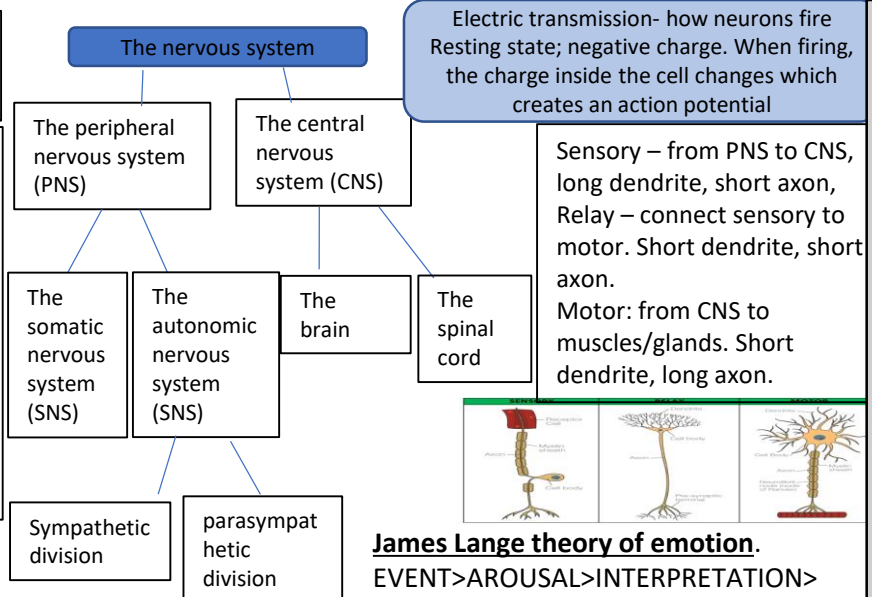


| Year 11 | Term 1 | Term 2 | Term 3 |
|---------------------------------------|---|---|---|
| Unit Title | Language, thought and communication and Brain and neuropsychology (Paper 2) | Psychological problems (Paper 2) | Revision for exams |
| Approximate Number of Lessons | 19 | 19 | 19 |
| Curriculum Content | <p>Language, thought and communication – The relationship between language and thought, differences between animal and human communication, non-verbal communication and behaviour.</p> <p>Brain and neuropsychology – Structure and function of nervous system, neurones and brain, neuropsychology.</p> | <p>Psychological problems – Introduction to mental health, effects on individuals and society, characteristics and theories of depression, interventions or therapies for depression, characteristics and theories of addiction, interventions or therapies for addiction.</p> | Revision of previous topics for GCSE exams. |
| Links to prior learning | <p>Links to science – brain and nervous system.</p> <p>Links to science – Darwin and evolution.</p> | Links to brain and neuropsychology topic. | |
| Cultural Capital Opportunities | <ul style="list-style-type: none"> • Darwin – on the origin of species book. • Article on brain mapping - https://www.newscientist.com/article/2279937-google-has-mapped-a-piece-of-human-brain-in-the-most-detail-ever/ • Ted Talks on Neuropsychology e.g. Kim Gorgens: The surprising connection between brain injuries and crime TED Talk • | <ul style="list-style-type: none"> • Ted Talks e.g. What is depression? - Helen M. Farrell TED-Ed • Ted Talks e.g. How do antidepressants work? - Neil R. Jeyasingam TED-Ed • Ted Talks e.g. https://youtu.be/PY9DcIMGxMs • Charlie Mackesy– The boy, the mole, the fox and the horse book. What mental health problems could be being talked about in the different parts of this book? | |
| Assessment Focus | <p>End of topic assessment on Language, thought and communication topic.</p> <p>End of topic assessment on Brain and neuropsychology topic.</p> | End of topic assessment on Psychological problems topic. | Exams – Paper 1 and 2. |

Brain and neuropsychology

The nervous system
A network of cells in the human body and the main communication system.
Roles;
Collect and respond to information in the environment
Control the different organs in the body including the brain.

Functions of the NS
Central NS
Made up of brain and spinal cord.
Hemispheres in brain – each control opposite side of body.
Brain – conscious awareness
Brain stem controls basic functions and autonomic functions. Connects to spinal cord.
Peripheral NS – information from outside to CNS.
From CNS to muscles
Autonomic nervous system
Automatic functions e.g. breathing, heart rate, stress response.
Somatic nervous system
Voluntary movement of muscles and reflex responses.
Sends messages to muscles and takes in information from sensory organs.



Autonomic nervous system (ANS)
Actions of ANS cannot be brought under control. Actions happen without us having to do anything. E.g. our heart beating.
Two divisions sympathetic & parasympathetic work in opposition of each other. Sympathetic represents state of arousal preparing body for fight or flight to deal with stress. Parasympathetic counteracts actions of sympathetic to normal resting state.

Fight and flight response
A number of physiological changes to prepare the body for action – either fight or run away from danger.
Hypothalamus identifies threat and triggers the sympathetic division of ANS
Release adrenaline the stress hormone into bloodstream. Physiological changes due to adrenaline increase heart and breathing rate, dilated pupils, inhibits digestions and saliva production.
After threat passes parasympathetic division takes over and puts body into rest and digest.

