

Learning Theories Reviewed

Applications and Challenges

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Applications of Classical Conditioning 1

- **Watson** (1921) - Little Albert - demonstrated that classical conditioning accounts for some cases of phobias, which are irrational or excessive fears of specific objects or situations.
- Further demonstrated that classical conditioning explains many emotional responses e.g. happiness, excitement, anger, or anxiety, though stimuli may be specific to the person.

EXAMPLE

- A child who experiences excitement on a roller coaster may learn to feel excited just at the sight of a roller coaster.
- An adult who finds a letter from a close friend in the letter-box, the mere sight of the return address on the envelope may elicit feelings of joy and warmth.

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Applications of Classical Conditioning 2

- Psychologists use classical conditioning procedures to treat phobias and other unwanted behaviours, such as alcoholism and addictions.
 - **Phobias** - To treat phobias of specific objects, the therapist gradually and repeatedly presents the feared object to the patient while the patient relaxes. Through extinction, the patient loses his or her fear of the object.
 - **Alcoholism** - Patients drink an alcoholic beverage and then ingest a drug that produces nausea. Eventually they feel nauseous at the sight or smell of alcohol and stop drinking it.
- **NOTE** : The effectiveness of these therapies varies depending on the individual and on the problem behaviour

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Applications of Operant Conditioning 1

- Operant conditioning techniques have practical applications in many areas of human life :
- Parents using the basic principles of operant conditioning can reinforce their children's appropriate behaviours and punish inappropriate ones.
- Teachers reinforce good academic performance with small rewards or privileges.

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Applications of Operant Conditioning 2

- Clinical Psychologists use reinforcement techniques to teach self-care skills to people with severe mental illness, such as Schizophrenia, and use punishment and extinction to reduce aggressive and antisocial behaviours by these individuals.
- Clinical Psychologists use operant conditioning techniques to treat stuttering, sexual disorders, marital problems, drug addictions, impulsive spending, eating disorders, and many other behavioural problems.

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A return to the Nature-Nurture debate

Learnt anxiety?

- Learning theory accounts of anxiety are based on an interaction of social and psychological factors. Anxiety is seen as resulting from psychological processes of learning operating on social or environmental events.
- **Cooks & Mineka** (1989) - are phobias learnt i.e. a social-psychological explanation, or a innate biological explanation?
 - Developed an experimental procedure to test the idea that phobias are a combination of learning and innateness (**preparedness**).
- **Preparedness** - Although learning is important, the learning can act only upon certain innate pre-prepared responses.

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A return to the Nature-Nurture debate

- The most obvious argument against phobias being innate is that not everyone has them. However, against the learning position is that phobias tend to be about certain themes.
 - e.g. People experience phobic reactions about spiders and snakes, but not guns or knives, which are equally or even more dangerous. In addition, many people suffering from phobias cannot report any particular experience where they acquired the fear.

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A return to the Nature-Nurture debate

- Learning is known to be important in the acquisition of fear because whereas young laboratory-reared monkeys do not show fear of snakes - monkeys in the wild do. Furthermore, if young laboratory-reared monkeys are allowed to observe older monkeys behaving fearfully in the presence of snakes then they will also show fear when confronted with a snake.
 - However, both the simple learning view and the preparedness view are consistent with this finding.
- Cook & Mineka - showed young laboratory reared monkeys film of an adult monkey behaving fearfully, either towards a toy crocodile or towards a toy rabbit (the videos were spliced to produce the fear response to the rabbit).
- Having been exposed to the films, the young monkeys learned to show fear when faced with a similar toy crocodile but did not show fear when faced with a similar toy rabbit.

⇒ Learning is important in the acquisition of fear but only for certain stimuli which are already innately programmed to be feared.

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Factors influencing learning ability

Age

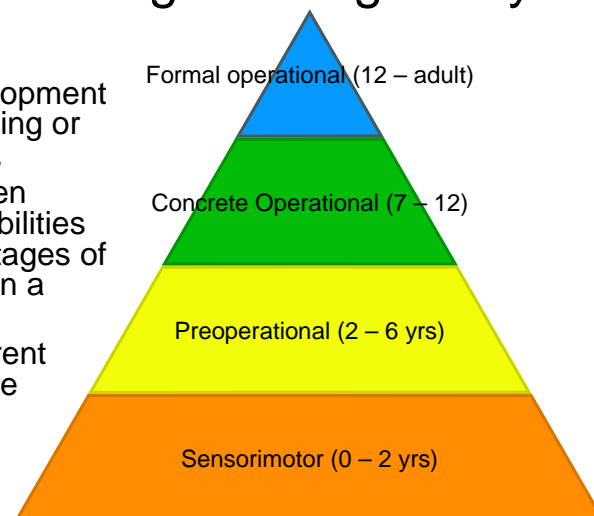
As children grow, they become capable of learning more and more sophisticated types of information (see Piaget).

