# Learning

## NCERT TEXTBOOK QUESTIONS SOLVED

**Question 1. What is learning? What are its distinguishing features?**

**Answer:** The process of learning has certain features:

1. Learning always involves some kinds of experience or practice.
    - Changes due to maturation or growth are not learning.
      e.g.: One learns that if the bell rings in the hostel after sunset, then dinner is ready to be served.

2. Sometimes a single experience can lead to learning.
   e.g.: A child strikes a match stick on the side of a matchbox and gets her/his finger burnt. Such an experience, makes the child learn to be careful in handling the matchbox in future.

    - Before it can be called learning, the change must be relatively permanent, it must last for a fairly long time.

3. Learning must be distinguished from the behavioural changes that are neither permanent nor learnt.
   eg. changes in behaviour due to fatigue, habituation and drugs.
4. Learning is a change in behaviour, for better or worse.
5. Learning follows a sequence.

**Question 2. How does classical conditioning demonstrate learning by association?**

**Answer:**

- Classical conditioning is a type of learning in which an organism learns to associate stimulus.
- Conditioning is the simplest form of learning.
- Classical conditioning was first explained in Pavlovs experiments in which a dog was kept on a harness with a tube attached to the dogs jaw on one end, a measuring jar on

the other end.

- The dogs was kept hungry in the course of experiments, every time the dogs was given food a bell was rung before it, slowly the dog become conditioned to believe that the ringing bell meant that food was coming. .
- So, he began salivating at the sound at the bell.
- The dog continued to salivate even when food was not given after the bell.
- Hence, salivation became a conditioned response to the conditioned stimulus. Various forms of classical conditioning are:

1. **Unconditioned stimulus (US):** This stimulus consistently evoked a response or is reliably followed by one or it has potential capacity to evoke a natural response. e.g. food.
2. **Conditioned stimulus (CS):** It is also known as a neutral stimulus because except for an altering or intentional response, the first few times it is presented, it does not evoke a specific response.
   Any stimuli which lacks natural capacity to evoke natural response but developes this capacity with consistent pairing with US. For example bell.
3. **Unconditioned Response (UR):** The response that reliably follows the unconditioned stimulus is known as the unconditioned response, e.g. Saliva due to food. (iv) Conditioned Response (CR): When presentation of the originally neutral conditioned stimulus evokes a response.
   This response is what is learned in classical conditioning, e.g. Saliva s a response to the bell.

**Determinants of classical conditioning:**

1. **Time Relations between stimuli:** In classical conditioning the first three are called Forward Conditioning Procedures and the forth one is called Backward Conditioning. The basic experimental arrangements of these procedures are as follows:

   - Simultaneous Conditioning: When the CS and US are presented together.
     It is effective to acquire CR but requires greater number of trials.
   - Delayed Conditioning: The onset of CS precedes the onset of US. The CS ends before the end of the US. It is most effective way of acquiring CR.
   - Trace Conditioning: The onset and the end of the CS precedes the onset of US with some time gap between the two. It is effective but requires greater number of trials.
   - Backward conditioning: The US precedes the onset of CS. It is least effective way to acquire CR.

2. **Type of unconditioned stimuli:** The unconditioned stimuli used in studies of classical conditioning are of two types: Appetitive e.g. eating drinking etc. according to researches it is slower and requires greater number of trials
   - Aversive e.g. Noise, bitter taste etc. classical conditioning is established in one, two or three trials so it is more effective.

3. **Intensity of conditioned stimuli:** This influences the course of both appetitive and aversive classical conditioning. More intense conditioned stimuli are more effective in accelerating the acquisition of conditioned responses, e.g.: The more intense the conditioned stimulus, the fewer are the number of acquisition trials needed for conditioning, ie intense irritating noise is more effective.

**Question 3. Define operant conditioning. Discuss the factors that influence the course of**

**operant conditioning.**

**Answer:** Operant or instrumental conditioning is a form of learning in which behaviour is learned, maintained or changed through its consequences.

