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Comprehensive Textbook on DISABILITY



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JAYPEE

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Chapter 3

Special Education: Learning Theories and Educational Models

Shamim Mohammad, Hamed Ademola Adetunji, Tabrez Uz Zaman

Lear NING OBJeCt IVeS

a fter going through this chapter, the learners will be able to:

- Educate learners about important and relevant learning theories and their applications in education
- Educate learners about the brief history of integration
- Inform learners about different models of integration in special education
- Inform learners about inclusion and its merits and demerits

a BStr a Ct

Theories of learning and models of education not only lay down a sound theoretical foundation but also offer a wide spectrum of teaching and learning options for the learners and special educators. Some of these relevant theories and models have emerged from different schools of thoughts, particularly from behavioral, cognitive, and social sciences. In behavioral sciences, the experiments of Pavlov and Skinner revolutionized teaching and learning. Pavlov's experiments conducted on dogs became popular as Classical Conditioning whereas Skinner's experiments conducted on rats became popular as Operant Conditioning. These two theories gave us various techniques and methods to shape new desirable behaviors and to control, manage, and change undesirable behaviors in learners with special needs with a great success. The theory of cognitive development (Piaget) propagates that learning is "construction." He identified four stages in cognitive development and believed that children pass through these stages sequentially. In social sciences, Bandura's Social Learning Theory explains that cognition (mental functions) mediates learning.However, special education models speak about how well exceptional learners can be educated together with their normal learners. It can be done by bringing change in either the environment or the teaching instructions or both of them. Integration models advocate mainstreaming exceptional learners with that of regular learners in the same school by extending to them professional guidance and support considering their level and nature of disabilities and learning difficulties. The goal of integration is to highlight the role of special education as part of the general education system and emphasize the rights of all children to be educated. Inclusion is all about placing learners with disabilities in regular (normal) classrooms with provisions of therapeutic services. Available data suggests that advantages of inclusion outweigh the disadvantages.

Keywords: Special Education, Stimulus-Response, Inclusion, Integration, Least Restrictive Environment, Learning and Teaching, Reinforcements.

INtr ODUCt ION

Special education programs or instructions are designed for learners with special physical, social, emotional, educational, and cognitive needs. Due to extremely differing needs of these exceptional learners, their multifaceted needs cannot be met in a traditional classroom setting. Special education emphasizes an adaptation of the contents, teaching methodologies, and instructions' delivery to suit the needs of each learner. Learning how people learn has always been a fascinating area for educators, philosophers, and psychologists. This has generated vast literature on different approaches, theories, and models of learning. The special educators, to maximize learning in the learners with special needs or to shape and manage their behaviors, use some of these theories and models.

Special education and early interventions offer a variety of learning theories for early childhood education which are put to practice by the educators and other professionals. Some of these theories are drawn from different schools of thoughts such as behaviorism, social sciences, cognition, and maturation theories. These theories have immensely helped in understanding learning and development. Learning is a complex phenomenon influenced by numerous factors. It is the most important and long-running action of human beings; imbibing new knowledge, skills, and right attitudes through exposures and experience is our innate behavior. Learning directs our lives. In brief, learning is defined as "*all types of cognitive and behavioral changes that are permanent and that are outcomes of repetitive actions and experiences of an individual*."

Due to curiosity of how and why people learn, "*learning and development*" interested many, which led to the evolvement of different theoretical constructs. This gave us a wide range of theories and models to choose; instructors may choose from single theory or may follow multiple theories or take an eclectic "*best of all*" approach in designing instructional programs or activities for the young learners

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with disabilities. This chapter intends to abreast you with relevant and important theories drawn from the behaviorism school of thought such as classical and operant conditioning, social learning theory (SLT) from social sciences, and Piaget cognition development theory from cognitive psychology. Further, in this chapter, an attempt has been made to explain the concepts "*inclusion*" and "*integration*" too.

the Or IeS

Theories are the group of predictions that attempt to explain reasons why certain events occur. According to the Merriam-Webster dictionary (1828), theory is "*a reasonable or scientifically viable principle or principles' body offered to explain phenomena.*" There are a number of theories. Some of these theories are useful and have direct application in special education; they can be grouped in three categories depending on their origin, namely behavioral, cognitive, and social theories. Their details are explained in the following text.

Behavioral t heories

Behavior is defined as "*observable and measurable action or reaction or movements demonstrated by any living being in a certain context.*" According to the behavioral school of thought, learning occurs due to the establishment of the stimuli and response (S–R) connections. Behavior can be changed or modified by use of positive and negative reinforcements. This school of thought believes that people are not smart or dull by birth; their personalities are shaped by exposures they get and environment around them. Behaviorists consider the learning process as a mechanical or automatic one; according to behaviorists, "*human brain is like a black box*"; it is impossible and even irrelevant to understand what occurs inside the black box (brain). What goes into the box (inputs) and what comes out from the box (outputs) are more important rather than what happens inside the box. Outputs (behaviors) are "*observable and measurable.*" Inputs (sensory inputs) can be controlled, regulated, and adjusted. The theorists who contributed to this school of thought are Pavlov, Watson, Thorndike, Guthrie, and Skinner (Kaya, 2016). The advocates of this school assume that the behaviors are learned, and they believe that the behaviors can be de-learned and substituted by a new behavior too. In special education, the concepts such as reinforcements (rewards) and punishments are widely used to improve deficit behaviors (skill training) and to modify or manage challenged behaviors (Behavior Modification).

