LEARNING THEORIES

These explain how we acquire behaviour, emphasising the importance of nurture. They suggest that a baby is a 'tabula rasa' waiting to be moulded and shaped by external forces in their environment.

CLASSICAL CONDITIONING – learning by association

- We have naturally occurring stimulus-response links, an **unconditioned stimulus (UCS)** creates an **unconditioned response (UCR).** These are automatic responses so no learning is required.
- **Neutral stimuli (NS)** when present initially produce no effect. To create a response they need to be paired with a **UCS.**
- If the **NS** is repeatedly paired with the **UCS** an association is formed and the **NS** will become a **conditioned stimulus (CS)** which produces a **conditioned response (CR)**

- CS can become generalised and produce the same response to a similar stimulus once the response has been conditioned. The more similar the stimuli the more likely there will be a conditioned response
- Discrimination can also occur, meaning that over time learning only occurs in response to a specific stimulus

Stimulus generalisation and discrimination

Link to the evolutionary approach:

- Generalisation is important for evolution, e.g. if early man found that red berries made him sick, he may also avoid purple ones for fear of the same negative consequences. Caution helps survival.
- Discrimination would also be useful for survival. If they find no negative consequence with the purple berries they could then make a distinction and have more food to choose from.

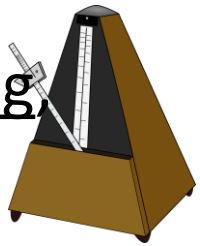
Extinction and spontaneous recovery

- Extinction is the **removal (death) of the behaviour**, i.e. if the conditioned stimulus is continually presented without the unconditioned stimulus paired with it, the two stimuli will gradually disassociate.
- The association may not be entirely lost. If the pairing is made again the association will be quickly learned again.
- This accelerated relearning is called **spontaneous recovery,** so extinction is not the same as 'unlearning'.

Salivation in Dogs – PAVLOV (1927)

A Russian physiologist who made a foundational contribution to psychol when he researched salivation in dogs. He found that when dogs encounter the stimulus of food they salivate but he noticed dogs drooled even without the food and he hypothesised that the dogs were responding to the lab coats of his assistants as though they represented food.

- In a soundproof lab, he introduced a neutral stimulus (e.g. metronome) to the food (UCS)/salivation (UCR) association. After a while just the ticking sound (CS) made dogs drool (CR).
- Pavlov concluded that environmental stimuli, through repeated pairing, can trigger a response

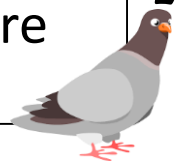


- He established reliability with the same system of associative learning on other neutral stimuli, e.g. vanilla or a visual test with a rotating disc
- He paired neutral stimuli and found that higher order conditioning is possible. He also found stimulus generalisation to similar sounding tones but discrimination between very different sounding tones.

OPERANT CONDITIONING

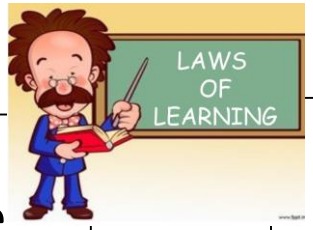
- Learning through consequence

An association is made between a behaviour and a consequence for that behaviour. If we get punished we are not likely to repeat it. If we are rewarded or praised we are likely to repeat it.



Thorndike (1911) called it **instrumental learning.**

He used a puzzle box to show that a kitten gradually escaped faster having learned by trial and error.



The **Law of Effect**
(a response followed by a positive consequence is repeated, one followed by a negative consequence is not).

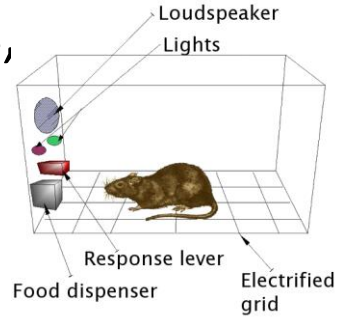
The **Law of Exercise**
(the more often a response is performed, the more likely it is to be repeated.)

