

Teaching Aptitude

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* Schools of Psychology

i) Behaviourism emphasis on study of behaviour for knowing individual & use of method of conditioning for acquisition of all types of behaviour.

Conative Cognitive Affective

• John B. Watson is the father of behaviourism (school of psychology)

• Ivan Pavlov was pioneer in conducting useful experiments with the idea & views held in behaviourism

• Ivan Pavlov was the propagator (founder) of the theory of classical conditioning

• Behaviourism focused its attention totally on the OVERT or Observable behaviour

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- B.F. Skinner emphasized a system of learning known as Operant Conditioning. He popularised the task of behaviour by using the principles of reward (reinforcement).

Characteristics of Behaviourism

- Heredity has no role in shaping the behaviours of the learner.
- The individual & his behaviour is the sole product of his interaction with the environment.
- There is similarity between human & animal learning.
- Focused on the study of one's OVERT or observable behaviour (not on internal behaviour).
- It is centred around Stimulus-Response mechanism. (S-R)

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- 1) Trial & Error theory of learning - E.L. Thorndike
 - 2) Theory of Classical Conditioning - Ivan Pavlov & J.B. Watson
 - 3) Theory of operant conditioning - B.F. Skinner
 - 4) Theory of Contiguous Conditioning - E.R. Guthrie
 - 5) Hull's Systematic behaviour theory - Clark Hull
 - 6) Gagne's theory of learning - Robert M. Gagne

① Trial & Error theory / S-R Theory of learning (Bond Psychology) or (Connectionism)

- Errors are obvious in some attempts or trials
- We learn to make right responses by omitting the incorrect ones
- We learn to take desired responses without committing any error.
- Thorndike propounded laws of learning
 - a) law of readiness - implying that if one is ready to learn, he can learn
 - b) law of exercise - emphasising the need of practice, drill & repetition
 - c) law of effect - states that the fate of learning is decided by the effect or consequences of learning (Reward - Encourage, Punishment - Discourage)
- Connectionism: According to Thorndike, learning is caused by the formation of connection between stimuli & responses in the nervous system. There is a definite association between sense impression & impulses to action. This association can be known as bond or connection.

② Classical Conditioning

JB Watson & ^{Ivan} Pavlov introduced a theory of learning known as conditioned response theory or learning by conditioning.

- Learning is considered as a habit formation based on the principle of association and substitution. (S-R)

- The responses of the learner become so much conditioned - behaving in the same way or responding similarly to the the similar situation that he does not care for the natural stimuli for evoking the related natural response.

As a result, the new substituted stimulus behaves like original stimulus & is able to evoke the desired response.

Note:

- Fear, love & hatred towards the subjects are created through conditioning
- The empathetic treatment given by the teacher & his interesting & effective methodology can bring a desired impact on the students through the process of conditioning.

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③ Skinner's Operant Conditioning

- B.F. Skinner does not believe in stimulus response (S-R) trigger
- He asserted that the presence of a stimulus for evoking a response is not essential
- He ^(concludes) states that our behaviour is shaped & maintained by its consequences.
- It is operated by the organism itself & maintained by its results
- Reinforcement (anything that increases the chances of the repetition of a behaviour) is an essential attribute to operant conditioning.

ie Most of the responses could not be attributed to the known stimuli

(Stimulus causing behaviour is unknown) But,

The consequences of the behaviours are more important & hence the operant behaviour is controlled by the strength of its consequences instead of stimuli
~~experiencing consequences~~

Note: Operant is R Conditioning
Classical is S Conditioning

④ Theory of Contiguous Conditioning

- Edwin Ray Guthrie's contiguous conditioning is based on the principle of contiguity. i.e. coming together of the stimulus and a response.

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⑤ Hull's Systematic Behaviour Theory

- Clark L. Hull is credited for the amended formula $S-O-R$ (in place of $S-R$).
- Hull introduced the concept of intervening variables (not directly observable) between S & R . eg: needs, interests, drives, etc.
- Accordingly, when a stimulus (S) impinges on the organism, it results in a sensory neural impulse (s) a kind of stimulus trace. This stimulus trace ultimately causes a motor neural reaction (r) that results in an overt response (R). Thus, we may have the formula $S-s-r-R$ instead of traditional $S-R$.

$S-O-R$
formula

was provided by Hull

~~Amulation & over~~

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6) Gagne's theory of learning

- Robert Gagne's theory of learning considers learning as a change in human performance or capabilities & depend upon certain internal & external conditions.
- He proposed eight types of learning arranged in hierarchy.
- Starting from Motivation to learning & end in feedback for the performance.

① Signal Learning

② Stimulus-Response (S-R) learning

③ Chaining

④ Verbal association

⑤ Multiple discrimination

⑥ Concept learning

⑦ Rule learning

⑧ Problem solving

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Gagne's learning events

① Reception

② Expectancy

③ Retrieval

④ Selective perception

⑤ Semantic encoding

⑥ Responding

⑦ Reinforcement

⑧ Retrieval

⑨ Generalization

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References

Learning & Teaching by
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PHI Learning Pvt Ltd, Delhi

Table 3.3 Gagne's System of Learning

<i>Hierarchical order type</i>	<i>Brief description of its nature</i>
1. Signal learning	A Learning of the nature that we are stopped at the red light and start driving our vehicle at the green. Here we learn to make a generalised response to a signal or stimulus (as happens with the classical conditioning of Pavlov and Watson).
2. Stimulus-response (S.R.) learning	Learning based on S.R. type instrumental conditioning emphasised by Thorndike. Here a stimulus is properly discriminated for a mechanical alike response.
3. Chaining	In this type of learning, two or more S.R. connections are joined together.
4. Verbal association	In this type of learning the learner is made to emit chained responses of S.R. type by making verbal associations.
5. Multiple discrimination	This is a stage of good discrimination, i.e. to learn making different responses to different (even having too much resemblance) stimuli.
6. Concept learning	In this type of learning one learns to provide a common response to a class of stimuli.
7. Rule learning	Also known as learning of principles. Principles are generated through the chaining of two or more concepts, e.g. if one is thirsty, one needs water to drink.
8. Problem solving	In this type of learning, higher mental or cognitive abilities are involved for making use of the concepts and rules for solving problems.