The key originators of behaviorism are Watson (1878–1958), Skinner (1904–1990), and Pavlov (1849–1936). Some of the pathbreaking experiments carried out by these behaviorists led to the invention of several teaching and learning methods and are being applied widely in special education (SPED). The details are given in the following text.

Classical Conditioning (Pavlov, 1849–1936)

Ivan Petrovich Pavlov, a Russian physiologist, most famous for psychological experiments, discovered a phenomenon which became popular as classical conditioning, learning to connect stimuli, two or more, and anticipate events. His work provided a basis for behaviorism, the views that psychology (1) should be objective enough and (2) to study observable and measurable behavior without reference to mental processes. His revolutionary work provided a foundation for other behaviorists such as Skinner and Watson for their pathbreaking researches.

Zhou and Brown (2017) reported that Pavlov, in his experiments, used to ring a bell while giving food to the dogs under experiment. During the experiment process, he observed that the dogs salivated even shortly before they were given the food. He also found out that whenever the bell sound was produced at repeated feedings, the sound of the bell alone (*a conditioned stimulus*) was able to cause the dogs to salivate (*a conditioned response*).

Some of the terminologies which emerged from Pavlov's classical conditioning experiments are explained in **Box 3.1**. The same are also shown in **Figure 3.1**.

In this experiment, it was also noticed that a conditioned response (reflex) was inhibited if the "*wrong*" stimulus was presented repeatedly. For example, if the bell rings and no food is presented, the dogs finally stop to salivate to the bell sounds.

In summary, the same can be explained as follows:

- Food (unconditioned stimulus) = salivation (unconditioned response)
- Food + Bell = salivation (conditioned stimulus)
- Bell (conditioned stimuli) alone produces salivation (conditioned response).

Classical conditioning deals with reflexes or responses that are elicited from specific stimuli. This theory has huge implications in education; by using it, learners can be trained to perform certain tasks by providing them certain kinds of triggers (stimuli) such as sound, pictures, or phrases.

educational implications

In simple words, classical conditioning (also referred to as associated learning) is a learning to link a behavior with a stimulus. Once a stimulus produces a kind of response which is produced by the original stimulus, it is called a conditioned stimulus. If there is close similarity between the two, i.e., unconditioned stimulus and conditioned stimulus, they can

BOX 3.1

t erminologies which emerged from pavlov's classical conditioning experiments.

Unconditioned stimulus (US): A stimulus which naturally or automatically (unconditionally) elicits or triggers a response. For example, taste, smell, and sight of food.

Unconditioned response (UR): A natural response (unlearned) to the unconditioned stimulus. For example, salivation (in case of Pavlov's experiment).

Conditioned stimulus (CS): An unconditional stimulus in association with an originally neutral stimulus triggering a conditioned response. For example, bell ringing (in case of Pavlov's experiment).

Conditioned response (CR): A response elicited from the previously neutral (now conditioned) stimulus.

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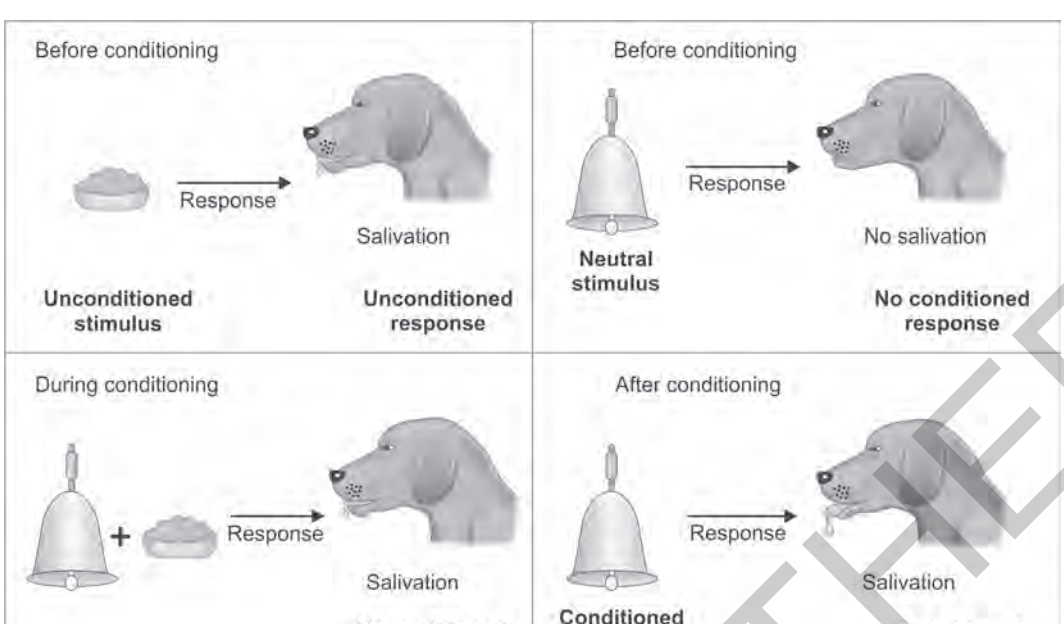

Fig. 3.1: Classical conditioning.
Source: Wordpress.com, 2015.

produce the same response. In other words, it can be said that the stimuli generalization has occurred, for example, a child scared of all pets with fur. This theory helps the educators to explain the development of phobias of certain things, places, or locations in children. It gave us behavior modification techniques such as flooding, systematic desensitization, and aversion.