EMOTION
Explanation of emotion, brain interprets physiological changes as an emotion after the physical change occurs first e.g. fear, excitement.
No physical changes = no emotion e.g. heart beat not any faster when presenting in front of class means not nervous or fearful.
+ phobias provide evidence for emotion after arousal
- Cannon-Bard theory contradicts some emotions occur at same time.
- Simplistic – need social cues to label emotions

Localisation of function – specific areas do particular jobs.
Motor area – damage to left hemisphere affects right side of the body and vice versa. Somatosensory – less ability to feel pain, sensitive body parts take up most space. Visual LH damage – problems with right visual field.
Language – Broca’s area – speech production – damage = difficulty remembering/forming words. Wernicke’s area understanding speech, difficulty producing meaningful speech if damaged.

Penfield’s study of interpretive cortex
Aim: investigate function of temporal lobe
Method: epilepsy patients operated on using Montreal procedure.
Results: temporal stimulation – experiences & interpretation
Conclusion: area of brain called interpretive cortex stores personal meaning of previous events.
+ precise method – standardised
- Cant generalise sample to people without epilepsy

Hebb’s theory of learning and neuronal growth
Brain is plastic –synaptic connections become stronger more they are used. Brain can change and develop. Changes in responses to new experiences at any age.
Learning leaves a trace called an engram, if learning is rehearsed this can be permanent.
During learning cell assemblies (groups of neurons) fire together, more times this happens synaptic connections become stronger and the groups of neurons effectively grow to manage new learning.
+ scientific theory
+ real word application to education
- Reductionist – neuronal level

Neuropsychology – the scientific study of the influence of brain structures on mental processes.
e.g. different memories are in different areas of the brain. Neurological damage – effects of stroke, damage to motor ability – problems with fine movements.

Scanning techniques
CT: large doughnut shaped scanner, lots of X-rays of brain combined to give big picture (+) higher quality (-) High level of radiation
PET – patient injected with radioactive glucose. Brain activity shown on computer screen.
(+)show brain in action (-) Expensive
fMRI – measures changes in blood oxygen levels. Displayed as 3-D image.
(+) produces clear image without use of radiation (-) expensive and have to stay still

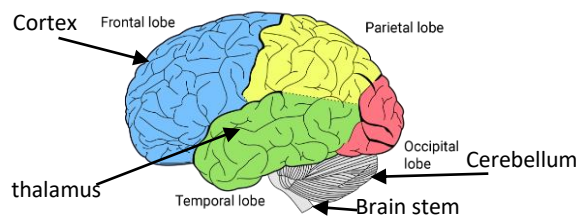
Synapses and chemical transmission
The synapse – where neurons communicate with each other: terminal button at presynaptic neuron + synaptic cleft + receptor sites on postsynaptic neuron.
Release of neurotransmitter – electric signal causes vesicles (in presynaptic terminal button) to release neurotransmitter into synaptic cleft.
Reuptake of neurotransmitter: Neurotransmitter in synaptic cleft attaches to postsynaptic receptor sites. Chemical message turns into electrical impulse. Remaining neurotransmitter reabsorbed.
Excitation and inhibition: Excitatory neurotransmitter increase postsynaptic neuron’s charge, more likely to fire. Inhibitory neurotransmitter increases negative charge, less likely to fire.
Summation: More, excitatory than inhibitory signals mean that neuron fires, creating an electrical impulse.
Frontal lobe contains motor area – at front of brain, controls thinking, planning and movement.
Parietal lobe – contains somatosensory area Behind frontal lobe, processes sensations.
Occipital lobe, contains visual area. At back of brain controls vision.
Temporal lobe, contains auditory/language area. Behind frontal and below parietal lobe. Speech and language.
Cerebellum receives information from spinal cord and brain. Co-ordinates movement and balance.

Tulving’s gold memory study
Aim: investigate if episodic memories produce different blood flow patterns to semantic ones.
Method: 6 pps injected with radioactive gold. Used PET scan on episodic and semantic memory trials.
Results: semantic memories in posterior cortex, episodic in frontal lobe.
Conclusion: memory has a biological basis and is localised.
+ objective evidence from brain scans
- Sample small - difficult to separate memories



Development learning mat

Early brain development



| | |
|-------------------------------|--|
| Brain development in the womb | Week 3 – neural plate becomes tube Week 4 – neural tubes begin to divide Week 15 – cerebellum has formed 6 months – brain is fully formed |
|-------------------------------|--|

Role of nature vs nurture

| | |
|--|---|
| Nature characteristics and behaviour is inherited. | Nurture our characteristics and behaviour is influenced by environment. |
|--|---|

Brain forms due to nature but environment has big influence on its development.

Smoking during pregnancy can decrease size of babies brain.
Infections in the womb can lead to hearing loss.
Babies in womb learn to recognise mother voice.

Twin studies used to provide evidence for both sides of debate – identical twins share same DNA , similarities will be down to nature, differences nurture. E.g IQ study.

| | |
|---|---|
| Nature evidence – babies can recognise faces and cry from birth implies nature. | Nurture evidence – baby rats kept alone and with no toys developed slower and had smaller brains that rats kept with toys and in a group. |
|---|---|

Brain stem: connects brain to spinal cord controls autonomic functions eg. Breathing
Cerebellum: co-ordinates sensory and motor, one of the last parts of brain to reach maturity.
Thalamus: located deep inside brain. Acts as information hub, receives and sends signals around brain.
Cortex: outer layer of brain divided into 4 lobes, thinking and processing happens here.

Piaget Theory

Changes in thinking over time. Children think differently to adults. Different kinds of logical thinking occur at over time.

- Sensorimotor stage:** 0-2 years. learn to co-ordinate sensory and motor skills. Object permanence develops
- Pre-operational stage:** 2-7 years. Can't think in a consistently logical way. Egocentric and lack conservation.
- Concrete operational:** 7-11 years. Most children can conserve at 7 and show less ego centrism.
- Formal operational:** 11+ years. Children can draw conclusions about abstract concepts and form arguments.