While presenting such a hierarchical order, Gagne tried to guide the process of learning and instructional organisation by emphasising that in learning, the lower steps of hierarchy must be mastered before the higher steps can be learned. Gagne's theory of learning provides a genuine basis for the proper organisation and sequencing of instruction.

Table 3.4 Gagne's Learning Events along with their Corresponding Instructional Events

<i>Learning event</i>	<i>Corresponding instruction event (cognitive process in a learner's mind)</i>
Reception	Gaining attention
Expectancy	Informing learners of the objective
Retrieval	Stimulating recall of prior learning
Selective perception	Presenting the stimulus
Semantic encoding	Providing learning guidance
Responding	Eliciting performance
Reinforcement	Providing feedback
Retrieval	Assessing performance
Generalisation	Enhancing retention and transfer

2] Cognitivism

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- lays emphasis on the role of the cognitive structure & cognitive processes like thinking, memory, knowing & problem solving.
- The roots of cognitivism may be traced in the cognitive outlook of propogates of Gestalt psychology (Kohler, Kurt Lewin, etc)
 - Gestaltists opposed the behaviourism doctrine of S-R conditioning. They emphasized the role of insight or intelligence in one's learning & understanding things in environment.
 - Edward Tolman stated that the organism tries to set up mental hypotheses about the ways to solve problems & then sets out to test these hypotheses through purposeful behaviour.
 - J.S. Bruner & Jean Piaget are for their theories of Cognitive development & functioning.
 - Cognitive psychology is using the metaphor of the mind as computer.
Input → Process → Output

Characteristics of Cognitivism

- Cognitivism considers man as rational beings that require active participation in order to learn & whose actions are a consequence of thinking.
- It incorporates mental structure & process in their learning theories.
- It believes that inferences ^{can be drawn} about the nature of the internal cognitive processes that produce those responses.

Cognitivism - white box theory (internal process)

Behaviourism - Black box theory (external process)

- It studies man's thinking, memory, language development, perception, imagery, etc. to peep into the higher human mental functions like insight, creativity & problem solving.
- Cognitivists are totally opposed to the S-R approach.

Theories

- ① Gestalt's theory of insight
- ② Kurt Lewin's Field theory
- ③ Tolman's Sign learning
- ④ Miller's Information processing theory.

3] Humanism

- as a system of thought focuses on humans & their values, capacities & worth.
- emphasis on human freedom, values, dignity & potential
- believes it is essential to study the person a whole for knowing & understanding him as a human being.
- advocates to adopt reasonable flexibility in teaching methods, curriculum, assessment
- focuses on individualisation of teaching learning of students
- believes in sympathetic treatment and patiently hearing about the needs & problems of learners.
- stresses on child-centred approach, positive reinforcement, experiences & activities for purposeful learning.

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Theories

- ① Experiential learning - Carl Roger
- ② Maslow's need hierarchy theory - Abraham Maslow
- ③ Social learning - Albert Bandura

4) Constructivism

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- emphasises the active role of the learner in building, understanding & making sense of information
- focuses on knowledge getting or knowledge construction process.
- requires learners must take active part in the knowledge gaining process.
- lays down that the student should try to infer their own meaning & construct their own knowledge while interacting within their classroom or social environment.
- recommends the guided discovery or construction of the knowledge. (To. should motivate & inspire)
Eg: Discovery learning, inquiry approach etc
Co-operative, brainstorming, etc
- encourages learner-centred methods of teaching & reflective level of teaching-learning.
and heavy emphasis on independent learning or solving the problems on the part of learner.
by his own efforts on an individual or group basis.
- Conveys that the learner must be given due responsibility of taking charge of his learning & the task of teacher is not to feed the ready-made material in the mind of the students.

Types of Constructivism - By

- 1) Individual Constructivism - Jean Piaget
- 2) Social Constructivism - Lev Vygotsky
- 3) Radical Constructivism - Von Glasersfeld
- 4) Cognitive Constructivism - Jerome Bruner
↳ (Individual + social)

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① Jean Piaget's individual Constructivism

- Knowledge is constructed by the individual himself, quite independently without seeking help from others. (purely based on the self-perception & prior knowledge/experiences.)

Cognitive processes

- a) assimilation b) accommodation c) equilibration

② Lev Vygotsky's social Constructivism

- provided an immense weightage to social interaction, cultural tools, elders' guidance, etc.

MKO - More Knowledgeable Other

ZPD - Zone of Proximal Development

(difference between what a child can achieve independently & with guidance from skilled or MKO)

③ Von Glaserfeld's radical constructivism

emphasised that although a child can learn through experiences shared with him in a social environment, but for better execution of the task, he should be helped in his understanding of the new things by constructing knowledge in his mind (instead of feeding the already constructed knowledge)

④ Jerome Bruner's Cognitive constructivism

is the blend of individual & social constructivism.

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