- *Flooding*: It refers to the long-duration exposure to the feared objects, situations, animals, places, etc. (stimulus). This method can be used to extinguish fear response from children with special needs.
- *Aversion*: It refers to pairing the problem behavior with the aversive stimulus. "Tick + loud No" has been extensively used to manage teeth-grinding, thumb-sucking, and other stereotypic behaviors of the intellectually challenged children.
- *Systematic desensitization*: This is also known as graduated exposure therapy. Children are gradually exposed to feared objects, situation, etc. This has been used to treat phobia of objects, such as fear from pets or water, in children with special needs.
- *Extinction*: What will happen if a classically conditioned dog (salivate after bell rings) does not get food? Any idea? Extinction occurs; that means, "*conditioned response decreases and eventually disappears*." While working with children with special needs, extinction (ignoring) is used widely to decrease undesirable attention-seeking behaviors.

However, classical conditioning relates to involuntary actions to stimuli (usually original biological and emotional reactions) and hence cannot be used to demonstrate a voluntary (wishful) action. For that, we have operant conditioning.

Operant Conditioning (Skinner, 1904–1990)

Skinner through his experiments on rats arrived at the conclusion that "*human beings and animals repeat actions which produce favorable outcomes (results).*" His experiments revealed that if a rat gets food pellets once he presses the lever, it is likely that he will do the same again (positive reinforcement). Skinner named lever pressing by the rat as "operant" and the food pellets as a reinforcer.

Similarly, if the rat is administered shock every time it presses the lever, his behavior (pressing a lever) will cease to occur. In this case, administration of shock is a punisher and as a result the rat stops pressing the lever. In brief, punishers suppress or decrease the likelihood of occurrence of a behavior. Skinner had a strong belief that the habits we develop are the outcomes of the operant learning experiences. In summary, operant conditioning behavior is controlled by the consequences, and an article by Khan Academy (2019) explains that these consequences have two characteristics, i.e., reinforcement and punishment. The rat learns to press the lever for obtaining food (reinforcement).

The detail of operant conditioning is explained in **Table 3.1**.

Schedule of reinforcement

Goodluck and Ateh-Abang (2010) in their article "*Reinforcement and Its Educational Implications*" defined reinforcement as a "*process of increasing desirable behavior by using primary or secondary, positive or negative reinforcers respectively*." Reinforcement is an effect of a reinforcer which is a pleasurable stimulus. There are several categories of reinforcers such as social, tangible, and activity based. Making use of these reinforcers to maximize learning requires a wide range of its administration methods called schedule of reinforcement. There are two major methods of

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table 3.1: Comparison of reinforcement and punishment.

Characteristics	*Reinforcement (increases behavior)*	*Punishment (decreases behavior)*
Positive Something (stimulus) is added	*Positive* reinforcement A stimulus is added to increase desired behavior, e.g., smile or pat on back and compliments (including tangible reinforcers) after better performance of the student.	*Positive* punishment A stimulus (aversive) is added to decrease undesired behavior, e.g., A student is asked to stand up in the class briefly for not completing homework.
Negative Something (stimulus) is removed	*Negative* reinforcement A stimulus is removed to increase desirable behavior or something unpleasant removed to increase desirable behavior, e.g., a child switches off the alarm before it rings to avoid loud noise.	*Negative* punishment A reinforcing stimulus is removed to decrease undesired behavior, e.g., A child pinching another child is denied his or her favorite activity.

Source: Zhou and Brown (2017).

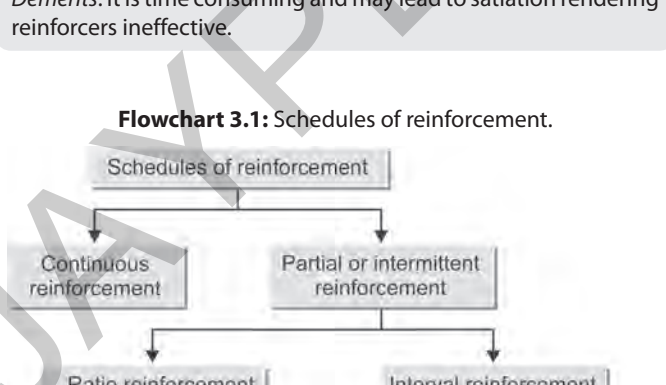
administration: (1) continuous and (2) partial (intermittent) schedules of reinforcement. **Flowchart 3.1** demonstrates the details.

Reinforcements, as behavior modification methods, can be applied to a wide range of behavior problems and skill trainings in every possible setting, but its repeated application makes reinforcement to decrease its value and relevance.

Continuous reinforcement schedule: Each time reinforcement is administered to a person whenever a desired or target response is made, such a schedule is called continuous. This schedule of reinforcement can be put to use by the teachers to encourage learners for better performance in the class irrespective of levels, whether primary, secondary, or kindergarten. Targeted students are offered continuous reinforcement each time they show up desirable behavior. However, the nature and number of reinforcers differ from one category of students to another. Tangible reinforcers, such as eatables (biscuits, sweets, etc.) and potables (soft drinks, juices, etc.), are effective to those in Kindergarten; some exercise books or pens and pencils for those in primary levels; while social reinforcers, such as appreciations, praises, and encouragement, are effective for the students of secondary school levels.

Merit: It helps in accelerating learning.
Demerits: It is time consuming and may lead to satiation rendering reinforcers ineffective.

Flowchart 3.1: Schedules of reinforcement.



Source: Goodluck and Ateh-Abang (2010).

Partial or intermittent reinforcement schedule: Where some targeted desired behaviors are reinforced over others only in some context, it is intermittent or partial reinforcement schedule. This is also used to reinforce a correct response after a certain interval or after a definite number of correct responses. These types of schedules of reinforcement are explained in the following text.