Key studies testing Piaget

Hughes – Policeman Doll study
Aim: To see if children are egocentric earlier than Piaget suggested.
Method: 3½ - 5 year old children asked to hide a boy doll from two policeman dolls using partition walls. Practiced with one doll first.
Results: 90% were able to hide the doll away.
Conclusion: Children can conserve earlier than the age of 7. Piaget underestimated the abilities of children.

+ three mountains task research supports their findings
+
-Task involved hiding from policeman lacks ecological validity
-Children in unfamiliar setting and with unfamiliar adults

Growth mindset: belief that ability comes from hardwork and can increase.

Fixed mindset: belief that ability is genetic and unchanging.

McGarrigle and Donaldson – Naughty teddy
Aim: To see if children can conserve at an earlier stage than Piaget found if change is accidental.
Method: Children aged 4- 6 years shown two rows of counters. Teddy messes up one row of them. Child asked if the rows were the same.
Results: 62% of children stated the rows were same. Only 16% did in Piaget's experiment
Conclusion: if the change to materials seems accidental children under the age of 7 can conserve.

+ other researchers findings also supports
+ shows that children can conserve earlier than piaget said
-- sample only used children from one primary school
- Results in other research not as high as they found

Evaluation: + Research support for her theory
+ Real world application e.g. in sports seeing failure as a lack of effort rather than talent motivates future effort
- Praising effort can still lead to completing task for approval, and discourages independent behaviour.

Application to education

Individual learning children go through stages at different rates allow child to discover the answers themselves

Readiness can only teach something when child biologically ready

Real world objects Children must be given actual objects to allow discovery

Learning styles

Verbaliser: focus on words. Processing by hearing or reading words and talking about it.



Visualiser: focus on pictures. Processing by seeing, use of diagrams, maps and think using pictures.



- Too many learning styles
- No supporting evidence
- + Allowed teaching methods to develop

Key Terms

| | |
|----------------------|---|
| Schema | Mental structures containing knowledge, schemas develop further through accommodation and assimilation. |
| Assimilation | Add new information to an existing schema. |
| Accommodation | Receiving new information that changes our understanding so a new schema is formed. |
| Conservation | The ability to understand that although appearance of material changes the quantity stays the same. |
| Egocentrism | Seeing the world from one's own point of view and not being able to see it from others. |

Dweck's mindset theory

Our assumptions affect our success. Success it is due to effort not talent. When faced with a challenge fixed mindset give up quickly, growth mindset keep trying. Fixed mindset see failure as lack of talent, growth mindset see failure as a opportunity to learn.

Role of praise: **Person** focuses on the ability. **Process** focuses on effort. Students who get person praise feel that success if beyond their control.

Role of self-efficacy: understanding your own abilities. Higher self efficacy results in greater effort, performance and resilience. Self efficacy increases or decreases future success.

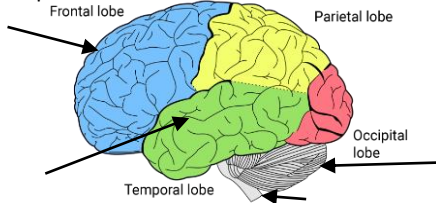
Willingham's learning theory

Criticises learning styles theories as they aren't evidence based. Teaching and learning can be improved through the following ways
Praise: praising effort should be unexpected. Praise before a task led to less motivation.
Memory and forgetting: forgetting happens because of lack of cues, practicing retrieving information from memory
Self-regulation: self control (delay gratification)
Neuroscience: brainwaves in dyslexia are different. Earlier intervention would increase progress.

Development learning mat

Early brain development

Label the parts of the brain:



Brain development in the womb

Week 3 – neural plate becomes tube
Week 4 – neural tubes begin to divide
Week 15 – cerebellum has formed
6 months – brain is fully formed

Role of nature vs nurture

Nature =

Nurture =

Brain forms due to nature but environment has big influence on its development.

Smoking during pregnancy can...

Infections in the womb can...

Babies in womb learn to recognise...

Twin studies used to provide evidence for both sides of debate – identical twins share same DNA, similarities will be down to nature, differences nurture. E.g IQ study.

Nature evidence – babies can recognise faces and cry from birth implies nature.

Nurture evidence – baby rats kept alone and with no toys developed slower and had smaller brains that rats kept with toys and in a group.

Define the following:

Brain stem:

Piaget Theory – give the age range and characteristics for each stage

Changes in thinking over time. Children think differently to adults. Different kinds of logical thinking occur at over time.

Cerebellum:

Sensorimotor stage:

Thalamus:

Pre-operational stage:

Cortex:

Concrete operational:

Formal operational:

Schema

Assimilation

Accommodation

Conservation

Egocentrism

Self-efficacy

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Key studies testing Piaget

Hughes – Policeman Doll study

Aim:

Method:

Results:

Conclusion:

Evaluation of Hughes:

Growth mindset =

Fixed mindset =

McGarrigle and Donaldson – Naughty teddy

Aim:

Method:

Results:

Conclusion:

Evaluation of Naughty Teddy:

Evaluation:

Application to education

Individual learning children go through stages at different rates allow child to discover the answers themselves

Readiness can only teach something when child biologically ready

Real world objects Children must be given actual objects to allow discovery

Learning styles

Verbaliser:



Visualiser:



- Too many learning styles
- No supporting evidence
+ Allowed teaching methods to develop

Willingham's learning theory – Summarise the following:

Criticises learning styles theories as they aren't evidence based. Teaching and learning can be improved through the following ways

Praise:


Memory and forgetting:

Self-regulation:

Neuroscience:

Language thought and communication

Piaget’s theory
We learn through developing schemas (mental structures)
Language depends on thought
Thought and understanding first
Language develops after
Young children
Can have language without understanding but will not be able to use it effectively.
The development of language
Sensorimotor stage (0-2), children start to speak.
Pre-operational stage (2-7); talk about things not present.
Logical thinking
Concrete operational stage (7-11) children develop own ideas.

