11-20 years): This period is marked by puberty which signals the onset of rapid physical and hormonal changes, emergence of abstract thinking, sexual maturity, stronger peer ties, sense of self and autonomy from parental control.

- **Early adulthood** (20-40 years): This is the stage of life when the youngster leaves home for the sake of education, or to find a career, and to form intimate relationships leading to marriage and having children.

- **Middle adulthood** (40-60 years): At this stage the person is at the peak of his/ her career. There is a need to help children begin independent lives, and to look after own parents who are aging.

- **Late adulthood (**60 years till death): This period is marked by retirement from work, decrease in stamina and physical health, bonding with grand-children, and dealing with impending old age and death of self and spouse.

Fig. 9.2: *Stages of human development*

Though the stages of development are universally recognized, the exact age range is arbitrary and depends on cultural factors. In some cultures, for example, there is no distinct phase of adolescence with the stress associated with it. One simply moves from childhood to adulthood. The concept of old age is undergoing a change with enhanced medical, health and cosmetic facilities. Life-span expectancy has also increased and reached to 65 years in India.

B. Life Stages : An Indigenous View

Ancient texts also view the human life-span in terms of stages. Life is seen as a process of evolution in four stages known as **Ashramas**, which literally means a dwelling place. There are four main Ashramas:

- **Brahmacharya:** During this period the major task is learning while living as a student under the guidance of a Guru, with emphasis on discipline and simple living.

- **Grihastha**: In this phase of life an individual has to work and take on the responsibility of raising and maintaining a family within the social context.

- **Vanaprastha:** It is a period of seclusion after one has raised the family and completed the duties towards it. It requires severe discipline and austerity and sharing responsibilities with the younger people.

- **Sanyasa:** It is the final stage of life when one needs to achieve complete detachment from worldly objects, freedom from desire, and move towards ultimate self-knowledge and renunciation from the world.

These stages or ashramas are based on the principle that a human being should grow, participate and discharge worldly duties and contribute to the progress and welfare of society and move towards liberation and spiritual growth. It is desired that the older persons should give way to the younger generation. In this scheme one lives in a web of obligations to society as well as environment including all living beings such as animals and trees. It emphasizes co-existence with this whole living world rather than being a consumer and exploiting the environment for personal gains.

C. Developmental Tasks

Each developmental stage is characterized by a dominant feature or a leading characteristic which determines its uniqueness. For example, a child is expected to go to school and study while an adult is expected to work and raise a family. Certain characteristics stand out more prominently than others and each period is called a stage. People learn certain behavior patterns and skills more easily and successfully at certain stages and this becomes a social expectation. For example, a child is supposed to be able to go independently to school in middle childhood. Such social expectations of a particular age common to all persons constitute "developmental tasks". If a person is able to master the developmental task of a particular stage, he or she is considered to have successfully moved on to the next stage of development.
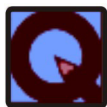
INTEXT QUESTIONS 9.3

1. Write True or False after each statement:

   a. Developmental stages have a fixed age range.

   b. Prenatal period extends from birth to conception.

   c. Adolescence is marked by rapid physical and psychological changes.

d. There are four stages in the Hindu view of development.

e. The Hindu concept of development encourages staying away from the family.

f. Developmental tasks are social expectations of a particular age group.

2. Write short answers to the following questions:

a. State the major stages of development as described in ancient Hindu texts.

_____

b. What do you understand by the term "developmental tasks"?

_____

9.4 INFLUENCES ON DEVELOPMENT

It is important to understand the factors that determine the course of development. Each one of us is a product of genetic factors and environmental influences. The role of maturation and learning has already been described briefly in an earlier section. Let us now look at the contributions of heredity and environment in some detail.

A. Genetic Influences

At the time of conception, the ovum of the mother and the sperm cell of the father unite to form a new cell. The small particles in the nucleus of the cell are called **chromosomes**. The chromosomes exist in pairs. The human cell has 46 chromosomes arranged in 23 pairs. One member from each pair comes from the mother and the other one from the father. Chromosomes store and transmit genetic information. The genes, which are the actual trait carriers, are found in very large numbers in each chromosome.

The fertilized zygote brings together various combinations of chromosomes. In this way, different genes are transferred from each child of the same set of parents. Due to this reason each child bears greater similarity to his on her blood relatives than to anyone else. At the same time there are also many differences amongst blood relatives.

B. Genotypes and Phenotypes

Genetic transmission is a complex process. Most characteristics that we observe in human beings are combinations of a large number of genes. Innumerable permutations and combinations of genes are responsible for the large differences in physical and psychological characteristics.

Only identical or monozygotic twins have exactly the same set of chromosomes and genes as they are formed by duplication of a single zygote. Most twins are fraternal or di-zygotic, who develop from two separate zygotes. These fraternal twins may resemble each other like brother and sister, but they will also be different from one another in many ways.
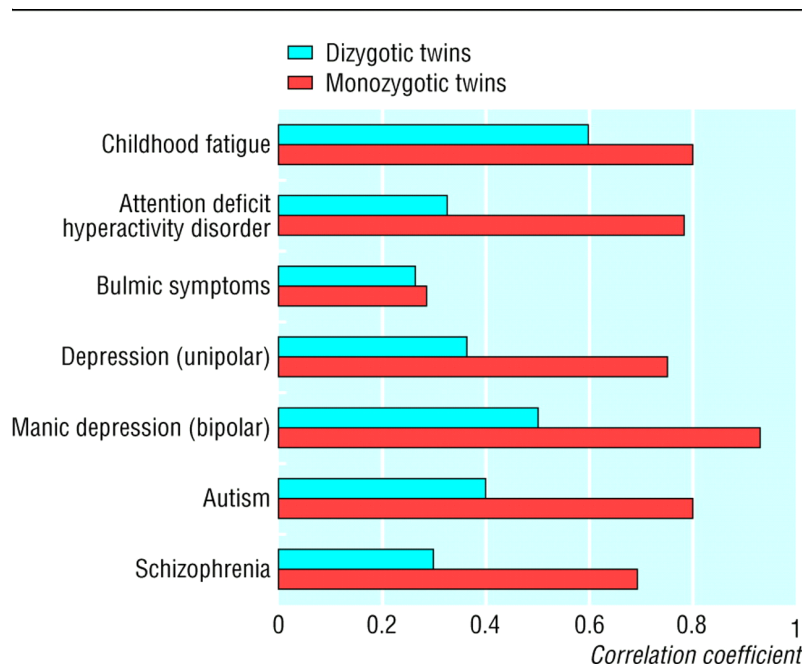
Fig. 3: *Differences between Mono-zygotic and Di-zygotic twins*

Genes can be **dominant** or **recessive**. It is a known fact that there is more color blindness or lack of sensitivity to certain colors among males than females. A grandmother and mother can transmit this condition to the male child without being color blind themselves. This is because in the male this disorder is dominant, whereas in female it is recessive. The genes form pairs. If both genes in a pair are dominant, the individual will display the specific trait (e.g. color blindness). If one gene is dominant and the other recessive, the dominant will prevail. The recessive gene will be passed on and may show up in a later generation.

The dominant gene, therefore, is the one responsible for a particular trait to show up in a person. The characteristics which show up and are displayed e.g. eye color, are called **phenotypes.** The recessive gene does not show up as a trait, unless paired with another gene just like it. The characteristics that are carried genetically as recessive genes but are not displayed are called **genotypes.**

Genotype, therefore, refers to the actual genetic material or a person's genetic heritage while **phenotype** refers to the individual's physical and behavioral characteristics which are determined by both genetic and environmental factors.

C. Environmental Influences

Nature refers to what a child has inherited genetically from her parents, while the influence of environment on the development of the child is referred to as nurture.

To understand the development of a person, we have to study the complex interaction between nature and nurture or heredity and environment.

Environmental influences are important both at the prenatal and postnatal stages of human development. At the prenatal stage, when a fetus is in the mother's womb, internal or external harmful agents, such as certain legal or illegal drugs, alcohol, lead and pollutants can harm the unborn baby's development. The mother's nutrition, diseases and emotional stress can also affect the development of the fetus.