Merit: It helps in maintaining desirable behavior over time.
Demerit: It is not effective in teaching a new behavior.

According to Skinner and his contemporaries, partial or intermittent reinforcement has four different types. These are fixed and variable ratios, fixed interval, and variable interval schedules.

1. *Fixed ratio schedule*: This kind of reinforcement schedule is where a reward is given to a student when he or she makes a definite number of right responses. It is like a "Token Economy" where earning several tokens leads to some reward. In video games, a child earns some award after scoring a definite number of points or badges.

Merits:
- It promotes increased and steady desired responses until the delivery of the reinforcement.
- It is very good while learning a new behavior.

Demerit: Responding might get irregular if reinforcement is stopped.

This kind of schedule makes learners more alert in making a definite number of correct responses so that they can earn the predefined reward. However, a teacher must clearly spell out beforehand about the number of correct responses that qualifies for a reinforcer (reward).

2. *Variable ratio schedule*: This kind of reinforcement schedule rewards learners on an unpredictable and irregular way, not in a fixed manner. Here, the learner is not aware about after how many correct attempts he or she will receive the reward, but the tutor knows it. The tutor determines after how many right responses does a learner qualify for a reward. It is difficult for the learner to make predication about the date and time of the delivery of the reward. This ambiguity keeps the learner motivated to put up his or her best to earn an unpredictable reinforcer (reward).

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Merit: The learner's rate of learning remains unaffected.
Demerit: It is ineffective while teaching a new behavior.

3. *Fixed interval schedule*: Deserving leaners are rewarded after fixed intervals or time. It is given on the basis of cumulative performance or correct responses at a fixed or appointed time. Time, place, and manner of delivery of rewards to learners are decided by the schools' administrators and teachers. For example, a learner with hyperactivity is given a reward every 5 minutes to remain seated.

Merit: It is easy in administration.
Demerit: Once the learner gets the reward, he or she may stop performing target behavior before the time for the next reward.

4. *Variable interval schedule*: Learners are rewarded at variable intervals of time for right responses. Here, no fixed time period but varying time period must elapse between the previously rewarded responses and the next correct response to be rewarded. For example, an instructor might deliver reinforcement on an average of every 10 minutes; sometimes, it might be more or less. Delivery of reinforcement should be done as follows: first and second batches of the rewards must be delivered in the interval of 2–3 weeks, third batch of the reward after a month, and the fourth reward in the intervals of 2 months or more.

Merit: It is easy in administration.
Demerit: It is ineffective while teaching a new behavior.

It has been found that various schedules of reinforcement have different effects on the rate of learning in human beings.

A summary of operant conditioning is given in **Box 3.2**.

BOX 3.2

Operant conditioning is:

- Behavior controlled by consequences
- Adaptive behavior controlled by operant conditioning
  - Shaping behavior is one method of modifying behavior.
  - Behavior can be accelerated, i.e., desirable behavior can be increased.
  - Behavior can be decelerated, i.e., undesirable behavior can be decreased.
- *Positive reinforcement* (such as activity based, tangible, and social):
  - Are called reward
  - Can be used as a motivation for learning
  - Can be used selectively (scheduling of reinforcement)—used to encourage desired behaviors as and when they occur
- *Negative reinforcement* is removal of something aversive to increase desirable behavior. It:
  - Generally occurs before or during the behavior
  - Is aversive
  - Enhances desirable behavior
  - May lead to rigidity of response
- *Punishment*:
  - Generally occurs after or during the behavior
  - Is aversive
  - Is effective in eliminating undesirable behavior
  - May lead to rigidity of response
- *Behavioral contracts*: They are handy and can be used in school as well as at home. This is more effective with the educable group of children. It involves a combination of teachers and instructors working together to ensure that the contracts made with the learners are being fulfilled.

Cognitive Development t heories

Cognition refers to mental functions such as attention, perception, memory, and intelligence. In other words, "*it's a sum of all the processes undertaken by human mind with a view to understand the situations and events going on around*." These theories are studied under cognition psychology, a branch of psychology, which focuses on mental processes such as how people acquire, process, and store information. Understanding of these theories helps teachers to understand how they can improve their teaching and students' learning (Blake and Pope, 2008).

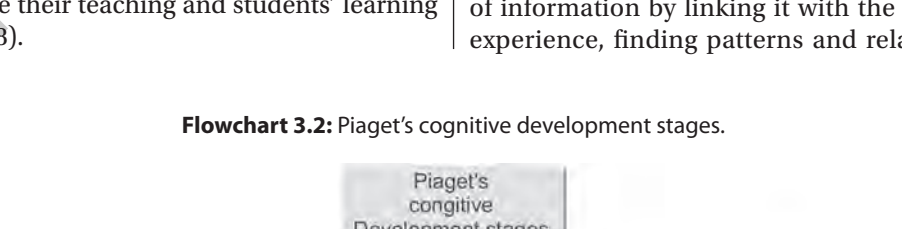
For maximizing learning outputs in learners and for selection of age-appropriate activities for learners, teachers have been making effective use of cognitive theories for their instructions. Their relevance and importance in the field of education have increased tremendously in the recent past.

Piaget's Cognitive Development Stages (1896–1980)

Piaget's cognitive development stages are shown in **Flowchart 3.2**.

Piaget (1896–1980), a Swiss psychologist with a deep understanding in biological sciences, explains in his theory that cognitive structures are basic psychologically interconnected systems which facilitate the processing of information by linking it with the prior knowledge and experience, finding patterns and relationship, identifying

Flowchart 3.2: Piaget's cognitive development stages.



Source: Illustration by Tiffany Davis, Meghann Hummel, and Kay Sauers (2006).