Determinants of operant conditioning :

**1. Reinforcers**

- A reinforcer is defined as any stimulus or event which increases the probability of the occurrence of a desired response.
- The type – positive or negative, frequency, quality and schedule or reinforcer are determinants of operant conditioning.

1. **Type of reinforcement:**
   - Positive reinforcement involves stimuli that have pleasant consequences. They strengthen and maintain the responses that have caused them to occur.
   - Negative reinforcer involve unpleasant and painful stimuli. Responses that lead organisms to get rid of painful stimuli or avoid and escape from them provide negative reinforcement. Negative reinforcement leads to learning of avoidance and escape responses.

2. **Frequency/number of reinforcement and other feature :**
   - Frequency of trial on which an organism has been reinforced or rewarded.
   - Amount of reinforcement i.e. how much of reinforcing stimulus (food or water) one receives on each trial.
   - Quality of reinforcement i.e. to the kind of reinforcer. Bread of inferior quality as compared with pieces of cake have different reinforcing value.

3. **Schedule of reinforcement:**
   - This refers to the arrangement of the delivery of reinforcement during trials.
   - When a desired response is reinforcement every time it occurs we call it continuous reinforcement.
   - When according to schedule responses are sometimes reinforced, sometimes not it is known as partial reinforcement and has been found to produce greater resistance to extinction.

4. **Delayed reinforcement:**
   - It is found that delay in the delivery of reinforcement leads to poorer level of performance.

**Question 4. A good role model is very important for a growing up child. Discuss the kind of learning that supports it.**

**Answer: Observational learning:** The acquisition of new forms of behaviour, information or concepts through exposure to others and the consequences they experience is called observational learning. This learning is also called social learning because we human beings learn many simple and complex social skills through observations.The concept of social learning was introduced by BANDURA.

**Characteristics of observational learning**

- Individualsleam social behaviour of person of status, respect and behave similarly when put in specific social situation e.g. In games, children quite often use.
- For such learning only those persons are observed who are considered to be as role models.
- Social behaviours are learned by observation.

- Personality characteristics, habits are developed through observational learning.

**Concept of modeling**

- According to social learning much of what human beings learn through direct experience can be learned through watching someone. It is because of modeling.
- Observational learning observers acquire knowledge by observing the model's behaviour, but performance is influence by model's behaviour being rewarded or punished. 1
- Children of fearful parents become fearful, children of critical parents become critical and children who observe confident adults tend to become confident themselves.

**Influence of modeling**

- It can be well understood by studies conducted by BANDURA.
- He showed a 5 minute film to children. The film showed numerous dolls including bobo dolls in a play room. The film had three versions:
  1st group of children see a boy being punished for his aggressive behaviour while playing.
  2nd group of children see boy being rewarded and praised by adult for being aggressive to the doll.
  3rd group of children see nothing, neither the boy being rewarded nor punished for aggressive behaviour displayed.
- It was found that those children who displayed aggressive behaviour being rewarded were most Aggressive, those who had seen aggressive model being punished were least aggressive.

**Conclusion**
In observational learning, observers require knowledge by observing model's behaviour but performance is influenced by model's behaviour being rewarded or punished.

**Question 5. Explain the procedures for studying verbal learning.**
**Answer:** Verbal Learning: The process of learning to respond verbally to verbal stimulus, which may include symbols, nonsense syllables and lists of words.
Procedures for studying verbal learning are:

1. **Paired—Associated learning:**
   - This method is similar to S-S conditioning and S-R learning.
   - When the list of paired-associates is prepared, the first word of the pair is used as the stimulus and the second word as the response.
   - The first members of the pairs (stimulus term) are nonsense syllables (consonant-vowel-consonant), and the second are English nouns (response term).
     e.g.: Stimulus = Response
     Gen = Loot
     Dem= Time
     Div= Lamp
   - The learner is first shown both the stimulus response pairs together and is instructed to remember and recall the response after the presentation of each stimulus term. After that a learning trial begins.
   - Trials continue until the participant gives all the response words without a single error.