- Adults continue to learn new knowledge and skills throughout their lives (e.g. learning a foreign language, although children usually can achieve fluency more easily).
- If older adults remain healthy, their learning ability generally does not decline with age. Age-related illnesses that involve a deterioration of mental functioning, such as **Alzheimer's disease**, can severely reduce a person's ability to learn.

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Factors influencing learning ability

- **Jean Piaget**
- Studied the development of children's thinking or cognitive abilities.
- Suggested children develop certain abilities and go through stages of cognitive growth in a predictable order.
- Theorised 4 different stages of cognitive development.



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Factors influencing learning ability

■ Sensorimotor stage (birth - 2 y.o.)

- Infants use their senses to learn about their bodies and about objects in their immediate environments.
- Infants and toddlers explore the world through direct sensory and motor contact.
- Key cognitive milestones include:
 - The development of object permanence
 - knowing that objects continue to exist even when they cannot be seen
 - Separation anxiety
 - concerns or fear about being apart from the caregiver.

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Factors influencing learning ability

■ Preoperational stage (about 2 to 7 y.o.)

- Children can think about objects and events that are not present, but their thinking is primitive and self-centred, and they have difficulty seeing the world from another person's point of view.
 - Children develop symbolic representation, the ability to use words and images to represent real object.
 - This ability helps them to play pretend games.
 - Piaget did not believe that children this age could reason logically.
 - He also suggested that they were egocentric, lacking the ability to see the world from other people's viewpoints.

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Factors influencing learning ability

■ Concrete operational stage (about 7 - 11 y.o.)

- Named this stage concrete operational as he believed that children develop the ability to perform logical reasoning of 'operations' on concrete objects – although they do not yet have the ability to think abstractly.
- The hallmark of this stage is the development of conservationism.
- The understanding that certain attributes of a physical object do not change, despite changes in the object's appearance (water cylinder).
 - Children learn general rules about the physical world, such as the fact that the amount of water remains the same if it is poured between containers of different shapes.

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Factors influencing learning ability

■ Formal operational stage (ages 11+)

- Piaget's theory suggests that in this stage, adolescents are capable of logical thinking and learn to reason abstractly as well as to think in hypothetical, or 'what if' terms.

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Motivation

- Learning is usually most efficient and rapid when the learner is motivated and attentive.
- Psychologists believe an intermediate level of motivation is best for many learning tasks.
 - Low motivation = person may give up quickly
- Very high motivation = may cause such stress and distraction disabling the learner from focusing on the task.

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Prior Experience

- How well a person learns a new task may depend heavily on the person's previous experience with similar tasks.
 - **Positive transfer** - Just as a response can transfer from one stimulus to another through the process of generalisation, people can learn new behaviours more quickly if the behaviours are similar to those they can already perform, e.g. someone who has learned to drive one car, for example, will be able to drive other cars, even though the feel and handling of the cars will differ.
 - **Negative transfer** - A person's prior experience can interfere with learning something new, e.g. after memorising one shopping list, it may be more difficult to memorise a different shopping list.

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Intelligence

- Psychologists have long known that people differ individually in their level of intelligence, and thus in their ability to learn and understand.

- **Howard Gardner** (1982) - proposed that there are many different forms of intelligence:
 - Linguistic
 - Logical-mathematical
 - Musical
 - Interpersonal intelligence
 - ⇒ A person may easily learn skills in some categories but have difficulty learning in others.

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Learning and Developmental Disorders

- A variety of disorders can interfere with a person's ability to learn new skills and behaviours. Learning and developmental disorders usually first appear in childhood and often persist into adulthood.
 - Children with **attention-deficit hyperactivity disorder** (ADHD) may not be able to focus on specific tasks for prolonged periods.
 - Children with **autism** typically have difficulty speaking, understanding language, and interacting with people.
 - People with **Learning disabilities**, characterised primarily by very low intelligence, may have trouble mastering basic living tasks and academic skills.
 - Therefore requiring specialist academic input

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References

- Gardner, A., & Gardner, B.T. (1988) Feedforward versus feedbackwards : an ethological alternative to the law of effect. ***The Behavioural and Brain Sciences***, **11**, pp. 429 - 493. - Introductory discussion of the biological perspectives on learning, together with contributions from a number of prominent theorists in the area.
- Skinner, B.F. (1971) ***Beyond freedom and dignity***. Penguin, Harmondsworth.
- Skinner, B.F. (1980) ***Notebooks***. Prentice-Hall, Englewood Cliffs.

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Review Questions

- Is reinforcement a sufficient explanation for human learning?
- What are the main processes involved in human skill acquisition?
- Discuss the relationship between the evolutionary influence and mechanisms of learning?

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Further reading

Artificial Intelligence and Learning Theory

- Samuel (1959) - Checker's program
- Sutton & Barto (1990)
- Brooks (1986)
 - Can insights from animal research be used to construct intelligent machines?
 - Is it possible that research on artificial intelligence has anything to say about how animals and humans work?