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rules, etc. Piaget belongs to the constructivism school of thought and views learning as "construction." He identified four stages in cognitive development and believed that children pass through these stages sequentially.

At every stage, a child exhibits new cognitive capacities and enhanced understanding of the complex world. Cognitive development occurs in some order or stages and these orders or stages "*cannot be jumped or skipped.*" However, at what age do children progress from one stage to the other may vary according to the environment and background they come from.

Sensorimotor stage: This is also called the infancy stage of development and children learn by using their five sensory systems. This stage starts at birth and continues up to 18 months to 2 years. This involves mainly use of gross and fine motor activities with no use of symbols. Knowledge is acquired through experience and physical interactions; knowledge remains limited at this stage; children are unable to predict reactions; therefore, they must experiment constantly and learn by trial and error. This kind of exploration by infants may include putting objects in the mouth (**Fig. 3.2**).

When children gain more and more mobility, they explore more, and development of their cognitive ability also accelerates simultaneously. During this age, early language development starts. This is the stage known for the development of the "*object permanence*," i.e., that the objects which go out of sight exist. Children start searching for a hidden toy or object of interests.

Preoperational stage: This stage spans ages 2 through 7 years, whereby children start thinking through symbols about objects. Usage of language becomes more mature. Understanding the concept of past and future occurs as a result of development of memory and imagination. Thinking at this stage is based on instincts rather than being logical. Role-playing at this stage is very common such as children playing "*doctor*" and "*patients*" roles. Complex concepts such as "*cause and effect*," comparisons, and time are difficult for children to learn at this stage.

Concrete operations stage: This stage typically runs through 7–11 years of age. At this age, "*logical thinking*" regarding analogies and concrete events starts. It involves understanding about concrete materials that do not change just because of the change in the shape. Also, it involves learning the ability to understand mathematical transformations. This stage is marked by the following three concepts:

1. *Decentering*: It refers to the ability of the child to perceive different attributes of situations and objects.
2. *Reversibility*: It is the ability of the children to learn that certain operations can be done in reverse—the concept of addition and subtraction develops.
3. *Conservation*: It is the ability to understand that certain characteristics of the objects do not change by change of their shapes even though there is change in appearance (**Fig. 3.3**).

Formal operations stage: This stage runs through 12–18 years of age. This is the age where "*abstract thinking or hypothetical thinking*" starts developing. The person becomes ready to handle questions like "*what if.*" Children at this age are ready to solve "*analogies*" as shown in **Figure 3.4**.

This stage is also characterized by "*deductive reasoning.*" Deductive reasoning is the ability of a person to solve some specific problems by using general principles. For example, light objects float in the water; hence, a plastic ball must float in water. Piaget believed that cognitive development is a

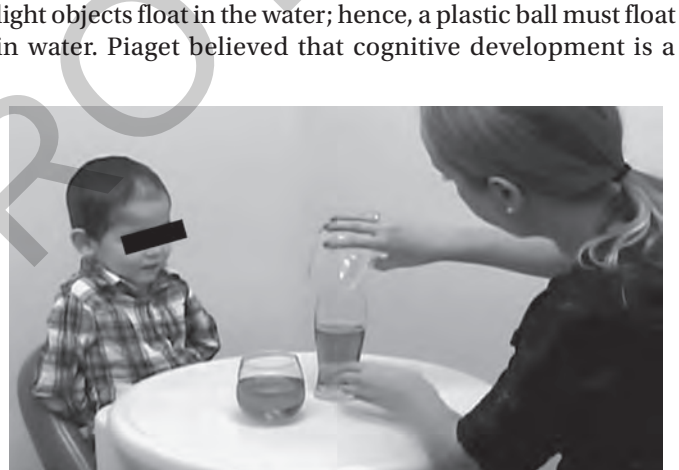

Fig. 3.3: Illustration of the concept of conservation.

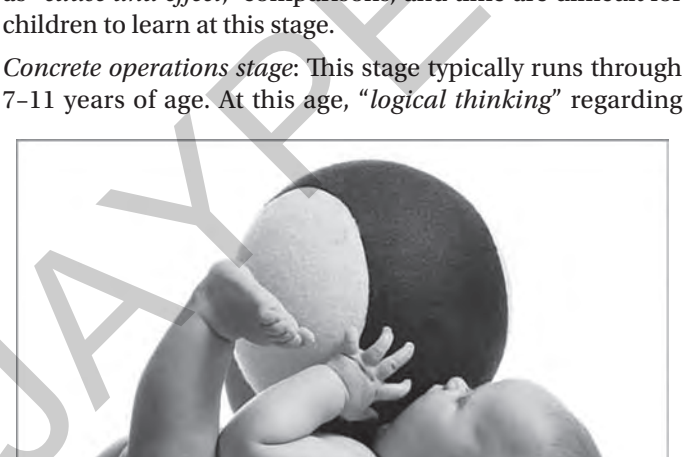

Fig. 3.2: Illustration of oral activities of an infant.

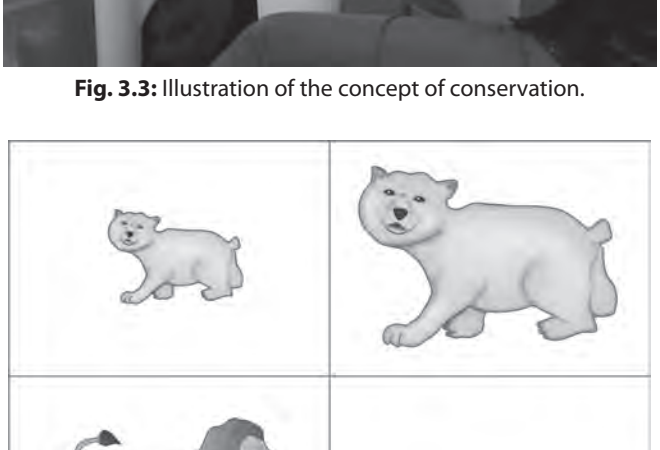

Fig. 3.4: Illustration of the concept of analogy.