Von Frisch’s bee study 
Aim: To describe dances of honey bees to understand their communication
Method: Put food close to hive (10-20 metres) and far away (up to 300m) observed bee 6000 times over 20 years.
Results: Round dance- moving in circle to show pollen less than 100 metres away waggle dance – Figure of 8 – shape points direction. 60% of bees went to sources at the distance indicated by the dances.
Conclusion: sophisticated communication system
(+) scientific value
(-) ignored the importance of sound made by bees
(-) Gould contradicting findings

Evaluation

The Sapir-Whorf hypothesis
Not possible to think about something you have no words for.
Thinking depends on language, Language comes first, thought afterwards.
Strong version: Language determines thought
If there are no words for an object or idea then you can’t think about it.
Weak version: Language influences thinking
Words help to ‘carve up’ the world. You can still imagine things with no words for them.
Which version is better?
Weaker version preferred. We have limited memory for things we have no words for.

Variation in recall of events
Native Americans: The Hopi
Hopi don’t distinguish past, present and future. This affects the way they think about time.
Language affects recall of events
Memory for pictures affected by labels given (Carmichael et al).

Variation in recognition of colours
Native Americans: The Zuni
Zuni people only one word for shades of oranges and yellow and in a research study had difficulty distinguishing between them
Language affects recall of colour
Berinmo people had difficulty recalling colours as they only have 5 words for colours.

(-)Difficulties with cross cultural understanding, misunderstanding tasks or communicate answers
(-) sample issues Hopi only 1 PP.
(-) Ambiguous materials

Evaluation


Theory of non verbal behaviour
Darwin and evolution – natural selection genes for survival are passed to next generation.
NVC is adaptive – evolved in animals to express emotion e.g. teeth baring reduce death in a conflict.
Comparisons between human & animal behaviour. E.g. wrinkle nose at smell avoid breathing in something dangerous & wide eyes at surprise.

Body language
Communication through unspoken movements and gestures.
Open and closed posture
Closed= crossing legs/arms shows disagreement.
Open = uncrossed, shows acceptance.
Postural echo – copying each others position.
Tanner and Chartrand (2006): Participants rated new drink more highly when presented with postural echo.
Touch – includes high fives, slapping etc.
Fisher: if librarian touched student on hand when returning library books the librarian was judged more positively.
Evidence that NVC is innate
Neonate research – NVC displayed in newborns
Social releasers – certain NVC by newborns are adaptive
Facial expressions – neonates display an expression of disgust when given sour taste
Sensory deprived - blind children show similar facial expressions to sighted children.

Eye contact
When two people look at each others eyes at the same time.
Expressing emotion: PPs judged emotions as more intense if faces looking straight at them (Adams and Kleck)

Regulates flow of conversation – Kendon study PPs looked away when about to speak and gave prolonged gaze when about to finish.
Signalling attraction - People who use eye contact are judged more attractive
Personal space: The distance we keep between ourselves and others.
Cultures: English distance larger than Arab. Arabs liked Englishmen better if they stood closer
Gender: Fisher & Byrne- Women feel most uncomfortable when PS invaded from side, men front.
Status: Zahn- those with similar status stand closer than those of unequal.

(+) all have real world applications
(-) Body lang studies unethical – no consent
(-) eye contact artificial tasks

Yuki’s study of emoticons 
Aim: To investigate differences in the interpretation of emoticons in Japan and America
Method: 6 emoticons shown with different combinations of eyes & mouths (sad, happy, neutral) asked to rate how happy face was.+
Results: Japanese rated happiness higher than Americans when happy eyes shown
Americans higher happiness rate when mouths where happy even with sad eyes.
Conclusion: cultural differences in the way emotion is interpreted in facial expressions.
Japan use eyes as cultural norm to hide emotions but harder to hide eye expression.

(-) artificial materials
(-) only tested one emotion
(-) rating scale too simplistic for emotions
(+) repeated study with photos and got same results

Evaluation

Human vs animal communication
Evidence that NVC is learned Cross-cultural research -
Cultural differences in personal space
Gestures – differences in meanings
Social learning theory

Properties of human comm. not present in animal communication
Plan ahead and discuss future events – humans can discuss things that aren’t present animals focus on present
Creativity – humans have open system combining many words together animals system is closed
Single vs multiple channels – human language is expressed through spoken, written, sign lang and social media. Animals tend to just use one channel

Purpose of animal communication
Survival – vocal signs and visual signs to increase offspring survival – e.g. velvet monkeys communicate danger with an alarm call
Reproduction – Peacocks stretch out their feathers like an umbrella to show genetic fitness
Territory – mark territory using scent marking e.g Rhino dung fence
Food - signals that draw attention to food source e.g. bee dance.

Learning Mat – Memory

Encoding: changing info so that it can be stored.

Storage: holding info in memory.

Retrieval: recovering info from storage.