After birth, several types of environmental factors operate to influence the development of the child. The **ecological systems theory** of development views environmental factors organized as concentric circles of systems.
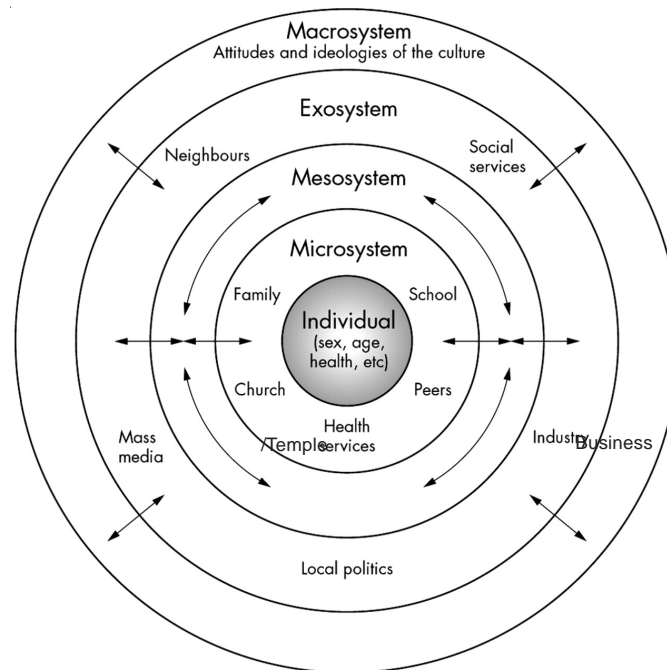

Fig. 4: *Ecological systems influencing human development*

The **micro-system** is the immediate environment at home and interactions between them and the child's own characteristics. The **meso-system** consists of the relationships between family members and school and neighborhood. The **exo-system** refers to the influences of indirect agencies such as work-place of the parents or community services. The macro-system is the outermost layer which includes cultural values, laws and customs. The systems are ever-changing and dynamic. There is also a **chronosystem** which refers to the time dimension. As the child grows, there are changes within each system, and also changes due to the child's interaction with the environment. On the whole, in ecological systems theory, children are both products and producers of their environments, in a network of interdependent effects.

The present view of development gives importance to both nature and nurture. Heredity and environment are inseparably interwoven, each affecting the impact of the other on the child. Development therefore has certain universal features, as well as features unique to the individual. It is important to understand the role of heredity, but more fruitful to understand how the environment can be improved, so as to help the child develop in the best possible way within the limits set by heredity.

An understanding of the principles and determinants of development helps us in several ways:

1. It helps us to know what to expect of the individual's capability at a particular age.

2. It gives information on when to provide opportunities and stimulation for optimal development.

3. It helps to parents, teachers and others who work with children, to prepare them for the physical and psychological changes that are to take place.

4. It helps us to be prepared for changes in our bodies and personalities as we grow older.

5. It helps us to understand that it is possible to facilitate the process of development by providing an enriched environment.
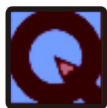
INTEXT QUESTIONS 9.4

1. Fill in the blanks in the following statements:

   a. Heredity is determined at the time of _____.

   b. There are ____ pairs of chromosomes in a human cell.

   c. Genes can be _____ or _____.

   d. Characteristics that are carried in the genetic code but not displayed are called _____.

   e. In the ecological systems theory, the layer which consists of cultural values, laws and customs is called the _____.

   f. External agents that can harm the unborn baby in the womb are called _____.

2. Write short answers to the following questions:

   a. Explain the terms 'genotype" and "phenotype".

b. Briefly explain the main features of the ecological systems theory of development.

WHAT YOU HAVE LEARNT

- Development refers to the process by which the individual grows and changes during its life-span, from conception to death.

- Development is systematic, orderly, progressive, multi-dimensional, multi-directional, plastic and contextual.

- The major domains of development are physical, cognitive and socio-emotional.

- Stages of development can be categorised for the sake of convenience, ranging from prenatal stage to late adulthood or old age.

- Each stage is characterized by certain developmental tasks which are social expectations for a given age group.

- Hereditary factors are determined at the time of conception and genetic information is carried by genes and chromosomes.

- Genotypes refer to the characteristics which are carried genetically but not displayed.

- Phenotypes refer to those characteristics which are displayed.

- Environmental factors influence both prenatal and post-natal development.

- External harmful agents can cause damage to the fetus in the mother's womb.

- Maternal disease, nutrition and stress can influence fetal development.

- The ecological systems theory proposes several sub-systems in the growing child's environment which can influence development.

- Both nature and nurture jointly influence development.

TERMINAL QUESTIONS

1. Differentiate between the terms "development", "growth", "maturation" and "evolution".

2. Describe the major domains of development.

3. Identify the major stages of human development.

4. Discuss the relative importance of nature and nurture in development.

ANSWERS TO INTEXT QUESTIONS

9.1

1. a. true

    b. False

    c. False

    d. True

    e. True

2. a. Refer to section 9.1.1

    b. Refer to 9.1.3

9.2

a. cognitive

b. socio-emotional

c. physical

d. three

9.3

1. a. False

    b. False

    c. True

    d. True

    e. False

    f. True

2. a. Refer to Section 9.3.2

    b. Refer to Section 9.3.3

9.4

1. a. conception

    b. 23

    c. dominant, recessive

    d. genotypes

Notes

e. macrosystem

f. teratogens

2. a. Refer to section 9.4.2

b. Refer to section 9.4.3

Hints for Terminal Questions

1. Refer to section 9.1.2

2. Refer to section 9.2

3. Refer to section 9.3.1

4. Refer to section 9.4

10

CHILDHOOD

Childhood is a beautiful phase of life for most of us. It is a period associated with play, fantasy, and innocence. It is the crucial phase in life and involves important aspects of growth and development which are critical for the entire life span.

The childhood period can be further classified into four sub-stages:

(a) Infancy (birth to 2 years),

(b) Early childhood (2 to 6 years),

(c) Middle childhood (6 to 11 years), and

(d) Adolescence (12 to 19 years).

Infancy provides the foundation for all areas of development. It is a period marked by extremely rapid physical growth and development of sensori-motor skills. Infancy is also important for cognitive, language and socio-emotional development. This stage has already been discussed. Adolescence will be taken up in the next lesson.

In this lesson, we will try to understand how various aspects of development such as physical, motor, cognitive, social and personality development proceed during childhood. We will also study the socialization process during childhood in the cultural context.

OBJECTIVES

After studying this lesson, you will be able to:

- describe physical and motor development in childhood;

- understand cognitive development during childhood;

- explain socio-emotional and personality development in childhood; and

- understand the process of socialization within the cultural context.

10.1 PHYSICAL AND MOTOR DEVELOPMENT IN CHILDHOOD

While physical growth is extremely rapid during infancy, it is comparatively slower in childhood. As the child's body size, height and weight increase, there are also changes in muscular and skeletal structure. This leads to development of several motor skills in childhood. The studies have shown certain universal trends in both physical and motor development.

The sequence of physical and motor development is fairly uniform across different cultures. Yet there are large **individual differences**. One child may walk at 10 months, while another may walk only at 24 months. The major milestones of physical and motor development in infancy and childhood are given in Table 10.1

Table 10.1: Milestones of Physical and Motor Development

Lifting chin up while lying on stomach	1 month
Lifting head and chest	2 months
Rolling over	4 months
Picking up objects with palm without sitting with support	5 months
Finer use of thumb and fingers	7 months
Sitting alone (without support)	8 months
Standing with support (holding on to furniture)	8-9 months
Crawling	9 months
Standing independently	9-10 months
Taking few steps without holding on and walking holding on	12-13 months
Grasping objects with thumb and forefingers	13-14 months
Walking alone	15 months
Running and climbing stairs	2 years
Walking on tip toe	2½ years
Riding a tricycle	3 years
Throwing ball over head, walking down stairs with one foot to a step	4 years
Copying a complex figures	6 years

Understanding of physical and motor development is extremely important as it provides the basis for the development of child's personality, social and emotional development. It helps establish emotional bonding between the child and the mother figure. It also helps mastery over the child's own body and movements.

A. Gross and Fine Motor Development

Motor development is usually classified into 'gross motor' and 'fine motor' categories. **Gross motor development** refers to control over large muscle groups that enable the child to get around, e.g. crawling, standing and walking. They usually involve the limbs or the whole body. **Fine motor development** refers to control over smaller muscle movements e.g. grasping, pinching etc. Fine motor skills are necessary to engage in smaller, more precise movements, generally using the hands and fingers. Fine motor skills are different than gross motor skills which require less precision to perform the daily tasks.

Table 10.2: Gross and Fine Motor Development Milestones

Child's age	Activities involving Fine Motor Skills
0 and 3 months	Holding an object
3 and 6 months	Trying to reach out for objects, putting things in mouth
6 months and 1 year	Trying to hold food, using hand and fingers to play games
1 year and 1-1/2 years	Scribble on paper, trying to play throw and catch with the ball
1-1/2 and 2 years	Drawing lines with pencil, using a spoon to eat food with little help
2 and 3 years	Brushing teeth and buttons cloths with help
3 and 5 years	Builds using building blocks, uses a pencil to draw, turn pages of a book
5 and 7 years	Draws various shapes very easily, brushes and combs without support, cuts shapes very clearly

10.1. 3 Physical and Motor Development in Early Childhood (2-6 years)

Early childhood covers the period from 2 to 6 years. It is also known as the preschool stage. The child who has become mobile is now able to widen the sphere of activities beyond the immediate family. Through interaction with the wider society and the environment the child learns the rules of appropriate social behavior of and develops mental abilities which prepare him/her for formal education and schooling. Most infants appear to be quite clumsy in their physical and motor activities. But gradually their locomotion skills become refined and graceful. Body balance while walking and running improves noticeably. A 3-year-old can run in a straight line and jump smoothly without falling down. A 4-year-old can skip, jump on one foot and catch a large ball thrown from a distance.