BF Skinner renamed it **operant conditioning,** in the 30s

He believed psychologists should apply scientific principles and methods and only investigate what is directly observable.

Skinner's research

Used lab experiments, with **a Skinner Box**



THE ABC OF OPERANT CONDITIONING:

A = antecedent	The box would present a stimulus (e.g. lights or noise) to trigger a behaviour
B = behaviour	A response made by the animal that can be observed and measured as an outcome of the antecedent
C = consequence	The reward/punishment that follows the behaviour (e.g. a shock, or food)

The stimulus-response association is only repeated or learned if the consequence of the pairing is a positive one (**positive reinforcement)**. A negative consequence would weaken the stimulus-response link

Positive & Negative Reinforcement

- **Positive reinforcement** when you offer something pleasant for desired behaviour to encourage repetition of it.
- **Negative reinforcement** is the removal of something unpleasant in response to desired behaviour to encourage repetition in order to avoid the unpleasant stimulus.
- Both positive and negative reinforcement produce **repeated behaviour.**

- Punishment weakens behaviour
- **Positive punishment** (P+) is adding an aversive stimulus that will reduce the showing of a behaviour
- **Negative punishment** (P-) is the removal of a liked/desirable stimuli to reduce the showing of a behaviour

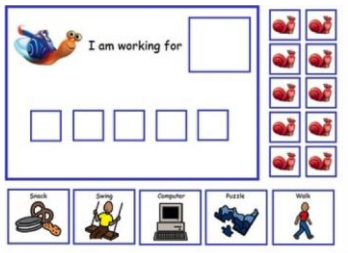
Positive & Negative Punishment

Types of Reinforcer

- **Primary reinforcers** occur naturally, satisfy basic human (e.g. food)
- **Secondary reinforcers** are associated with a primary reinforcer, (e.g. money can buy food etc.)

Token Economy

- based on the principles of operant conditioning.
- aims to encourage desirable behaviour with rewards and reduce undesirable behaviour through a withdrawal of reward (punishment)
- ‘tokens’ are secondary reinforcers, given when desirable behaviour is seen and exchangeable for primary ones.
- The more tokens saved, the better the reward
- implemented in institutions such as schools and prisons.



Schedules of Reinforcement

There is **continuous reinforcement** (i.e. reinforced every time behaviour is seen), and there is **partial reinforcement** where behaviour is reinforced over time.

Behaviour takes longer to acquire through partial reinforcement but is more resistant to extinction

F**IXED INTERVAL -** only rewarded after a set amount of time has passed, e.g. a rat in a Skinner box gets pellet after 30s delay. Learning takes longer but the response rate is higher towards the end of learning

FIXED RATIO - response is reinforced only after a specified number of responses, e.g. reward after the rat presses lever eight times

VARIABLE RATIO – response is reinforced after a set number of correct responses then the required number of responses is changed.

This keeps the learner on their toes and is good for maintaining behaviour

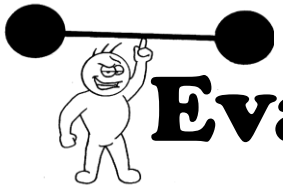
VARIABLE INTERVAL – correct response gets rewarded after a set time which then changes for next reward.

Behaviour Modification

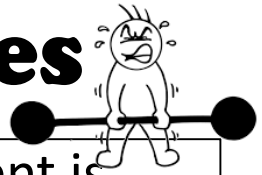
- Therapy based in operant conditioning to:
- extinguish undesirable behaviour
- replace with desirable behaviour and reinforce it
- Skinner ‘s theory became ‘the method of successive approximations’ for shaping more complicated behaviour
- First general desired behaviours are rewarded, then the rewards become selective until only behaviours close to the desired behaviour are reinforced.
- Used to e.g. treat ADHD, OCD or autism.

Exam Question:

Cassie the dog is getting anxious every time her owner leaves her. She becomes destructive and anxious. How could behaviour modification be used to counteract this negative behaviour? (4 marks)



Evaluation of Learning Theories



Classical conditioning, unchanged Pavlov, is an important principles in psychological history and basis for the behavioural approach

A controlled, lab environment is contrived and artificial. It raises ecological validity and application questions

Pavlov greatly influenced others. 220 articles (between 1997 and 2000) cited his research as their basis.