Recall: to bring a memory back into ones mind

Visual coding : focusing on what information looks like

Acoustic coding: focusing on what the information sounds like

Semantic coding: focusing on what the information means

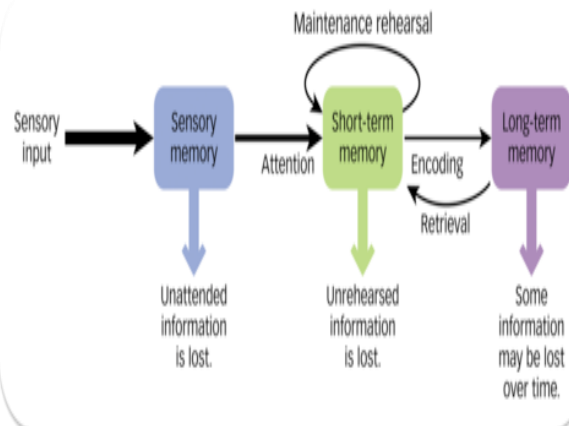
MULTI-STORE MODEL OF MEMORY

Says that there is more than one memory store.

Info arrives at our senses (sight, sound, taste, smell and touch). Stays in our **sensory store** but only for a very short period of time. If we pay attention here it moves to the short term store.

The short term store has a small capacity - it can hold approximately 7 items or chunks of information - new information pushes old information out. If you rehearse the information at this stage it moves into your long term store.

The long term store has a very large capacity and information can stay there indefinitely.



Evaluation of MSM:

- ☺ Support from case study of HM - shows he had two separate stores.
- ☺ Practical applications - using rehearsal to revise for exams.
- ☹ Simplistic- WMM developed because it lacks detail.
- ☹ Doesn't explain why we can recall information we didn't rehearse e.g. what we did last weekend.

Types of long term memory

Episodic: Unique memories which are concerned with personal experiences or events e.g. a holiday

Procedural: Our memory for carrying out complex skills. E.g. bike riding They are stored using motor code rather than verbal.

Semantic: Memories for facts and general knowledge. Knowing the capital city of a country

Key study: MURDOCK (1962) Serial position curve study.

Aim: evidence to support separate stores.

Method: participants had to remember lists of 20 words in any order asked to recall. Test repeated 80 times over a few days

Results: words at the end (**recency effect**) and start (**primacy effect**) were well remember but words in middle were forgotten. Displayed on graph called serial position curve.

Conclusion: evidence there is both a short term and long term store. Last few words still in STS so available to recall, first few words time to be rehearsed and pass into LTS so could be recalled. Middle words not in either store.

Evaluation:

- ☹ Participants all same age and studying psychology – can't generalise
- ☺ Other research similar findings supporting ideas – increases credibility
- ☹ Criticised for being simplistic explanation
- ☹ Learning list of words isn't usually how we use memories in everyday life so lacks ecological validity.

| MEMOR Y STORE | CODING | DURATIO N | CAPACITY |
|---------------|------------------|----------------------|------------------|
| Sensory | Same as received | Less than one second | Very limited |
| Short term | Mainly acoustic | Up to 30 seconds | Approx. 7 chunks |
| Long term | Mainly semantic | Unlimited | Unlimited |

Baddeley: investigated encoding in LTM & STM and found that information is coded acoustically in STM and semantically in LTM.

Learning Mat – Memory

Types of retrieval

RECOGNITION: Retrieving information whilst being given options to choose from, for example multiple choice questions

CUED RECALL: Retrieving information whilst being given a cue to recall the information such as 'it begins with...'

FREE RECALL: Retrieving information without any cues or options

Key study BARLETT (1932) 'The War of the Ghosts'.

Aim: unfamiliar stories altered to make more sense

Method: participants read a story had to retell 15 minutes later and then again and so on. A record was made each time story was retold.

Results: story got shorter, lots of omissions (e.g. ghosts gone), changed order of events & details.

Conclusion: our memory not an exact copy – influenced by beliefs and stereotypes.

Evaluation:

- ⊗ It is very difficult to measure the accuracy of stories told with a reliable scoring method.
- ⊗ Story is confusing and no similar to our everyday experiences.
- ⊙ More relevant to how we use our memories in everyday life.
- ⊗ Lack generalisability due to use of students as sample

Reconstructive theory

We alter our memory of things so that they make more sense to us. If we are trying to recall information we cannot remember our mind will fill in the gaps with details that make sense and fit with the rest of the information.

Effort after meaning: making sense of something unfamiliar after it has happened. This process involves making assumptions or guesses about what could or should happen. We can mistakenly remember things that aren't really there because they make sense within the situation.

Evaluation:

- ⊙ Despite theory being dated still popular today
- ⊙ Helps to understand why two people recall same event differently.
- ⊙ Everyday applications. Changed legal procedures in how eyewitness accounts are used in the criminal justice system

False memories

Remembering something that has never happened. Research shows that it is very easy to plant a false memory in someone's mind.

Loftus carried out a study where participants were questioned about their childhood. The researcher gave them true stories and one false one about getting lost in a shopping mall. 25% of the participants believed they had actually been lost and could give detailed accounts of what happened.

Factors that affect the accuracy of memory

Interference:

Things that take place between learning and recall can affect the accuracy of memory.

Retroactive Interference: when information we have recently learnt hinders our ability to recall info we have learnt previously.

Proactive Interference: when information we have already learnt hinders our ability to recall new info.

Research: Tested two groups. Group A given a list of words to learn followed by another list. Group B given the first list only. All participants then asked to recall the words from first list of words. The recall of group A is usually much less than group B because the second list interferes.