Development of Fine Motor Skills during Childhood

- **2-3 years:** Undresses self and assists with dressing, Copies a circle and a cross, Strings four large beads, Turns a single page, Snips with scissors on a line, Buttons/unbuttons large buttons.

- **3-5 years:** Copies a square, Prints own name – tripod pencil grasp, Ties shoelaces, Cuts on line continuously, Prints some capital letters.

- **5-7 years:** Copies a triangle, Cuts our simple shapes, Copies first name, Prints numerals 1 to 5, Color within lines, Pastes and glues appropriately

Between 2 and 3 years, young children stop "toddling," and develop a smoother gait. They also develop the ability to run, jump, and hop. They can participate in throwing and catching games with larger balls.

Children who are 3 to 4 years old can climb up stairs using a method of bringing both feet together on each step before proceeding to the next step. However, they may still need some assistance to prevent fall as they are likely to be unsteady in this new skill. Children of this age can jump and hop higher as their leg muscles grow stronger.

During this period, children become better at catching and throwing, can hit a stationary ball with a bat, learn to ride a tricycle, and can kick a ball placed directly in front of their bodies. They can create things with their hands, such as building towers out of blocks, molding clay into rough shapes, and scribbling with a crayon. Children of this age often begin showing a preference for using one hand more often than the other, which is the beginning of becoming left or right-handed.

Between 3 and 4 years, children improve in eating food themselves and can use utensils like forks and spoons. They can now hold a crayon or pencil by the writing hand rather than just grasping it with the fist. They can also make twisting motion with their hands, useful for opening door knobs or twisting lids to open jars. Most children are toilet trained by 4 years of age.

As children reach the age of schooling, the rate of physical growth becomes slower until puberty when there is a rapid 'growth spurt'.

By the age of six, the child is physically capable of coordinated actions which require body balance. Small muscle coordination required for fine motor activities, such as putting on shirt buttons or copying a simple figure, improves quite dramatically during the early childhood years. Children can also complete other self-care tasks beyond dressing and undressing, such as brushing their teeth and combing their hair. Children of this age can also independently feed themselves without an adult's immediate supervision or help.

During 5 to 6 years of age, young children continue to refine the earlier skills. They can run faster and can start to ride bicycle with training wheels for added stability. In addition, they can step sideways. Children of this age begin mastering new forms of physical play such as the jungle gym, and begin to use the see-saw, slide, and swing on their own.

Development in Middle Childhood (6-11years)

During this period physical growth becomes more gradual and rate of overt change becomes slower until puberty at about 11-13 years when there is again a rapid 'growth spurt'. There are changes in height, weight and muscular strength and swiftness. During this period, there are large gender differences. Girls are slightly shorter than boys during 6 to 8 years but then the trend reverses. Girls start putting on weight. A 10 year old girl may look taller and heavier than a boy of the same age. The growth spurt for boys comes later than for girls.

During this period, children achieve greater control over large and small muscle groups. They keep getting stronger, faster and attain better motor co-ordination. School children are energetic and enjoy all types of outdoor games. Increase in cognitive capacity also helps them learn the rules of new games.

The 6-7 year-old children can copy complex figures such as a diamond, color patterns and figures and assemble tools and model toys. They also become more skillful in games requiring skillful eye-hand coordination such as throwing, catching and hitting targets. They continue to refine fine motor skills and build upon earlier skills.
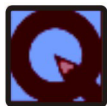
INTEXT QUESTIONS 10.1

Write short answers to the following questions:

1. Give names of any 3 gross motor skills developed in childhood.

    _____

2. Give names of any 3 fine motor skills developed in childhood.

    _____

10.2 COGNITIVE DEVELOPMENT

Cognitive development refers to the way children learn and process information. It includes improvement in attention, perception, language, thinking, memory and reasoning.

According to Piaget's cognitive developmental theory, our thoughts and reasoning are part of adaptation. Cognitive development follows a definite sequence of stages. Piaget described four major stages of cognitive development:

- Sensori-motor stage (Birth- 2 years)
- Pre-operational stage (2-7 years)
- Concrete operational stage (7-11 years)
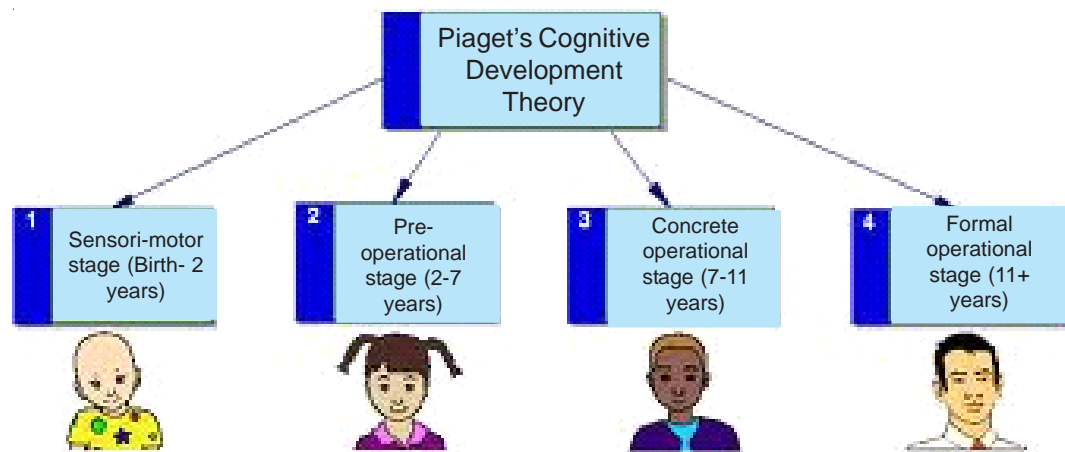- Formal operational stage (11+ years)

Fig 10.1: *Piaget's Cognitive Development Theory*

The following section takes a look at cognitive development through childhood as indicated by Piaget's theory.

Cognitive Development in Early Childhood (2 to 6 years)

During this period children become increasingly proficient in using symbols such as words and images to represent a variety of objects, situations and events. By the time children enter school they have a reasonably good vocabulary. In fact, children are very receptive at learning language when they are exposed to multiple languages in different contexts. They often grow up as bilingual or multilingual children. They have better understanding of language compared to monolingual children who use only one language.

Capacity for sustained attention improves during the early childhood. A 3-year-old child may persist on a task such as coloring with crayons, playing with toys or watching television for not more than 15-20 minutes at a stretch. By contrast, a 6-year-old can be found to be working on an interesting task for an hour or more. Children also become more selective in their attention. As a result their perceptual skills also improve.

Thinking becomes more logical and capacity to remember and process information also improves. Through interaction with the environment the child learns the rules of appropriate social behavior which prepare him/her for schooling.

Early childhood, from 2 to 6 years, is the phase when the child progresses through the **Pre-operational stage**. There are 2 sub-stages of the Pre-operational Stage:

a) Symbolic Function (2 to 4 years)

b) Intuitive Thought (4 to 7 years)

During the Symbolic Function sub-stage, children can create mental images of objects and store them in their minds for later use. For example, such a child can draw a picture of or pretend to play with a puppy that is no longer present there.

Children can talk about people who are traveling, or who live somewhere else. They can also talk about or draw places they visited, as well as create new scenes and creatures from their imagination. Children can also use their mental images of things to role-play in games.

Piaget also believed that pre operational children have a style of thinking characterized by **Egocentrism,** or the inability to see the world from someone else's point of view. According to Piaget, children with egocentrism explain situations from their own perspective and understanding.

The next sub-stage in Piaget's Preoperational cognitive development stage is the **Intuitive Thought sub-stage**, which spans ages 4-7 years. Children in this sub-stage of development learn by asking questions such as, "Why?" and "How come?" Piaget labeled this "intuitive thought" because he believed that children at this stage tend to be so certain of their knowledge and understanding that they are unaware of how they gained this knowledge in the first place. These children show "**Centration"**. They focus on one characteristic of object and base their decisions or judgment on that only.

During early childhood, children's ability to understand, process, and to produce **language** also improves rapidly. There is a 'language explosion' between 3 and 6 years. At age 3, their spoken vocabularies consist of roughly 900 words. By age 6, spoken vocabularies expand dramatically to anywhere between 8,000 and 14,000 words.

As children move beyond using two word sentences, they start to learn and understand grammar rules. Beyond growing their vocabularies, young children start expanding their ability to use different forms of words (e.g., irregular verbs such as "She brought' rather than "She brang")? They also begin to form more complex sentences.

B. Cognitive Development in Middle Childhood

Children at the middle childhood level are full of curiosity and are keen to explore the environment. Memory and conceptual knowledge improve, facilitating logical

thinking beyond the immediate situation. Children can also engage in aesthetic activities such as music, art and dance and develop hobbies of their own.

In Piaget's theory, characteristics of the **Concrete Operational Stage** during middle childhood are as follows:

- Understanding of logical principles.
- Improvement in spatial reasoning.
- Logical thinking limited to real and concrete situations.