2. **Serial learning:**

- First, lists of verbal items, i.e. nonsense syllables, most familiar or least familiar words, interrelated words etc. are prepared.
- In serial learning the participant is presented the entire list and is required to produce the items in the same serial order as in the list.
- Learning trials continue until the participant correctly anticipates and recall in the given order.

3. **Free Recall:**
    - In this method, participants are presented a list of words, each word is shown at a fixed rate of exposure duration.
    - Immediately after the presentation of the list, the participants are required to recall the words in any order they can.

This method is used to study how participants organize words for storage in memory.
Studies also indicate that the items placed in the beginning or end of the lists are easier to recall than those placed in the middle which are more difficult to recall.

**Question 6. What is a skill? What are the stages through which skill learning develops?**
**Answer:** A skill is defined as the ability to perform some complex task smoothly and efficiently, e.g.: car driving, writing etc.
Skill consists of a chain of perceptual motor responses or as a sequence of S-R associations, e.g.: Movements of legs, feet and toes etc.
According to Fitts skill learning develops through three stages:

1. **Cognitive Phase:** In cognitive phase of skill learning, the learner has to understand and memorise the instructions.
    - The learner has to understand how the task has to be performed.
    - In this phase every outside cue instructional demand, and one's response outcome have to be kept alive in consciousness.

2. **Associative Phase:**
    - Different sensory inputs or stimuli are to be linked with appropriate responses.
    - As the practice increases, errors decrease, performance improves and time taken is also reduced.

3. **Autonomous Phase:** two important changes take place in performance.
    - The Attentional demands of the associative phase decreases.
    - Inference created by external factors reduces. Finally, skilled performance attains Automaticity with minimal demands of – conscious effort.

**Question 7. How can you distinguish between generalisation and discrimination?**
**Answer: Generalisation:**

- Pavlov noticed that when a C.S – C.R. bond has been established by conditioning, a stimulus which is similar to the C.S can produce the same response and he called this stimulus Generalisation, or in other words Generalisation occurs due to similarity.
  e.g. If the dog is conditioned to salivate to tone, it will salivate to any type of tone , like electric bell, worship bell, college bell, buzzer and other sounds.
- Stimulus Generalisation in conditioning happens usually more in childhood particularly when the child has not developed the capacity to differentiate between two stimuli.
  For example; During infancy the baby considers every woman to be his mother.

**Discrimination:**

- Discrimination is the process of learning to make one response to one stimulus and another response – or no response to another stimulus.
  e.g: discrimination can be obtained in classical conditioning by pairing one stimulus (the CS+) with an unconditioned stimulus and never pairing another stimulus (the CS) with the unconditioned stimulus.
- Discrimination is a response due to difference or in other words discriminative response depends on the discrimination capacity or discrimination learning of an organism.

### Question 8. How does transfer of learning takes place?

**Answer:** Transfer of learning refers to the way in which we might transfer skills learned in one situation to a second, related situation. Thus, learning to play tennis may introduce a range of coordination and racket skills that would then transfer to similar games such as squash.

- It refers to the effects of prior learning on new learning.
- Transfer is consider to be positive if the earlier learning facilitates current learning. If new learning is a related then it is consider to be negative transfer.
- Absence of facilitative of retarding effect means zero transfer i.e. earlier learning has no effect on later learning.

### Question 9. Why is motivation a prerequisite for learning?

**Answer:** Motivation is considered a pre-requisite and acts as a main facilitator of learning.

1. It is a mental as well as a physiological state, which arouses an organism to act for fulfilling the current need.
2. Motivation energises an organism to act rigorously for attaining some goal, and such sets persist until the goal is attained and the need is satisfied.
   e.g.: The more motivated you are the more hard work you do for learning.
3. Motivation for learning arises from two sources:
   - **Intrinsic motivation:** One may learn many things because he/she enjoys them or it provides the means for attaining some other goal.
   - **Extrinsic motivation:** Throughout the session one learn to acquire knowledge and skill, which may help to get a good job later.