Context

The general setting of environment in which activities happen.

If you go into a room for something and then when you get there forgotten why you are there – when you return to what you were doing to remember.

GODDEN AND BADDELEY (1975) Deep sea divers study – learnt list of words on shore or under water and had to recall in same context other group learnt and recalled in different context. Concluded that information is recalled better if it happens in the same place learning takes place.

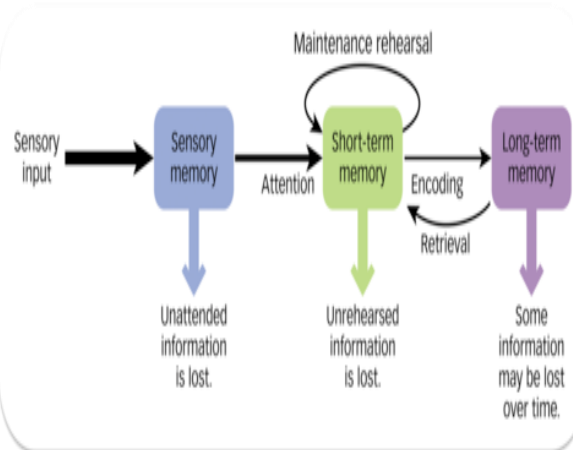
Evaluation of research into factors affecting accuracy of memory

- ⊗ Studies lack ecological validity- learning lists of words is not how we use our memory in everyday lives.
- ⊗ Research into false memories usually involves deception becomes less ethical

Learning Mat – Memory

Encoding:
Storage:
Retrieval:
Recall:
Visual coding :
Acoustic coding:
Semantic coding:

MULTI-STORE MODEL OF MEMORY



Key study: MURDOCK (1962) Serial position curve study.

Evaluation:

Evaluation of MSM:

| MEMORY STORE | CODING | DURATION | CAPACITY |
|--------------|--------|----------|----------|
| Sensory | | | |
| Short term | | | |
| Long term | | | |

Types of long term memory

Episodic:

Procedural:

Semantic:

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Learning Mat – Memory

Types of
retrieval

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Factors that affect the accuracy of memory

Interference:

Context

GODDEN AND BADDELEY (1975):

Evaluation of research into factors affecting accuracy of memory

Use these questions to check your understanding

1. Explain the following terms; encoding, storage, retrieval
2. Name two different types of encoding
3. Draw the multistore model of memory
4. State two evaluation points of the MSM
5. What are the features of the sensory memory?
6. What are the features of the short term memory?
7. What are the features of the long term memory?
8. How do we code information in the STS?
9. Name the three different types of memory and give an example of each one
10. What is interference?
11. What is retroactive interference?
12. What is proactive interference?
13. Describe the method from Murdock's research
14. Name & explain one fact that affects accuracy of memory
15. Describe Bartlett's theory of reconstructive memory
16. Give one criticism of Murdock's study

Learning Mat – Perception

Visual cues



Binocular depth cues

A way of detecting depth or distance, which requires two eyes in order to work.

Using binocular depth cues allows us to be much more accurate in our judgement of depth.

Types of monocular depth cues:

Linear perspective: When straight lines are angled so that they would come together at a point on the horizon

Retinal disparity: difference between the view of the left and right eye gives the brain information about depth

Convergence: eyes point closer together when an object is close. Muscles work harder so know distance and depth

Monocular depth cues

A way of detecting depth or distance which works with just one eye.



Height in plane: How high the object appears in the image

Relative size: How large an object appears in an image

Occlusion: When one object seems to cover part of another object

Gibson theory

Perception is innate it isn't based on past experience, contrasts with Gregory's theory.

Sufficient information for direct perception – sensation and perception are the same. Eyes detect everything we need without having to infer.

Motion parallax- when moving items closer to us appear to move faster than objects that are further away tells us about speed and distance.

Texture and colour gradient – changes in patterns, shades, tones.

Affordances- uses of an object can be perceived without need for past experience.

Sensation: the information we receive through our senses.

Perception: how we interpret or make sense of the sensory information that we receive.

Gregory's theory

Perception and sensation are not the same.

Perception is a construction: brain uses incoming information and information we already know to form a hypothesis/guess.

Inference fills gaps to create conclusions about what is being seen.

Visual illusions occur because of incorrect conclusions from visual cues.

Perception is learnt from experience. The more we interact the more sophisticated our perception.

+ Support from Hudson research into culture interpreting cues differently .1

- Used 2D illusions which are artificial so may not apply to real world

- Visual cliff study shows some cues innate

Evaluation

+ Support from visual cliff – babies didn't crawl off shows depth cues innate

- Can't explain why visual illusions trick us

+ Real world application – pilots in WW2 used information from nature to land planes

Culture:

The way we are brought up can influence our perception.

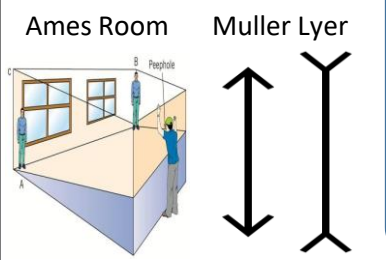
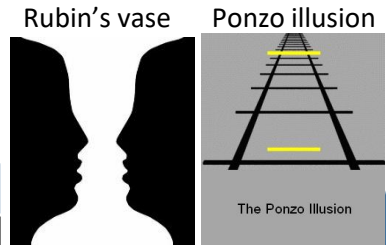
Hudson research showed that children from tribal cultures interpreted the depth of an image showing a hunter, antelope and elephant differently.