In middle childhood years, **language development** proceeds in many ways. More than just learning new words, children are acquiring more adult definitions of the words they know. They create relationships among words, understand synonyms and antonyms, and understand how prefixes and suffixes affect word meaning.
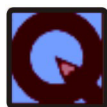
INTEXT QUESTIONS 10.2

1. Write short answers to the following questions:

   a. List any 3 major features of the pre-operational stage.

   _____

   b. Describe any 3 major achievements of the concrete operational stage.

   _____

10.3 SOCIO-EMOTIONAL AND PERSONALITY DEVELOPMENT

Infancy is a period when basic emotions are established, and the child progresses in both emotional expression as well as recognition of emotions in others. During early childhood, children typically start to develop self-conscious emotions like shame and guilt as they start evaluating themselves, instead of simply reacting to caregivers' or other adults' evaluations.

As children become increasingly self-aware, more effective at communicating, and better at understanding the thoughts and feelings of others, their social skills improve. They become skilled at modifying and expressing their emotions to fit different social situations. For example, one child may feel angry, but he/she knows that having a tantrum at school is inappropriate. Another child learns that acting pleasant and happy, even though she is actually feeling shy, is a better way to meet people in a birthday party when she does not know many of the other children. Changing or

controlling one's emotions in social situations is an important skill that allows children to fit in with groups and helps in creating interpersonal relationships.

Another emotional capacity that develops during early childhood is empathy, which is an important component of positive social behavior. As with other emotions, the development of empathy depends on cognitive and language development.

Learning how to appropriately express and deal with anger, aggression, and fear is a valuable life and social skill. Young children often need plenty of guidance and positive discipline in order to learn how to control their anger. Parents and caregivers not only directly teach ways of controlling emotions, but also indirectly influence children's behaviour by acting as role models.

As infants grow, they begin to mature in their ability to interact with others socially. A child's main developmental task is to create bonds and connect with primary caregivers. In contrast, young children branch out and began to create other social relationships. When interacting with other children of their age, such as peers at day care or preschool, they engage in parallel play in which they play beside each other without truly interacting with each other.

Young children begin to play more cooperatively. In cooperative play, they engage in the common activity in a small group. Often, these first forms of cooperative play include pretend or symbolic play. As they continue to develop socially with peers, they often enter a stage of rough and tumble play which includes running, racing, climbing, or competitive games. This is the stage when social skills such as learning to take turns and follow simple group rules and norms are practiced.

B. Middle Childhood

During this period children show fast change in social relationships. They use social comparison to distinguish themselves from others. They start seeing things from other's perspective. A child begins to weigh self-worth and increasingly compares himself/herself with peers.

Children are now able to understand emotions of pride and shame and can experience more than one emotion in a given situation. They can suppress or conceal emotions more effectively and use self-acquired strategies to cope. In this period, children internalize or begin to control their values and feelings from within. They start making judgments at this age that impact moral development.

Gender differences are observed during middle childhood. Girls may attach greater importance to good interpersonal relationships and the family while boys may emphasize the importance of social prestige.

A prevalent problem among children of this age group is of bullying. Researchers have found that bullies display certain characteristics, such as being intrusive, having

demanding but unresponsive parents. Victims are often depressed and have lower self-esteem.

Fig 10.2: *Girls at play*

In middle childhood, self-concept changes from a focus on observable characteristics and typical behavior and emotions to an emphasis on personality traits, positive and negative characteristics, and social comparisons. The child begins to see his or her own strengths and limitations. This helps the move towards achievement of an identity.
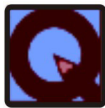
INTEXT QUESTIONS 10.3

1. Fill in the blanks in the following statements:

   a. The development of empathy depends on _____ and _____ development.

   b. Girls in middle childhood attach more importance to good _____relations while boys give more importance to own social _____.

   c. A child who is liked by some but disliked by other peers is called _____.

   d. When two children are playing without interaction, it is called _____play.

   e. An internal determiner of emotional development is the child's _____.

10.4 SOCIALIZATION

The process of acquiring norms, values and beliefs, which are considered significant in a society, is called socialization. It is the process of transmitting cultural values, preferences and patterns of behavior to children. This is done by various processes,

institutions and people. Socialization involves regulating children's behavior and disciplining their undesirable or inappropriate behavioral tendencies.

Parents, families, children's peer groups, schools, religious institutions and mass media such as television are some important agents of socialization. They influence the process of child rearing directly as well as indirectly and reinforce culturally appropriate modes of thought and behaviour.

Early childhood is a crucial period of development because during this period children learn a great deal about the norms, conventions and practices in their families, society and culture. They acquire language and learn the fundamentals of culture. The primary socializing agents during this period are the family members.

Middle childhood is the time when influence of peers and school becomes prominent, though family context remains important. The effect of media such as television and computers is undeniable. This is the time when social stereotypes and prejudices are most likely to develop.

Much research has been done on the impact of **parenting styles** on the socialization of the child. There are 4 main types of parenting styles:

1. **Authoritarian style:** demanding, controlling, insensitive parenting

2. **Permissive style:** indulgent, non-demanding parenting

3. **Authoritative style:** firm, consistent parenting, reasons given for discipline.

Neglectful or uninvolved style disinterested uncaring, low control and communication.

Besides family, peers, media and school, there are other factors which influence the socialization process. Ethnicity and socio-economic status of the parents makes an impact on the child's development directly and indirectly. Ethnicity is linked to family size, structure, education, income, composition, extended networks.

Fig 10.3: *Children from low SES home*

Fig 10.4: *Child in high SES family*
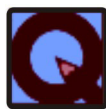
INTEXT QUESTIONS 10.4

1. Give brief answers to the following questions.

    a. What do you understand by the term 'Socialization'?

    _____

    b. State the major types of parenting styles.

    _____

WHAT YOU HAVE LEARNT

- Physical development continues during early and middle childhood, but the rate is slower than in infancy.

- There are gender differences in physical growth as girls tend to have a growth spurt earlier than boys during middle childhood.

- Gross motor development is rapid during early childhood.

- During middle childhood, children continue to develop gross and fine motor skills, while there is marked improvement in muscular control and eye-hand co-ordination.

- In early childhood the child is in the pre-operational stage of cognitive development.

- In middle childhood, the child reaches the concrete operational stage, when conservation, transformation, seriation and logical thinking are acquired, but the child still finds it difficult to deal with abstract concepts.

- Emotional development in childhood involves the development of self-conscious emotions, and better self-regulation in emotional expression.

- Social development progresses during childhood from parallel play to co-operative play. In middle childhood, the focus shifts gradually from family to peers and school.

- Peer acceptance is an important determiner of a child's self-esteem and adjustment.

- Socialization is the process of acquiring behaviors, norms, values and beliefs, which are considered significant in a society.

- Parenting style influences the socialization process and personality development of the child.

- Cultural and social factors influence parenting style and attitudes towards child rearing, and hence the socialization process.

TERMINAL QUESTIONS

a. Discuss the major features of physical development in early childhood

b. Describe the major features of motor development in middle childhood.

c. Discuss the main differences between the pre-operational stage and concrete stage of Piaget's theory.

d. Explain the major features of emotional development in early childhood.

e. Discuss how cultural factors influence the process of socialization in childhood.

ANSWERS TO INTEXT QUESTIONS

10.1

1. a. Crawling, standing, walking

   b. grasping, pinching, holding pencil

10.2

1. a. Craete mental images, store it, talk about events, people create new scenes from imagination

   b. understanding logical principles improvement in spatial reasoning langauge development

10.3

1. a. cognitive, language

   b. interpersonal, prestige

c. controversial

d. parallel

e. temperament

10.4

1. a. Acquiring norms values, beliefs, Regulation discipline of undesirable behaviour, agents of socialization.

   b. Authoritarian, permissive, authoritative and neglectful.

Hints for Terminal Questions

a. Refer to unit 10.1.3

b. Refer to unit 10.1.4

c. Refer to unit 10.2.1 and unit10.2.2.

d. Refer to unit 10.3.1

e. Refer to unit 10.4

11

ADOLESCENCE AND ITS CHALLENGES

Human life completes its journey through various stages and one of the most vital stages is adolescence. Adolescence is the period of transition from childhood to adulthood and plays a decisive role in the formation of prosocial/antisocial adult. All of us undergo this stage which poses many challenges and is full of excitement. At the same time it demands adjustment on many fronts.

When we come to this world we are completely dependent upon others and learn gradually to be independent. In India, the adolescents do most of the work themselves but the final decision regarding various domains of life is taken by their parents. For example, an adolescent wishes to enjoy movies but parents may force him/her to complete study first. Parents claim that they have more practical knowledge and experience and tend to treat adolescents like children.

This lesson shall help you understand the nature of adolescence and its challenges and major tasks faced by the adolescents, the influences that shape their personality and some of the important problems faced by the adolescents.

OBJECTIVES

After studying this lesson, you will be able to:

- explain the nature of adolescence as a developmental stage;

- enlist the developmental tasks encountered during adolescence;

- explain the physical development during adolescenc; and

- discuss gender roles and describe the phenomenon of generation gap.