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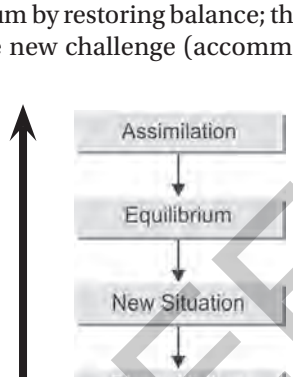
lifelong process. However, in adults, cognitive development involves development of more complex schemas by acquisition of new additional knowledge.

educational Implications of piaget's Cognitive Development t heory

Piaget believed that individuals adapt to their environments continuously. He explains two processes, namely assimilation and accommodation. He says that adaptation is an ability of an organism to fit in with his or her environment, which includes processes such as assimilation and accommodation. Assimilation refers to the process where the person transforms or use the environment to suit his or her preexisting cognitive structure.

The accommodation process refers to a change in the existing schema or change in cognitive structures as a result of acquiring new knowledge or new object of situation.

There needs to be a balance between assimilation and accommodation. A perfect balance is called "*equilibrium.*" Equilibrium happens when a learner's schema can deal with new information by way of assimilation. Disequilibrium occurs only when a child is unable to fit new information in existing schemas; this is an unpleasant state. On the other hand, equilibrium is a driving force for the learning process; leaners do not want to live in a frustrated state, i.e., disequilibrium. Leaners continuously seek to maintain the state of equilibrium by restoring balance; this is only possible by mastering the new challenge (accommodation) causing disequilibrium.



Following are major teaching and learning implications of Piaget's theory but not limited to:

- Piaget's theory advocates adaptation of instructions according to the development age of the learners.
- Instructions' contents need to be in line with the leaners' development level.
- It recommends use of concrete objects, i.e., "*hands-on*" experiences to facilitate learning in children.
- It provides concrete props (aids) and visual aids, such as models and/or timeline.
- It provides opportunities to classify or group or arrange information with increasing difficulty. There is use of outlines and classifications to accelerate assimilation of added knowledge with previous knowledge.
- Problems which require logical and analytic thinking in order to solve them must be given to learners; the use of tools or problems such as "*brain teasers*" must be encouraged.

Social Learning t heory

According to Bandura (1986), behavior change is not a single directional force where either the environment impacts the individual fully or the individual impacts the environment fully. The social learning theory (SLT mainly focuses on an idea that human learn in social context while interacting with others. People inculcate or develop behaviors while observing others; they assimilate and imitate those behaviors. In brief, "*people are producers and product of the environment*." Bandura proposed that observable behaviors develop from a "*triadic reciprocal causation.*" He busted the theories propagating that behavior learning is a unidirectional phenomenon and said that behavior learning is a bidirectional interaction among behavior, personal (internal), and environmental factors. This theory is a bridge between behavioral learning theories and cognitive learning theories. He believed that all types of learning do not depend on direct rewards alone; people learn by watching and observing others too. According to SLT, there are three basic principles for learning from one another:

1. Observation
2. Imitation
3. Modeling

Social learning theory was expanded to incorporate the role of cognition; now, it is commonly referred to as social cognitive theory. He coined the concept of reciprocal determinism according to which (1) personal factors (cognition, affect, and biological events), (2) behavior, and (3) environmental factors create interactions that result in triadic reciprocity (**Fig. 3.5**). Bandura also established the important role of models, modeling, and observational learning in the entire learning process.

According to Bandura, observational learning includes the following four processes:

1. *Attention*: This process (receptivity of a stimulus) determines what an individual observed and extracted from the modeled events.
2. *Retention*: Retaining knowledge (memory) is the part of this process by an individual about the modeled event.
3. *(Re)Production*: This process includes how a learner converts memory into actions related to an event.

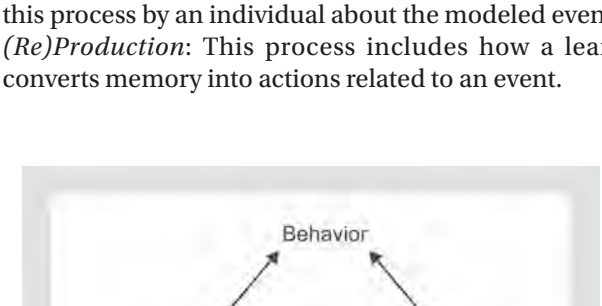


Fig. 3.5: Triadic reciprocal causation.
Source: Pajares, 2002.

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4. *Motivation*: This process relates to the presence or absence of reinforcer for demonstration of learned behavior. Many a time, a learner may have perfect memories of a modeled event and be able to successfully imitate them. However, their desire to imitate learned behavior depends on observed benefits or consequences of that behavior.

Educational Implications

There are following implications but not limited to:

- SLT's basic principles—modeling, demonstration, and imitation—continue to be one of the best instructional methods to teach children with special needs.
- Behavior change can be induced through observational learning.