Both theories are reductionist, underestimating the role of biological factors (genetics differences, instinctual behaviour).

Operant conditioning explains a wide range of behaviour, e.g. addiction or language acquisition and is used in prisons, hospitals etc.

Skinner only measured observable behaviour, not emotional or mental states, so his explanation is oversimplified

Both types of conditioning are scientific as concepts can be measured, defined and controlled. Also replication ensures reliability

Problems with animal ethics and generalisability to humans (e.g. different anatomies and experiences, no language, etc.)

SOCIAL LEARNING – learning through observation

MINEKA & COOK (1988) watched rhesus monkeys with no fear of snakes, develop it after watching others

- Humans and animals watch and imitate the behaviour we see around us
- 'Models' provide examples of behaviour to learn and replicate, especially if we identify with the model (same sex/high status etc)
- Reproduction of behaviour is more likely if the consequence is rewarding for the model (**vicarious reinforcement)** so we learn from the successes and mistakes of others

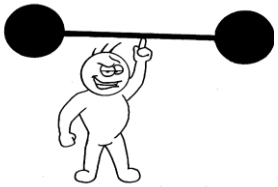
ATTENTION – needed for replication (cognitive process, improved with arousal/distinctiveness)

RETENTION – imagery and language help storage for later

REPRODUCTION – showing modelled behaviour (within own capabilities)

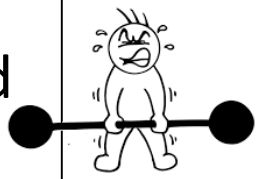
MOTIVATION– more likely to reproduce if incentive/reward is offered. Intrinsic and extrinsic motivation are effective

Evaluation



Scientific research methods – lab based, reliable, allow inferences about causality

BUT artificial, poor generalisability and ecological validity



Allows for individual differences and motivational factors alongside cognitive processes

Contributes to knowledge about aggression and gender development and used in treatments (e.g. phobias)

Suggests environment is dominant influence (nurture side of debate)

BUT ignores biological factors or evolutionary influences

Less deterministic than other learning theories

BUT denies influence of free will as motivation is a response to prior learning

Breaks down complex behaviours into simple observation so REDUCTIONIST

Bandura's Bobo Doll Experiments

Aims

BANDURA, ROSS & ROSS investigated whether exposure to aggression would influence behaviour. They expected imitation of aggressive role models and a gender difference, with boys showing more imitated aggression.

PPS

- 72 pps (mean age of 52 months)
- From Stanford University Nursery
- Baseline aggression established with four 5 point scales
- Split into 8 groups plus control group of 24. Matched for baseline aggression

Conditions

- Aggressive/non-aggressive role model
- Same sex /opposite sex role model

Procedure

Children put individually in room with toys, model brought in, experimenter leaves.

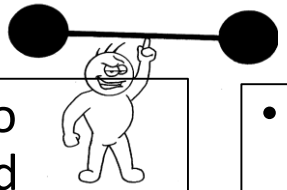
In aggressive condition, role model acts aggressively to Bobo doll (punched, hit with mallet, kicked round room) and verbalizes aggression ('sock him on the nose')

Children go to new room to play and be observed (covert, interval sampling) for imitative verbal aggression, imitative verbal non-aggression, imitative physical aggression as well as non-aggressive behaviour

Results

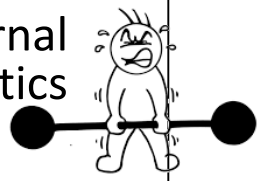
- Pps in aggressive model condition displayed more physically and verbally aggressive acts (mean scores varied considerably)
- Pps in aggressive condition were more likely to display non-imitative aggression
- Male model had greater effect in both conditions BUT girls exposed to female model showed more imitation of verbal aggression.
- Girls spent more time with dolls and tea sets, boys with guns.