11.1 CONCEPT OF ADOLESCENCE

Adolescence is a period of transition when the individual changes- physically and psychologically-from a child to an adult. It is a period when rapid physiological and psychological changes demand for new social roles to take place. The adolescents, due to these changes often face a number of crises and dilemmas. It is the period when the child moves from dependency to autonomy. It demands significant adjustment to the physical and social changes.

The adolescence period in the **Indian** social system comes under **Brahmacharya (apprenticeship).This** is the first *ashram* (stage of life) of development stages. In this stage, the child learns the basic skills in relation to his future role as a responsible adult.

It is a fact that all living beings pass through specific stages or phases of development. Erikson believed that each stage of life is marked by a specific crisis or conflict between competing tendencies. Only if individuals negotiate each of these hurdles successfully they can develop in a normal and healthy manner. During this phase adolescents must integrate various roles into a consistent self- identity. If they fail to do so, they may experience confusion over who they are.

11.2 THE ADOLESCENT TRANSITION PERIOD

Indeed adolescence represents one of the greatest of these periods of crisis. In fact it is the stage of stress, strain and storm. It brings many ambiguities in life. During this phase one really does not know where he or she stands. It is believed that this uncertainty about one's role causes many conflicts.

It is a well-known fact that delinquency rates soar during the period of adolescence, that suicides become increasingly prevalent, that drug and alcohol addiction may have their beginning, and that much general happiness exists. Adolescence is also a period when satisfactory heterosexual adjustments are facilitated or hindered, when career is planned and philosophies of life are molded.

11.3 ADOLESCENCE : BIOLOGICAL OR SOCIAL?

Adolescence is both **biological** and **social** in nature. The beginning of adolescence is marked by biological changes in girls and boys. As a matter of fact, just before puberty there occurs what is known as pre-adolescent growth spurt. It takes place in girls mostly during the age of nine to twelve years, and in boys between eleven and fourteen years of age. During this period, and following shortly thereafter, the **secondary sexual characteristics** emerge. In girls there is typically rounding out of the hips, breast development, appearance of pubic hair, and menstruation. In boys, some of the secondary sexual characteristics that mark the beginning of adolescence

are appearance of pubic hair, facial hair, and change of voice. These changes are biologically induced.

Adolescence for both girls and boys is marked largely by social changes. Such factors as when an adolescent leaves home, gets a job and can vote determine when his or her transition from childhood to adulthood is accomplished. The length of this period is thus primarily a social phenomenon.

The problems adolescents face during the long period of growing up have both biological and social roots. Physical changes and deviation can create many problems. Society also creates problems for adolescents. Adolescents in western societies behave differently than adolescents in eastern societies owing to varying social norms expectations and family structure.

Activity 1

Learning by doing

List some issues on which you and your friends feel uneasy because you are not free to do your job independently due to your parents' interference. Discuss with elders whether we can manage some negotiations to minimize the conflict with parents.

11.4 FACTORS DETERMINING THE PATTERN OF TRANSITION

Optimal development in adolescence depends on successful accomplishment of the developmental tasks in infancy and childhood. How easy it will be for the adolescent to make the transition into adulthood will depend partly upon the individual, partly on environmental aids or obstructions, and partly on their experiences. Let us examine some of these factors:

Speed of transition: The changes during adolescence take place at very fast pace. During no other period does the individual undergo such a sudden and drastic change in such a short time period and at no other age is he less prepared to cope with the problems that this change brings.

Length of transition: Those who mature rapidly (in term of physical growth), find adjustment especially difficult. They are expected to behave like adults simply because they look like adults. On the other hand, a prolonged adolescence also brings problems. The adolescent gets into the habit of being dependent, and this, is difficult to overcome later.

Discontinuities in training: Much of the stress and strain during adolescence is due to the discontinuities in training. For example, the assumption of responsibility during adolescence is difficult because the child has so far been trained to be dependent and submissive.

Degree of dependency: How dependent the young adolescent will be is determined mainly by the kind of training he/she received during childhood. Parents often foster dependency because they feel that adolescents are not ready to assume responsibility for their own behaviours.

Ambiguous status: In the societies like India, a child is expected to follow the footsteps of his/her parents. This gives him/her a pattern of behaviour to imitate. In open society, by contrast, it is assumed that every individual should be free to choose his/her own course of self-development.

Conflicting demands: The adolescent is often confronted with conflicting demands from parents, teachers, peers and the community.

Degree of realism: When the adolescent begins to look like an adult, (s)he is permitted an added degree of freedom. If (s)he feels is not ready, either physically or psychologically, to play the adult role, (s)he feels dissatisfied.

Motivation: The adolescent goes through a period of wondering how he or she will meet the new problems the life presents. He or she would like to grow up but being unsure of the ability to cope with the challenges of adulthood. So long as this feeling of insecurity exists, there will be little motivation to make the transition in adulthood.

As the barriers to growing up are lowered or removed by parents, teachers, and society, the adolescent can move smoothly in the direction of reaching the goal of adulthood, and motivation to make the transition is normally increased.
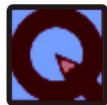
INTEXT QUESTIONS 11.1

1. Explain the factors that determine pattern of adolescent transition.

   _____

2. Define adolescence. Identify the various challenges faced by an adolescent.

   _____

11.5 DEVELOPMENTAL TASKS

The term "developmental task", refers to those problems that individuals typically face at different periods during their life. An infant or a small child must master the complexities of learning to walk, learning to talk, and controlling the elimination of waste products of the body. In middle childhood such skills as learning to play games and learning to read become of major importance.

So for as adolescents are concerned, the developmental tasks present the vital

problems which must be met and solved during the transition from childhood to adulthood. These problems are not entirely unique to the adolescent period, but they are ones upon which the adolescent must work if he eventually expects to achieve a successful adult role.

Developmental Tasks for Adolescents

Havinghurst has listed the following tasks.

- Achieving new and more mature relations with age mates of both sexes.
- Achieving a masculine or feminine social role.
- Accepting one's physique and using the body effectively.
- Achieving emotional independence of parents and other adults.
- Achieving assurance of economic independence.
- Selecting and preparing for an occupation.
- Preparing for marriage and family life.
- Developing intellectual skills and concepts necessary for civic competence.
- Desiring and achieving socially responsible behaviour.
- Acquiring a set of values and an ethical system as a guide to behaviour.
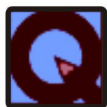
INTEXT QUESTIONS 11.2

1. Developmental tasks of adolescent's include:

    a. preparing for marriage and family

    b. crawling and creeping

    c. reflecting childish behaviours

    d. None of the above

2. How many developmental tasks were described by Robert Havinghurst?

    a. 10   b. 6

    c. 9   d. 8

Adolescence is a long period, and many young adolescents have little motivation to master the developmental tasks for their age. In the later period, however, they realise that adulthood is rapidly approaching. This provides them the necessary motivation

to prepare for their new status. As a result, they make greater strides toward the goal of maturity than they did during early adolescence.

Successful achievement of the developmental tasks for one period in life leads to success with later tasks, while failure leads not only to personal unhappiness and disappointment but also to difficulties with later tasks.

Regardless of whether the adolescent has successfully mastered the developmental tasks of adolescence, he/she is, in most "advanced" cultures, automatically given the status of adult when he/she reaches the age of legal maturity. This is in direct contrast to more simple cultures where young people must demonstrate adult status to their elders, in "puberty rites," privileges, and the responsibilities.

11.6 PHYSICAL DEVELOPMENT

Adolescence is fundamentally a period of physical and physiological changes. The young person's reactions to physical changes may range from pride and pleasant expectation to bewilderment and fear. When adolescents evaluate each other, especially when they consider qualities they like in a manner of the opposite sex, "good looks" are often mentioned. In particular they dominate in descriptions of girls than of boys but other physical characteristics such as body build, height and the like are often noted when boys are being "sized up".

One of the most characteristic features of adolescence is the increase in size i.e. in height and weight. However, the beginning of adolescence, known as pubescence, brings with it abrupt and psychologically significant physical changes. While many of these physical changes, such as growth in height and deepening of the voices are obvious and commonly known, others are hidden or less obvious but nonetheless significant.

Surge in Growth

Toward the end of childhood, usually girls at about ten or eleven and boys at twelve or thirteen, show a period of rapid growth in height and weight (general bodily growth). This acceleration of growth is closely linked to the increased hormonal output of the pituitary gland, which serves not only as the catalyst to produce growth but also as the controller of other glands (i.e. adrenals, gonads, and thyroid) that determine both tissue growth and function.

The rapid growth continues for a period of about three or four years, with the greatest increment in growth coming at an average age of 12.6 years for girls and 14.8 years for boys. During this period it is not uncommon for a child to grow as much as six to eight inches in height and to gain 18 to 22 kilograms in a year's time.

For a variety of reasons, physical development in this period is characterized by asynchronization that brings concerns to adolescents and their parents and teachers. Skeletal and muscular development is more rapid than learning required for making use of the new muscle mass and motor habits. The body requires new learning. Bodily proportions also undergo changes. The facial features alter, because the growth of the lower part of the face lags behind the growth of the upper part. Legs, proportionally, usually grow more rapidly than the body stem, and hands and feet anticipate by several years the total body size of their owners.