The theories discussed in the preceding text offer a wide spectrum of understanding on different dimensions of learning. Special educators can choose appropriate theories to design their contents and instructions based on one, two, or combinations of multiple theories. Theories allow the teacher to expand horizons of his/her understanding of the multifaceted nature of learning processes. Every child deserves an accomplished teacher, one who is qualified and can equip exceptional learners with the skills to make them functional and self-reliant. Teachers and parents can choose appropriate teaching and learning theories and strategies to develop contents and instructional methodology.

It is important for both the parents and the teachers to remember that they need to have patience with their children. It is also equally important to remember that there is a long list of theories which can be applied as different strategies to help teach children.

SpeCIa L eDUCat ION MODeLS

In Germany in 1863, more than a century ago, "*Segregated or Special Education*" classes came into practice. At the end of the 18th century, such classes emerged in various cities of the USA. The objective of such classes was to remove children with special needs from the regular school systems because: (1) they were believed to have disruptive influence on normal learners, (2) to provide them special education according to their needs, (3) to protect them from harassment from regular learners, and (4) to identify custodial leaners who cannot benefit from the education and trainings. Even today, special education classes created are similar to those of the 19th century, which intend to:

- Train children with special needs with a view to making them independent and self-reliant, focusing more on employment skills by compromising quality of education.
- Segregate challenged children from normal children. It legitimizes a system of exclusion by perpetuating a feeling that disabled children are different. Therefore, segregation is taught.
- Shelter/protect special children from being harassed and bullied.

Commonly in practice, children with disabilities are kept separate from the normal children in an environment and that social environment is designed to suit the needs of the normal children disregarding the needs of the exceptional learners. In principle, it should be the other way round; children with special needs must share the environment with the normal children whereby both the groups can benefit from each other. This segregation at an early age instills fears and wrong beliefs amongst normal children that exceptional learners are different from the rest of the people. This bad learning forces people to believe and reinforces an idea that segregation is rational and acceptable (**Fig. 3.6**).

Inclusion, for educational purposes, refers to using the same resources in a community and participating in community activities with normal children. It also means that each child with special needs will be taught in the classroom with normal children. Inclusion also facilitates the development of language and social interaction process in children with disabilities. It enables a good teamwork between a special educator and a regular teacher. However, as any other model, this is not free from its demerits; inclusion may lead to a situation where children with disabilities get ignored.

Deno's Cascade (1970)

This model was developed by Deno in 1970. It is a model of cascade services which explains the options of placement services for people with disabilities in the normal education system. He outlines seven levels of cascade services. These levels serve as a diagnostic filter. These cascade services move from top to bottom, i.e., from the least restrictive environment (LRE) to the most restrictive environment. It accommodates the greatest number of children with disabilities at the top to the least number at the bottom.

Least restrictive environment refers to learners with disabilities receiving education to the extent possible with the learners without disabilities.

- The very first level is of regular classes which may include leaners with special needs having an ability to get along with regular classroom arrangements.
- The second level is for a learner attending regular classes but requires supportive (supplementary) instructional services.
- The third level provisions a facility for resource room. This facility is made available to the children requiring additional academic support.
- The fourth level down is a more restrictive environment. It provisions for full-time special classes in a regular school setup.
- The fifth is full special schools, for example, Nai Disha Special School for the intellectually challenged.
- The sixth level is residential facilities for children with special needs.
- Finally, the last level at the bottom provisions for home care and hospital schools for the custodial category children.

There are some disadvantages of cascade theory. One of them is that once children are assigned to one level, they get caught at that level and moving to the next level gets difficult. Children slotted for resource room facility miss regular class exposure while receiving help and guidance in the resource room. However, the merits of this model are that children receive help according to their level and needs.

Figure 3.7 explains the level of placements of children with special needs depending on their nature and severity of disabilities.

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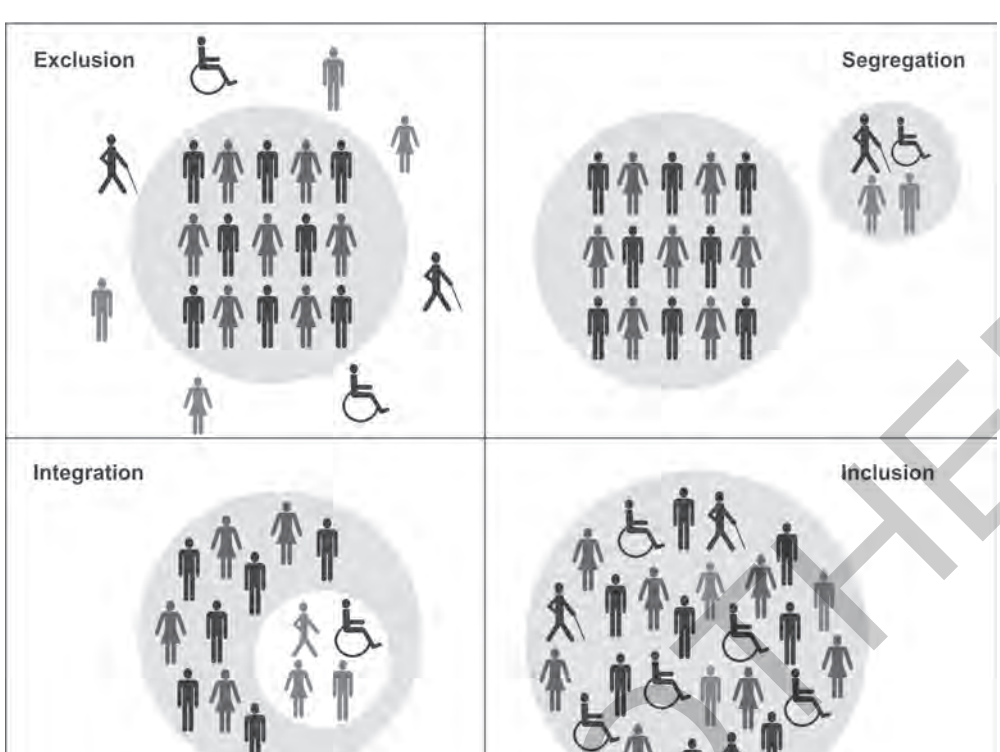

Fig. 3.6: Pictorial demonstration of the terms exclusion, segregation, integration, and inclusion.