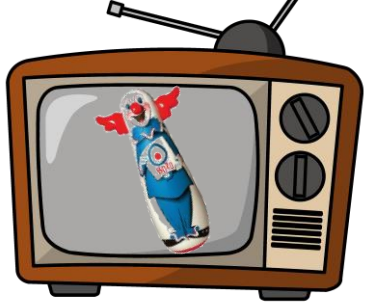
Evaluation



- Big contribution to understanding and debate
- Lab based so good control, easily replicated, good inter-rater reliability (0.90)
- Reliable,later studies obtained similar findings

- No consideration or investigation of long-term impact, only immediate effect
- Doll is designed to be punched so internal validity issues and demand characteristics ("this is the doll we have to hit")
- Aggression could be obedience not imitation
- Cultural bias (middle-class white) reduces generalizability. (more compliant?)
- WORTMAN ET AL '98 – unethical and morally wrong to ' manipulate' children in this way





Bandura's Bobo Doll Experiment With Vicarious Reinforcement

Aims

BANDURA '65 like original but with a televised role model being rewarded/punished for aggressive behaviour. They expected more imitation if model was rewarded.

PPs

33 males, 33 females from Stanford University Nursery

Conditions

- Model rewarded for aggressive behaviour ('strong champion', 'deserve treats')
- Model punished for aggressive behaviour ('you big bully', hit with newspaper, ran off cowering)
- No consequence (control) – same film of aggression but no consequence shown

Procedure

Children were promised a 'surprise playroom' but had to watch TV first. In the programme the model showed aggressive behaviour to the doll and was then rewarded/punished/or nothing. They were then observed in playroom for 10 minutes

Results

More likely to imitate aggression if there is a positive reward and boys imitated more than girls

Majority of children didn't reproduce the behaviour they'd observed

Bandura admitted that exposure to model is not enough for observational learning to take place

Phobia Explanations

About 10 million people in the UK experience *'an overwhelming, debilitating fear'* (NHS, 2015) of either a specific object, a social phobia, or agoraphobia

CLASSICAL CONDITIONING: pairing a NS with a negative, frightening experience (UCS and UCR) could create a CR. (e.g. Little Albert's loud bang and rats)

Dollinger et al (1984) found lightning survivors demonstrated more intense fear of storms BUT Hekmat (1987) only 23% of animal phobics had conditioning experiences

OPERANT CONDITIONING: Linked to social phobias (social anxiety – avoidance- rewarded with reduced anxiety – negative reinforcement)

SOCIAL LEARNING:

- Observe someone's fear
- Vicariously reinforced by support of others
- Imitation when you face it
- Reinforcement when comforted

Dubi et al (2008) concluded that maternal modelling influenced fear reactions to 'fear-relevant' and 'fear-irrelevant' objects'

Phobia treatments

- Based on reciprocal inhibition (learning to relax when faced with phobia)
- Systematic desensitisation:

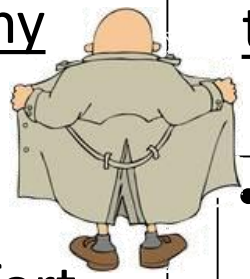
1 – functional analysis (with therapist to identify triggers)

2 – develop anxiety hierarchy

3 – relaxation training

4 – gradual exposure

- Requires less time and effort and with few ethical issues
- McGrath et al (1990) 75% responded to treatment
- Must be a specific anxiety/fear and less successful at ending 'survival driven' fears (e.g. of dark)



Learning theory proposes fear as 'maladaptive learning' and focuses on deconditioning or unlearning through exposure treatments or modelling

- Incorporates social learning and cognitive elements
- Treatment through vicarious reinforcement
- Cover Jones' 'Little Peter' was treated for fear of rabbits through direct conditioning and modelling

WATSON AND RAYNER (1920)

Conditioned Emotional Reactions

- Aim to condition a phobic reaction in an infant, using the principles of classical conditioning.
- Albert B (9 months old and 'stolid') no reaction to various NS (including white rat) then paired with a frightening bang on a pole.
- After 7 conditioning trials Albert showed fear reaction to white rat, then generalisation 17 days later
- Context effect removed with new room, same fear
- NS (rat) became CS with associated CR (fear) for at least 31 days