General bodily growth is paralleled by physiological changes such as cardiovascular and respiratory growth and changes in metabolism and in general movement toward the adult states.

Skeletal Muscles: Muscles attached to bones, which bring about various types of body movement like the limb movements.

Puberty and Sexual Development

Following closely on the heels of accelerated growth, the pituitary gland directs the adrenal cortex and the gonads into more activity. Prior to this time, virtually equal amount of androgenic (male) and estrogenic (female) hormones are produced for both sexes by the adrenal cortex on the direction of anterior pituitary gland. Now an increased amount of hormonal production differentiates the sexes; the males producing more androgens, the females more estrogens.

Sex Hormones are substances secreted by the gonads for reproductive functions and determination of secondary sex characteristics; e.g. estrogen in the female and testosterone in male. Testosterone is the male sex hormone responsible for the development of the male secondary sexual characteristics as they become sexually mature, while in the female body, this role is played by estrogen.

Moreover, the genital and sex-appropriate tissues become more sensitive to these sex specific hormones. The dawn of these changes is reflected in boys by beginning of the enlargement of the testes. There follows in each sex a series of physical changes whose appearance is highly predictable and whose sequence is unalterable. In girls the enlargement of breast is followed by the growth of pubic hair, the menarche and axillary hair. In boys, after the initial enlargement of the testes, there occurs pubic hair, axillary hair, voice changes, and beard, in that order.

Thus, by observing adolescents, it is fairly easy to determine the point in pubescence that they have reached. The observable secondary sex characteristics, such as development of axillary hair and voice change are secondary to the primary sex changes. Primary sex characteristics include reproductive organs whose maturity is signaled by the menarche in the girl and by the first ejaculation in the boy.

Notes

Strength, Skill and Fitness

Physical development as mentioned above presents only the gross picture of the changes that occur in adolescence. Even more significant, perhaps, are the growth patterns of strength and skills. The post-pubescent boy, even though he may be of the same chronological age as his friends who have not yet entered pubescence, will almost certainly be stronger and will likely have greater agility, motor coordination, and bodily skills. He will, of course, rapidly overtake girls, whose strength already has increased about a year earlier and who briefly challenged him. You would like to know what forces account for this development. First, it is clear that the accelerated production of male hormone (androgens) brings with it added muscular strength. Second, the nature of skeletal growth, increased shoulder breadth, bigger chest cavity, and finally, the greater lung size, heart size, and increased blood pressure are all favourable conditions for greater physical strength.

While many of these same changes occur among girls, their physical strength increases at a slower rate, and, of course, never equals that of males. There are two reasons for this superiority: (a) biologically, the male is favoured by larger shoulder breadth, a bigger chest cavity, and better leg leverage; (b) culturally, girls receive little encouragement for the development of strength. In fact they are encouraged in the opposite direction-to be weak and dependent, or at least to pretend that they are.

Along with increases in strength come the development of motor coordination, reaction speed, and perceptual-motor skills. In an appraisal of physical development, one important consideration has to do with what is optimal. Height-weight charts are based on the average, but may, when a large segment of youth is overweight, lead to faulty conclusions. What is average is certainly not optimal.
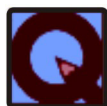
INTEXT QUESTIONS 11.3

1. Explain how adolecence is a period of rapid physical growth and sexual development.

11.7 GENDER ROLES

Gender is a much more complex term. It relates to a given society's beliefs about the traits and behaviours supposedly characteristic of males and females. **'Gender roles'** refer to the expectations concerning the roles males and females should perform and the ways they should behave. Such expectations come into play as soon as a child is born.

The beliefs about gender roles continue to influence us and our behaviour throughout life. Children's recognition that they belong to one sex or the other called **'gender identity'** is established quite early in one's life by the age of three or four. At this time, however, they are uncertain as to whether they will always be a boy or a girl. It is not until they are about six or seven that children acquire **'gender consistency'**— the understanding that even if they adopted the clothing, hair style, and behaviour associated with the other sex they would still retain their current sexual identity.
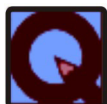
INTEXT QUESTIONS 11.4

1. Explain the meaning of gender role.

   _____

   _____

WHAT YOU HAVE LEARNT

- Adolescence is the period of transition between childhood to adulthood and it plays a decisive role in relation to the formation of prosocial/antisocial adult.

- Optimal development in adolescence depends on successful accomplishment of the developmental tasks in infancy and childhood.

- Adolescence is fundamentally a period of physical and physiological change. The most important single feature of adolescent development consists of the changes that take place in the young person's body.

- Toward the end of childhood, girls at about ten or eleven and boys at twelve or thirteen begin a period of rapid growth in height and weight.

- Gender role refers to expectations concerning the roles male and females should adopt and the ways they should behave.

TERMINAL QUESTIONS

1. What are the primary and secondary characteristics during adolescence?

2. What are the developmental tasks of adolescents?

3. Give a detailed account of major challenges faced during adolescence.

ANSWERS TO INTEXT QUESTIONS

11.1

1. Period of transition, rapid physical and psychological changes, New social roles, independence, faces conflicts.

11.2

1. d

2. a

11.3

1. Speed and length of transition, training, dependency, status, demands, degree of realism, motivation.

2. Surge in growth, height and weight, skeletal and muscular growth, sex hormones, sexual development, sex hormones, strength and skill.

11.4

1. Society's beliefs about behaviours characteristic of males and females. Gender consistency and behaviour of males and females.

Hints for Terminal Questions

1. Refer to section 11.3

2. Refer to section 11.6

3. Refer to section 11.5

12

ADULTHOOD AND AGEING

What is it like to grow old? What changes occur as people grow older? What does it mean to say that some one is old? These are some of the questions which come to our mind when we see or meet an aged person. We find that our parents do not behave as we do. The kind of images which normally come to our mind when we hear the word 'adult and aging' are responsibility, stability, forgetfulness and some times poor health. We view the older years as a stage in life when people become more dependent on others. Are these stereotypes or myths?

When we look into our society today we notice that the segment of older population is growing. It has been estimated that by the year 2021 a major portion of the world's population will be in the category of the aged people. Becoming adult and growing old is a biological process, but many other developments also take place along with it. You will study about these changes in this lesson. This lesson will also help you understand the value of the aged people in the society and relating to them in a better way.

OBJECTIVES

After studying this lesson you will be able to:

- explain the characteristics of the period of adulthood and old age;

- describe the key developmental changes during adulthood;

- describe the problems of ageing and coping with it; and

- appreciate the concerns of ageing and aged people.

12.1 THE ADULTHOOD STAGE

We are often told by our elders to act according to our age. Have you ever wondered what this means? There seem to be certain normative expectations about how

individuals of a certain age should act. The period of adulthood is marked by society's expectations of performing one's duty as an adult. Some special roles and relationships like family and career are the major milestones of adulthood. The spurt of growth during adolescence stabilizes by adulthood and the individual looks forward to more concrete roles in the society. Our capabilities and behaviours continue to change as we grow older not only because of the biological growth but also because of our knowledge and the way we interact with environment. In the Indian tradition the period of adulthood refers to Grihastha Ashram. During this stage an individual enters the social life and accepts responsibilities of family, marriage and entering into one's career. The stage of adulthood has the following sub periods: (1) Young adulthood (20s to 30s), (2) Middle adulthood (40s to 50s) and (3) Later adulthood (60s and above.). Let us understand the various characteristics of each of these sub periods.

Young Adulthood

During this period one sees himself or herself as an autonomous and independent adult. The individual becomes financially less dependent on the parental family. A major developmental task during this period is the choice of a career. Young men and women tend to settle down in a career of their choice. In addition a young adult tries to settle down and start the family life. They are also concerned about various social issues and forming close relationships with one's professional peers and members of community. The duties of a person demand two-fold responsibilities which are towards oneself as well as the society.

The stage of young adulthood is characterized by new tasks and challenges in life such as establishing financial and emotional independence and entering into marital relationship. Unemployment and marital discord are two typical crisis conditions during early adulthood. According to Erikson this period is characterized by a crisis of 'intimacy versus isolation'. The young adults must develop the ability to form deep intimate relationships with others, particularly in marriage. Otherwise, they can become socially and emotionally isolated. Most young adults develop a dream of future accomplishments or a vision of what they want to achieve as a life goal. Such dreams motivate young adults towards goal directed efforts. Occupational and marital choices and gaining social and economic independence are some major tasks of early adulthood. Very often, during the early thirties individuals make a reappraisal of their choices and seek to make specific changes in their career choice and social relations. These experiences are described as "age thirty transition".
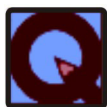
Characteristics of Young Adulthood

- Choice of a career.
- Starting a family life.

- Forming close relationships with peers.

- Concerns about society.

Do It Yourself

Meet two adults, a male and a female. Ask them to describe their roles and responsibilities. Record their descriptions and your own description. Compare and discuss with your peers and tutor.