Emotion:

Our moods can affect how we perceive.

Children who are excited about Christmas time drew pictures of Santa bigger and with more presents than they did after Christmas and the excitement has gone.

Upset people notice more upsetting events and actions



Visual illusions

Happen when our visual perception is tricked into seeing something inaccurately. We misinterpret what is actually there in reality.

Reasons/Explanations

Misinterpreted depth cues- a depth cue is used inappropriately – e.g. Ponzo & Muller-Lyer, Ames room.

Ambiguity- having more than one possible meaning or interpretation - Rubin's vase

Fiction – creating something that isn't really there to complete an image - Kanizsa triangle

Size constancy – keeping our original perception of the size of an object, even when the image received by the eyes changes.

Factors affecting perception

Motivation

Gilchrist and Nesberg

Aim: To find out if food deprivation affects perception of food.

Method: 26 students. Half had no food 20 hours other ate normally. Shown slides with images of food e.g. hamburger. Had to adjust light to level of slide shown previously.

Results: food perceived as brighter longer they went without food.

Conclusion: hunger can affect how we perceive images of food therefore hunger is a motivating factor.

+ High ecological validity as participants actually hungry

+ further research support from similar study

- Sample size was small and all students so difficult to generalise

-Ethical issues of depriving participants from food may cause discomfort

Expectation

Bruner and Minturn

Aim: To see if expectation can direct perception.

Method: 24 students show sequence of letters or numbers with an ambiguous figure in the middle that could be interpreted as a B or 13 asked to write down what they had seen.

Results: Participants in the letter condition wrote a B, participants in the numbers condition wrote 13.

Conclusion: participants expectations had directly affected how they interpreted the ambiguous figure.

+ applications to real world as explains why people make mistakes

+ controlled & counterbalanced improves validity

- Sample size was small and all students so difficult to generalise

- Artificial task lacks ecological validity

Psychological problems

1 in 2 people will experience mental health problems

Types of depression

Clinical – medical term
Sadness vs depression – sadness = normal emotion still function.
Depression is enduring sadness that stops ability to function.
Unipolar – one emotional state
Bipolar – alternates with mania.

Biological explanations

Neurotransmitters: transmit messages chemically across synapse.
Serotonin: Low levels at synapse —> less stimulation of postsynaptic neuron causing low mood.
Other effects of serotonin
Lack of concentration, disturbed sleep and reduced appetite.
Reasons for low serotonin levels: Genes could cause inheritance of low serotonin production.
Low levels of tryptophan (ingredient of serotonin) from lack of protein or carbohydrates.

(+) research support, (-) cause or effect, (-) other explanations

What is mental health? Experiencing difficulties in the way a person thinks, feels and behaves.
MIND incidence rates per 100 people. Depression = 2.6, anxiety = 4.7, eating disorders = 1.7. Over time these change 2007 24% adults had mental health problems, 2014 it was 37%. More women than men. 2 explanations for rise in MH are increasing economic deprivation (lower income) & social isolation (older people).
Cultural differences in beliefs of what is abnormal & categories of MH differ around the world.

Social effects of MH problems

Need for more social care
Increased crime rates
Implications for the economy

Individual effects of MH problems

Damages relationships
Difficulty coping day to day life
Negative impact of physical wellbeing

Psychological explanation Faulty thinking: depression is caused by irrational thinking. Negative, 'black and white' thinking creating feelings of hopelessness.
Negative schemas cause a person to interpret all information about the self negatively.
Attributions: Internal, stable and global negative attributional styles create negative ways of explaining causes of behaviour.
Influence of nurture: Negative attributional styles develop through processes such as learned helplessness.
(+) Research support, (+) Real world application therapy (+) Negative beliefs may be realistic

Treatment CBT

Aim to change faulty thinking and catastrophising to rational thinking.
Behavioural activation: Planning and doing a pleasant activity creates positive emotions. Therapist deals with irrational thoughts Disputing negative irrational thoughts to develop self-belief and self-liking Client deals with irrational thoughts Thought diary: record unpleasant emotions and 'automatic' thoughts.
Rational response to automatic thoughts is rated. (+) lasting effectiveness & holistic (-) dropout rates

Diagnosing depression

ICD – mental and physical disorders diagnosed using symptoms
Number & severity of symptoms – mild unipolar if 2-3 key symptoms present plus 2 others. Present all or most of time for 2 weeks or more.

Treatment SSRIs

Increase serotonin levels in synaptic cleft. Serotonin stored in vesicles. Electrical signal in neuron causes the vesicles to release serotonin into the synaptic cleft. Serotonin locks into postsynaptic receptor transmitting the signal from presynaptic neuron. SSRIs block reuptake so there is more rated. serotonin in the synaptic cleft.
(-) side effects (can stop taking)
(-) other causes not biological (reductionist)

Key study Wiles' CBT

Aim: To test the benefit of using CBT plus in antidepressants for treatment-resistant depression, rather than antidepressants alone
Method: Patients with treatment-resistant depression either continued just with antidepressant or had CBT as well. Improvement measured using Beck's Depression Inventory (BDI).
Results: 6 months: 50% reduction in symptoms in 21.6% of usual care group, but 46.1% of usual care + CBT. 12 months: saw usual care + CBT continued to have better recovery
Conclusion: CBT with antidepressants is more effective than antidepressant medication alone.