BECKER ET AL (2002)

Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls

- investigated the effect of prolonged exposure of TV on attitudes to eating and eating behaviours
- **naturalistic experiment** with a **prospective multi-wave cross-sectional** design. 65 girls in 1995 when TV introduced, 63 in 1998
- qualitative and quantitative methods (modified version of the **EAT-26 survey,** 20+ score invited for interview then followed up, additional diet and body image questions in 1998)

Results:

% of pps with EAT-26 score >20 more than doubled (12.7% 1995, 29.2% 1998).

% that used self-induced vomiting as weight control increased (0% to 11.3%.)

Imitation of role models (83% -TV influenced body view, 77% - influenced body image.)

Belief that eating less = career prospects (40%). 33% identified TV characters as job role models.

Generational differences towards eating,

TV influenced!

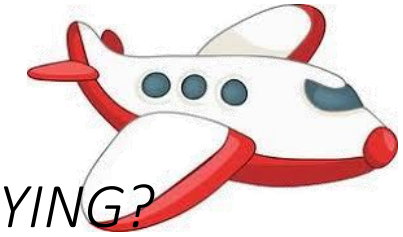
Evaluations

- Notable contribution to our understanding and importance of environment
- Scientific methodology and control (e.g. baseline fear measured)
- Copiously documented so replicable and reliable
- Lacks ecological validity (lab-based, lacking 'mundanity')
- Unethical and immoral (potential harm to Albert)
- Hard to generalise from one case study, especially with American cultural bias.

- Good reliability of findings (linked to previous studies, e.g. Husain 1999)
- Practical, relevant and high ecological validity
- Issues with validity of diagnosis (e.g. EAT-26 isn't a clinical diagnostic tool)
- Sample (cross-sectional, closely matched) may have cohort effect and it's only small section of Fijian population
- Other variables (e.g. growing consumerism) could impact eating habits. Eating disorders were present before TV, so can't solely blame it.

Key question:

SHOULD AIRLINE COMPANIES OFFER TREATMENT PROGRAMMES TO PASSENGERS WITH A FEAR OF FLYING?



- 1 in 6 have fear, associated with aerophobia, acrophobia (heights) and claustrophobia (small spaces) or just lack of control
- After the September 11th attacks passenger miles on the main US airlines fell between 12 and 20%, while road use jumped.
- Increasingly necessary in modern society (business, family, experiences)
- In 2011 Manchester Airport introduced a psychologist at their departure lounge

LEARNING THEORIES CAN EXPLAIN THE FEAR:

Classical conditioning - flying is NS and fear is UCR to an unnerving experience e.g. turbulence (UCS). After the unnerving experience, flying becomes a CS and anxiety and fear become CR.

Operant conditioning - fear by negative reinforcement. A person may fear planes and airports, so to avoid them to remove anxiety but it negatively reinforces their fear and maintains the phobia

Observational learning or social learning theory - witnessing plane crash news reports may trigger anxiety and reinforce fear vicariously or observing a parent's fear

LEARNING THEORIES CAN WORK WITH AIRLINES TO PROVIDE TREATMENT:

- Methods are based around 'unlearning' the fear response by substituting fear with relaxation (deep breathing and progressive muscle relaxation)
- **Systematic desensitisation** can be used. Capafons et al (1998) found this to be effective
- Alternative is **Virtual Reality Exposure Treatment** with a 3D virtual plane. This is a cheaper (more accessible) option

Courses run by airlines claim a 92-98% success rate

BUT

Courses are expensive, difficult to access and not well evaluated and attendees have already begun to master their fears by showing up

ROTHBAUM ET AL (2000) studied aerophobic pps given 4 sessions of anxiety management training followed by VRE therapy, standard therapy or a control group. A post-treatment flight measured willingness to fly and anxiety during flight and found no difference between the VRE and the standard group