### Question 10. What does the notion of preparedness for learning mean?

**Answer:** Preparedness is a reference to the fact that organisms are better able to associate certain combination of stimuli, responses and reinforces than others.

- If an animal eats and is then ill, it may develop an aversion to the flavor of the food, but not to visual or auditory stimuli that works present at the same time.
- The members of different species are very different from one another in their capacities and response abilities.
- The kinds of S-S or S-R learning an organism can easily acquire depends on the associative mechanism it is genetically endowed with or prepared for.
- A particular kind of associative learning is easy for apes or human beings but may be extremely difficult for another species.
- It implies that learning very much dependent on those association for which one is genetically prepared at the same time on his/her psychological preparedness to learn a particular task.

### Question 11. Explain the different forms of cognitive learning.

**Answer:** Insight learning is a form of cognitive learning.

- Insight is defined as sudden perception of relationship between the learner, the goal and intervening obstacles.
- Insight occurs when the learner suddenly sees the relations between two valuables. Many experiments have been performed on insight learning. One Of the simplest of these experiments requires the chimpanzee to reach food with a stick when it cannot be reached by hand and when nothing else other than a stick is a available in the room. Latent learning is another form of cognitive learning.

The word latent means 'hidden' and thus latent learning is learning that occurs but is not evident in behaviour until later, when conditions for its appearance are favourable.

- Latent learning is said to occur without reinforcement of particular responses and seems to involve changes in the ways information is processed.
- Thus latent learning is an example of cognitive learning.

**Experimental evidence:**

- Rats in an experimental group-the latent learning group were first given plenty of experience in a maze. After they thoroughly experienced the maze, reinforced maze learning under instrumental conditioning began ie. They were rewarded for their successful effort.
- The rats in a control group are not being given experience with the maze. The control group animals were put in a box that is unlike the maze.
- When reinforcement for maze learning starts, the experimental group did better than the rats in the control group.
- The latent learning group rats learned the maze faster and with fewer errors than did the control animals.
- It proves that the latent learning showed up in their performance.

**Question 12. How can we identify students with learning disabilities?**
**Answer:** Learning disability refers to a heterogeneous group of disorders manifested in terms of difficulty in the acquisition of learning, reading, writing, speaking, reasoning, and mathematical activities.

- The sources of such disorders are inherent in the child.

We can identify students with learning disabilities from many symptoms. These symptoms are following:

1. Difficulties in writing letters, words, and phrases, reading out text, and speaking, appear quite frequently, quite often they have listening problems, although they may not have auditory defects. Such children are very different from others in developing learning strategies and plans.
2. Learning disabled children have disorders of attention. They get easily distracted and cannot sustain attention on one point for long. Some times it leads to hyperactivity ie they are always moving, doing different things and trying to manipulate things without any purpose.
3. Poor space orientation and inadequate sense of time are common symptoms. Such children do not get easily oriented to new surroundings and get lost. They lack a sense of time and are late or sometimes too early in their routine work. They also show confusion

in direction and misjudge right, left, and down.

4. Learning-disabled children have poor motor-coordination and poor manual dexterity. This is evident in their lack of balance. They show Inability to sharpen pencil, handle doorknobs, difficulty in learning to ride a bicycle, etc.
5. These children fail to understand and follow oral directions for doing things.
6. They misjudge relationships as to which classmates are friendly and which ones are indifferent. They fail to learn and understand body language.
7. Learning-disabled children usually show perceptual disorders. These include visual, auditory, tectual and kinesthetic, misperception etc. They fail to differentiate a call-bell from the ring of the telephone. It is not they do not have sensory acuity.They simply fail to use it in performance.
8. Fairly large number of learning-disabled children have dyslexia. They quite often fail to copy letter and words, e.g,: they fail to distinguish between b and d, p and q, p and l, was and saw, unclear and nuclear etc., they fail to organize verbal material.