Source: Terry Van De Beek, Dyslexie Express, 2015.

effectiveness of Inclusive education (equality vs equity)

Tons of research work have already been done on the effectiveness of the inclusion; however, no conclusions have been arrived yet. Many merits of inclusions have been noted. Many advocates of inclusion argue that a segregated education system is doing more harm than good to children with special needs; hence, it fails to meet their educational needs. However, there are anti-inclusion arguments too. One of such arguments is that students with disabilities disrupt the general education classroom. These arguments continue to be an impediment toward inclusion even today (**Fig. 3.8**).

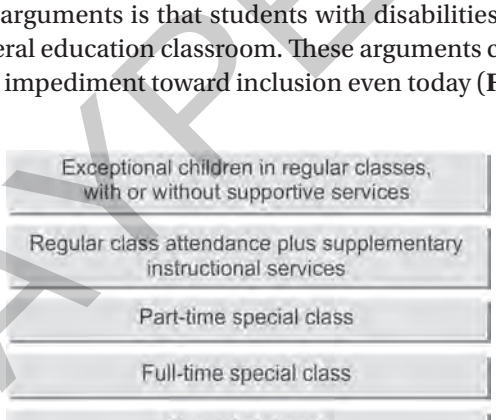

Fig. 3.7: Deno's cascade model.

Source: Deno (1970).

Inclusion benefits special children hugely in terms of support services they receive and changes made in the classes to accommodate them, argues inclusion activists. Teachers, both general and special education, gain professionally in understanding the complexity and challenges of inclusive education. Inclusion provides an opportunity to special learners to succeed along with their normal peers. There are several national and international policies, reports, and legislations, which advocate for the integration of children with disabilities with children without disabilities. Children with disabilities have the right to actively participate in social life. The concept of integration has brought many children

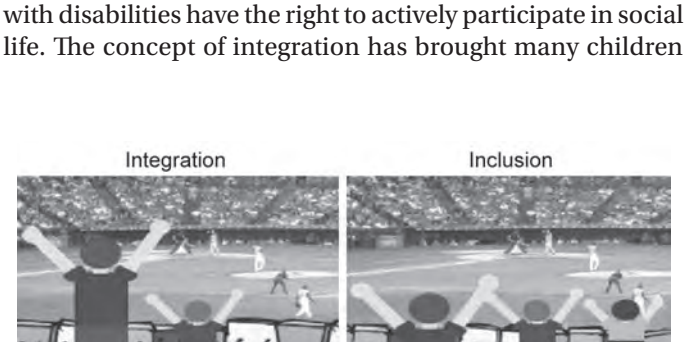

Fig. 3.8: Pictorial demonstration of the integration and inclusion concepts.

Source: Craig. (2020)

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with disabilities to the normal education system (Conference of Salamanca, 1994).

However, there are serious difficulties encountered in inclusion of children with intellectual disabilities, autism, or severe behavioral difficulties. In such cases, integration has to be confined only to things such as recess or lunchtime in the same building.

It is evident that both segregation and integration have limits. People are still debating their effectiveness of various options available under it.

Discussions on merits and demerits of integration and segregation have helped evolve the concept of integration which is also known as inclusive education or inclusive schools. This aims at integrating young special needs learners into the normal education schooling without segregating them from the rest of the normal learners (baring a few exceptional situations). This is done by learning and acquiring experience which may be adapted to all children irrespective of their differing needs. This model envisions "*school for everyone.*" This is a unique way to look at the life and society; above all, it is a new pedagogical strategy.

CONCLUSION

Special education draws its theoretical framework from behavioral, cognitive, and social sciences heavily. These theoretical frameworks form the foundation of the special education as a discipline. For special educators, understanding these theories is necessary with a view to design and enrich their instructions and to facilitate and maximize learning in exceptional learners. Special educational models in the light of the UN conventions on the rights of people with disabilities (such as right to freedoms, equality, age-appropriate assistance and help, etc.) help educators to be aware of larger goals, i.e., no child left behind, to be achieved while catering to the needs of the people with disabilities.

t Op t a Kea Wa YS

- Equality is practice in integration while equity is practiced in inclusion.
- Theories of classical and operant conditioning have contributed immensely in the field of special education.
- Piaget's theory of cognitive development helps in identifying children with cognitive impairments and designing age-appropriate teaching and learning materials.
- Behavioral change could be induced through observational learning.
- Deno's cascade prescribes movement toward LRE.

eXer CISeS/QUeSt IONS

1. **Briefly explain classical conditioning and its implications in the treatment of phobia in children.**
2. **Explain operant conditioning and its educational implication in skills training and in management of problem behavior in children with intellectual disabilities.**
3. **How classical conditioning theory is helpful to special educators?**
4. **Explain various special educational models.**
5. **Write a brief not on "Inclusive Education" and its relevance in our education system.**
6. **Discuss the role of reinforcements and punishments in skill training of children with intellectual disabilities.**
7. **Discuss challenges of inclusions of children with severe intellectual disabilities in our educational system.**

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