INTEXT QUESTIONS 12.1

1. Identify the characteristics of young adulthood.

12.2 ADULTHOOD OR MIDDLE AGE

From the period of twenties and thirties, the individual arrives at middle age in the forties and fifties. Middle age is characterized by competence, maturity, responsibility and stability. This is the time when one wants to enjoy the success of job, satisfaction derived from the family and social life. People look forward to the success of their children. Attention gets more focused on health, the future of children, aging parents, the use of leisure time and plans for old age. For women, menopause occurs between the age of forty-five and fifty. Menopause is supposed to be accompanied by some distressing physical and psychological symptoms in women. During this period men show greater concern towards health, strength, power and sexual potency.

Middle age is also viewed as a period of creativity and significant contribution to society. It is found that the best works of scientists, writers and artists are produced during the late forties and early fifties. Erikson characterizes middle adulthood as a phase of crisis involving generativity versus self-absorption. Unless a person makes this a period of meaningful contribution he/she may become preoccupied with selfish needs and desires. The middle age transition is also a period of turbulence. People start viewing themselves as older and become conscious of their mortality which often leads to emotional instability. They also engage in taking stock of their lives to asses the extent to which they have realized their dreams. Such re-assessments often lead to occupational changes and changes in marital relationships such as divorce. For most people who are employd in regular jobs, the end of the middle adulthood years involves the task of coming to terms with possible retirement from work life and the associated readjustments in life.

Characteristics of Middle Adulthood

- Competence, maturity, responsibility and stability.

- Attention focused on children.

- Plans for old age.

- Occurrence of menopause in women.

Old Age

Later adulthood or the period of old age begins around the age of sixty. During this stage most individuals lose their jobs as they retire from active service. They begin to fear about their physical and psychological health. In our society, the elderly are typically perceived as not so active, deteriorating intellectually, narrow-minded and attaching significance to religion and spirituality. Many of the elderly people lose their spouses and suffer from emotional insecurity. However, this may not be true of everybody. Many people at the age of sixty or above remain very healthy and active in life. The life style including exercise, diet, and regular health check up helps people enjoy a meaningful and active life during old age.

Aging, however, is also a psychological phenomenon. There are numerous examples of writers, statesmen, professors and yogis who lead a productive and active life during old age. So it is important to note that old age can be a much happier and fuller time. Mental or physical decline does not necessarily have to occur. Persons can remain vigorous, active and dignified until their eighties or even nineties. This is quite possible if they take adequate care of themselves right from their middle age years. In fact, the older persons have vast reservoir of knowledge, experience and wisdom on which the community can draw upon.
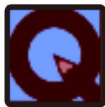
INTEXT QUESTIONS 12.2

1. Describe any two characteristics of middle adulthood.

_____

_____

12.3 PHYSICAL AND COGNITIVE CHANGES DURING ADULTHOOD AND OLD AGE

In the present day society, with increasing health consciousness, both men and women want to be physically and mentally fit. With advancing age certain inevitable and universal changes such as chemical changes in cells or gradual loss of adaptive reserve capacity take place. There are also certain cognitive changes taking place from middle adulthood onwards. These changes are slow and gradual. Normally people see aging as a period of physical and mental health decline. These changes

are mainly physical and cognitive in nature. Let us try to understand these changes.

(a) Physical Changes: It has been found that the body organs of most persons show a 0.8 to 1 percent decline per year in the functional ability after the age of 30 years. Part of this decline is normal, some are disease-related and some caused by factors such as stress, occupational status, nutritional status and many other environmental factors. The major physical changes associated with aging are described as external changes, internal changes and changes in the sensory capacities and cognitive abilities. Let us understand these changes.

1) External Changes: This refers to the symptoms of growing old that can be seen in an individual. With many individuals the symptoms of aging can be seen as graying hair, aging skin shift in posture and appearance of wrinkles and other changes.

Key to Longer and Healthier Life

(a) Eat healthy diet.

(b) Exercise regularly.

(c) Reduce stress level.

(d) Don't smoke or drink alcohol and other drugs.

(e) Cultivate certain positive qualities.

(f) Engage with activities of social welfare.

(g) Develop spirituality and faith.

2) Internal Changes: These changes refer to the symptoms of growing old that are not visible. These include changes in the respiratory system, gastrointestinal system, cardiovascular system, and central nervous system.

Some Great Achievers of late adulthood

- Mahatma Gandhi led India's struggle of freedom at the age of 77.

- Baba Amte

- Ramakrishna Paramhans

- Mother Teresa

3) Changes in Sensory Capacities: With advancing age, there is gradual slow down in the sensory abilities. As you know we communicate with the outer world through our senses. Losing in any of the senses can have profound psychological and social consequences.

Cognitive Changes: Cognition refers to the process by which information is acquired, stored, and used. During adulthood and aging various aspects of cognition like memory, learning, attention and speed of performance get adversely affected. The aged people often report forgetfulness, difficulty in learning new techniques and acquiring skills. Their concentration and responsiveness to environmental stimulus decreases. Dementia and Alzimer and important diseases of old age. In general people become more vulnerable during old age.

12.4 COPING WITH THE PROBLEMS DURING OLD AGE

You must be wondering whether the process of ageing can be stopped or can anyone remain young throughout? We have noted that ageing is a biological process. This process gets affected by many other things such as stress, tension, habit, undisciplined life, ill health work habits etc. Leading a disciplined life means giving the body enough time to rest, proper work habits, less tension, proper nutrition and spirituality. It seems that aging can be delayed but no one can escape it. One must not deny and accept one's age and act in a realistic but optimistic manner. Different people adopt different coping strategies to meet their life challenges. Some of the effective coping strategies are as follows:

(1) Develop an attitude of flexibility so that one may adapt to the pressures and problems of old age.

(2) Recognize that one has to explore new ways of coping with life events.

(3) Greater use of information seeking and problem solving strategies rather than withdrawing or isolating.

(4) Increasing self-confidence, self-reliance, developing healthy attitudes about one's strengths and weaknesses.

(5) Learning and maintaining effective coping skills and adopting an active approach towards the environment.

Use of the above styles of coping can be effective in making healthy adjustments during old age.

Aging and Social Support

Enlarging social network is another means of coping with life problems. Participating in various group activities such as joining clubs. Certain organizations for informal social interaction are found very helpful for the aged. Building a social network of people of their own age group in neighbourhood or elsewhere provides them with greater opportunity to share their life circumstances and find emotional expressions

for their existing problems. Through such social networks, one can get an unconditional expression of approval, share secrets, provide new experiences to each other, and develop trusting relationships.

Involvement in grand parenting helps elderly satisfy many of their personal and emotional needs. Grand parents can serve as important role models. Older people find these roles emotionally self-fulfilling and tend to derive self-satisfaction through achievement of their grand children.

## 12.5 IMPORTANCE OF THE AGED PEOPLE IN THE SOCIETY

अभिवादन ीलस्य नित्यंवृद्धोपसेविनः।
चत्वारि तस्य वर्धन्ते आयुर्विद्याय ोबलम्।

"Those who greet elders and do service to them, they grow in all four dimensions such as longevity, knowledge, fame and strength".

One of the reasons for the growth of the Indian society is its multigenerational structure which means staying of many generations together in one family. This phenomenon is expressed in the form of joint family system. Aged people have been always considered as individuals with a vast repertoire of knowledge and experience. Staying with them and respecting them helps not only in personal growth but facilitates multidimensional growth of a person.

Today many of the problems seen in the society are due to breakdown in the family system. Young couples prefer to stay alone to seek independence and doing away with the restrictions. But the repercussion of this system is largely being felt on the younger generation. The elders in the family have always been a medium of cultural transmission. Can you forget the stories told to you by your grand parents and their morals? The cultural traditions followed in our country have been passed from generation to generation. With the emerging nuclear family system, the younger generation is becoming deprived of this rich cultural transmission. It has been found that emotional expressions and values in young generation have also been affected by the absence of elders in the family.
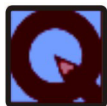
INTEXT QUESTIONS 12.3

State whether the following statements are true or false:

1. The body organs show a decline of 0.8 to 1 percent after the age of 30. T/F

2. Gradual changes in sensory abilities take place with ageing. T/F

3. One must not accept one's age and become younger. T/F

4. Developing healthy attitudes do not help in coping with age. T/F

5. Aged people should be considered as treasure of the society. T/F

WHAT YOU HAVE LEARNT

- Some special roles and relationships like family and career are the major milestones of adulthood.

- Our capabilities and behaviours continue to change as we grow older not only because of the biological growth process but also because of our understanding and the way we interact with the environment.

- The stage of young adulthood is characterized by new tasks and challenges in life such as establishing financial and emotional independence and entering into marital relationship.

- Middle age is also viewed as a period of creativity and significant contribution to society.

- In our society, the elderly are typically perceived as not so active, deteriorating intellectually, narrow-minded and attaching significance to religion and spirituality; however it may not be true.

- The major physical changes associated with ageing are described as external, and internal changes and changes in sensory capacities.

- Leading a disciplined life means giving the body enough time to rest, proper work habit, less tensions, proper nutrition and spirituality. This may help in coping with the problems of old age.

- Aged people have been always considered as individuals with a vast repertoire of knowledge and experience.

TERMINAL QUESTIONS

1. Describe the key to longer and healthier life.

2. What attitude is helpful to meet out the pressures and problems of old age?

3. What is the main cause of today's problems in the society?

4. How can one remain healthy during old age?

ANSWERS TO INTEXT QUESTIONS

12.2

1. Autonomous, independent, choice of career, new tasks and challenges, intimate relationships.

12.2

1. (a) Competence

    (b) Attention on children

    (c) Plans for old age

    (d) Occurrence of menopause

2. By exercise, proper diet and regular health checkup

12.3

1. True

2. True

3. False

4. False

5. True

Hints for Terminal Questions

1. Refer to section 12.3

2. Refer to section 12.4

3. Refer to section 12.5

4. Refer to section 12.3

CURRICULUM

PSYCHOLOGY

Secondary Level Course (222)

RATIONALE

The study of psychology deals with important aspects of human behaviour and mental processes. The study of psychology is significant to one's personal growth and development and for facilitating the process of social development. The way we think, feel and behave with the people and world around us influence our adjustment. A course in psychology at the Secondary level will help the learners understand themselves and their place in society and realize their potentials.

OBJECTIVES

The course is designed to enable the learner:

● Understand the basic concepts of psychology and their application.

● Relate oneself positively to family, neighborhood and society.

● Behave responsibly and in a value based manner.

● Learn to live a purposeful life of health and happiness.

MODULES

Module I	Foundations of Psychology	15
Module II	Basic Psychological Processes	15
Module III	Human Development	15
Module IV	Social Psychological Processes	15
Module V	Health and Well Being	15
Module VI	Work Life and Environmental Concerns	15
Module VII	Yoga : A Way of life	10
	Maximum Marks	**100**

Module I: Foundations of Psychology

Marks: 15

Approach

This module helps students understand the nature of psychology and the range of behaviours and mental processes which constitute its subject matter. It would also help them to understand the methods and some important fields of psychological applications.

Contents

Lesson 1 – An Introduction to Psychology

- The nature of psychology and its definitions
- Scope of psychology
- Basic psychological processes
- Fields of psychology

Lesson 2 – Methods of Psychology

- Approaches to the study of psychological processes
- Methods to understand psychological processes
- Psychological Tools

Lesson 3 – Individual Differences

- Nature of individual differences
- Assessing individual differences
- Nature of Intelligence and its assessment
- Aptitudes and interests, and their assessment
- Nature of personality
- Techniques of personality assessment

Module II: Basic Psychological Processes

Marks: 15

Approach

This module familiarises the learners with the concepts and processes involved in knowing the world. It helps to understand the basic ideas involved in acquiring knowledge and retaining it for further use. This module will also describe the processes of perception and the way we become aware of the world and think. It also tries to provide an understanding of the ways we feel and appreciate our inner world

Contents

Lesson 4 – Learning

- Learning
- Reinforcement and observational learning
- Some other types of learning
- Transfer of training

Lesson 5 – Sensory Processes: Attention and Perception

- Sensation
- Perception
- Perceptual organisation
- Attention
- Extra sensory perception
- Applications of perception in everyday life

Lesson 6 – Memory

- Memory and Forgetting
- Stages of Memory
- Types of memory

- Forgetting
- Strategies for enhancing memory
- Repression: Forgetting painful events

Lesson 7 – Thinking and Problem Solving

- The nature of thinking
- Problem solving
- Creating and its role in life
- Decision making

Lesson 8 – Motivation and Emotion

- Nature of motivation
- Nature of emotion
- Role of emotion and motivation in human behaviour

Module III: Human Development

Marks: 15

Approach

This module aims at describing the processes, characteristics and stages of human development and explaining the influence of biological factors and socio-cultural context on human development.

Contents

Lesson 9 – Nature Determinants of Development

- Nature of development
- Domains of development
- Stages of development
- Influence on development

Lesson 10 – Childhood

- Physical and motor development in Childhood

- Cognitive development
- Socio-emotional and personality development
- Socialisation

Lesson 11 – Adolescence and its Challenges

- Concept of Adolescence
- The adolescent transition period
- Adolescence: Biological or social?
- Factors determining the pattern of transition
- Development tasks
- Physical development
- Gender roles

Lesson 12 – Adulthood and Aging

- The adulthood stage
- Adulthood or middle age
- Physical and cognitive changes during adulthood and old ages
- Coping with the problems during old ages
- Importance of the aged people in the society

Module IV: Social Psychological Processes

Marks : 15

Approach

This module aims at describing the influence of social institutions. It helps to udersand how people behave in groups and also explains the formation of human beliefs, attitudes and values. The module will also explain the process of communication and familiarise the learners with some major social problems.

Contents

Lesson 13 – Groups and Leadership

- Improtance of groups in our life
- Characteristics of group
- Group dynamics
- Difference between 'Us' and 'Them'
- Formal and informal groups
- Group development
- Leadership
- Qualities of leader
- Theories of a leadership

Lesson 14 – Communication

- Understanding the meaning of communication
- Elements of communication
- Types of communication
- Effective communication
- Features of effective communication
- Non-verbal communication in Indian context
- Role and impact of media

Lesson 15 – Attitudes, Beliefs and Social Cognition

- Nature of attitude
- Formation and change of attitudes
- Relationship between attitudes and behaviour
- Beliefs and behaviour
- Social cognition

Lesson 16 – Social and Educational Problems

- Poverty
- Some other social problems
- School dropouts, stagnation and wastage

Module V: Health and Well Being

Marks: 15

Approach

This module aims at developing an understanding about the concepts of happiness and well being. It describes the obstacles in the pursuit of happiness and psychological processes to overcome them. It also explains the concepts of health, hygiene and describe practices for positive mental health.

Contents

Lesson 17 – Happiness and Wellbeing

- Concepts of happiness and well being
- Self actualization and mature personality
- Recognizing strengths of self Actualized individuals
- Developing positive emotions
- Self efficacy and compassion

Lesson 18 – Mental Disorders and their Treatment

- Stress as a source of disturbed mental health
- Types of conflicts and frustations
- Types of mental disorders
- Psychotherapeutic process
- Process of coping with stress

Lesson 19 – Mental Health and Hygiene

- Concept of mental health and hygiene

- Mental health, mental ill-health and mental illness

- Indicators/signs of poor mental health

- Behaviours which sustain good health

- Strategies for time management

Module VI: Work Life and Environmental Concerns

Marks : 15

Approach

This module aims at developing an appreciation of the concerns for vocational life and understanding of the challenges of world of work. It also explains the relevance of individual differences for job requirements, notions of work motivation. The relationship between human being and environment, causes and remedies of environmental stress are also described.

Contents

Lesson 20 – Aptitude, Interest and Job Requirements

- Aptitude

- Interest

- Ability

- Mental age and I.Q.

- Importance and relationship among aptitude, interest and ability

- Analysing and communicating job requirements

Lesson 21 – Preparation for the Vocational Role

- Meaning of vocational role

- Need for preparation for right vocation

- Special training

- Concepts of career, vocations and occupation

- General requirements for a vocation

- Vocational choice emerging perspective

Lesson 22 – The World of Organization

- Organization as a system

- Organizational climate

- Interpersonal relationship at work

- Productivity and excellence at work

- Strategies for developing productivity at work

Lesson 23 – Environmental Stress

- Environmental stress

- Pollution issues

- Sustainable development

Module VII: Yoga: A Way of Living

Marks: 10

Approach

This module tries to develop an appreciation among the learners about Yoga as a way of life being practised from ancient times. The module also explains the relevance of Yoga in the various stages of our life. It would also provide guidelines to the learners for facing various stresses and tensions in life and for self development.

Contents

Lesson 24 – Healthy Mind in Healthy Body

- What is Yoga

- Different types of yoga
- Yoga to keep fit
- Pranayam
- Meditation

Lesson 25 – Self-development and Yoga

- Self-development through Yoga
- Applications of Yoga in different walks of life
- How Yoga shapes our attindes, thinking and behaviour?
- Yoga for motivation and excellence: (Competence) in action
- Patanjali on 'Mind': Its nature, functions and states
- The eight-fold path of Yoga

Lesson 26 – Nurturing the Whole Being: An Indian perspective

- Wholistic Personality: An ideal view
- Theory of Trigunas
- Theory of panch koshas (Five Shelths of existence)
- Development of Koshas
- Sri Aurobindo on levels of consciousness

Lesson 27 – Controlling and Disciplining the Mind

- Importance of controlling and regulating the mind
- Jeevan Vigyan
- Preksha Dhyan
- Art of Living
- Transcendental meditation
- Vipassana

First Fold

Feed back on Lessons 1-12

Final Fold and seal

Third Fold

Fourth Fold

Second Fold

Feed back on Questions

Lesson No.	Lesson Name	Intest Questions		Terminal Questions		
		Useful	Not useful	Easy	Diff.	V.diff.
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

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