(+) Well designed study – EV's controlled
(-) Use of self report methods for assessing depression could be inaccurate
(+) real world application

Self management programmes

12 step recovery programmes – Individuals organise therapy without professional guidance. E.g. Alcoholics Anonymous (AA)
Key element is giving control to higher power and letting go. Admitting and sharing guilt.
Lifelong process recovery is never complete group support when relapse. Self help groups peer sharing and support.
Evaluation: (-) lack of clear evidence, (-) high drop out rates, (+) holistic approach

Dependence: Psychological reliance/stop withdrawal symptoms
Addiction: Dependence plus the 'buzz' or sense of escape (mood modification).
Misuse vs abuse - Misuse is not following the 'rules' whereas abuse is using substance to 'get high' or sense of escape. The difference is the person's intentions.

ICD-IO states that an addiction diagnosis is made only if three or more characteristics are present together during the previous year.
1.Strong desire to use the substance.
2.Persisting despite known harm.
3.Difficulty controlling use.
4.Higher priority given to substance.
5.Withdrawal symptoms if activity stopped.
6.Evidence of tolerance i.e. needing more to achieve same effect.

Biological explanation

Genetic vulnerability: Multiple genes increase risk of addiction (nature).
Stressors in the environment act as a trigger (nurture).

Aversion therapy: Based on classical conditioning - association between addiction and unpleasant experience is learned.

Treating alcoholism: Antabuse causes nausea/vomiting. Just before vomiting, the alcoholic has several alcoholic drinks. Neutral stimulus (alcohol) associated with unconditioned response (vomiting) which becomes a conditioned response.

Treating gambling: Phrases on cards about gambling or non-gambling behaviour. Electric shock (unconditioned stimulus) given for any gambling related phrase (neutral stimulus). Association of gambling behaviours with pain

Treating smoking: Rapid smoking in closed room causes nausea. Nausea associated with smoking.

Evaluation: (-) Poor long term effectiveness
(-) drop out rates difficult to assess (+) holistic

Key study Kaij's twin study of alcohol abuse

Aim: To see if alcohol addiction is due to nature or nurture, using twins.
Method: Male twins registered with temperance board for alcohol problems were interviewed as well as their relatives
Results: 61% of identical (MZ) and 39% non-identical (DZ) twins both alcoholic
Conclusion: Alcohol abuse related to genetic vulnerability
Evaluation
(-) Flawed study - sample issues
(+) Supported by later studies (Kendler)
(-) Misunderstanding genetic vulnerability – life events can play a role

Psychological explanations

Peer influence & social learning theory: learn through observing others and imitating rewarded behaviours. We identify with peers and therefore are more likely to imitate them.
Social norms: We look to others to know what is 'normal' or acceptable, which creates social norms. Social norms may be overestimated.
Social identity theory: We identify with and want to be accepted by our social groups. This creates pressure to conform to the social norms of the group.
Peers provide opportunities for addictive behaviours, e.g. smoking. Peers provide direct instruction.
Evaluation: (+) supporting research 40 studies show + correlation, (+) real world application
(-) influence may be different - peer selection rather than conform

Learning Mat: Research Methods

Aim: Statement of the research purpose
Hypothesis: A testable statement about the relationship between two variables. In an experiment these variables are called the independent variable (IV) and the dependent variable (DV).
Null hypothesis: A statement predicting no relationship between two variables
Variable: A factor or thing that can change – it varies.
Independent Variable: The variable that the researcher alters or manipulates to look for the effect on another variable. This variable produces the two conditions of the study.
Dependent Variable: The variable that the researcher measures to see if the IV is affected.
Extraneous variable: Unwanted variable that could affect the DV.

| | | |
|---|--|--|
| Laboratory experiments Experiment is high in control over what happens. | Strengths EV's can be controlled so cause and effect can be established. Uses standardised procedures | Weaknesses Behaviour in a lab less normal difficult to generalise Participants may change behaviour because they're aware they are being watched. |
|---|--|--|

| | | |
|--|--|---|
| Field Experiments take place in a natural setting IV manipulated by the experimenter. | Strengths More realistic behaviour than a lab as in natural environment Higher ecological validity Less chance of demand characteristics | Weaknesses May lose control of EV's so difficult to establish cause and effect. Ethical issues such as deception or consent more likely. |
|--|--|---|

| | | |
|--|--|---|
| Natural experiments take place in field or lab, IV is not changed by the experimenter it varies naturally. | Strengths May have higher validity because real world variables. Can use standardised procedures so less EV.s | Weaknesses Few opportunities to carry out as behaviours may be rare – may also lead to small samples May be EV's as cant randomly allocate ppts. |
|--|--|---|

Reliability – a measure of consistency.
Validity – relates to whether a result is a true reflection of real world behaviour.

Primary data – obtained first hand by research
Secondary data – data from other studies or government stats.
+ useful as suits aims of researcher
- Time & effort to collect
+ Easy and convenient to use
- May not fit with researcher aims

Experimental designs – the way that we organise the participants into conditions

| | | |
|---------------------------|--|---|
| Independent groups | Different groups of participants for each condition | + no order effects - Participant variables - More participants needed |
| Repeated measures | All participants take part in both conditions | + no participant variables + fewer participants needed so cheaper - Order effects present |
| Matched pairs | Participants are tested on variables relevant to the study and then matched and one person from each pair completes one condition. | + no order effects + Less participants variables - Time consuming to match participants - Not all participant variables are controlled |

Ethics
BPS guidelines are a code of conduct all professional psychologists should follow.
Informed consent: Participants should be told of the purpose of the research and that they can leave at anytime
Deception: participants should not be lied to or misled about aims.
Privacy: Participants have the right to control information about themselves.
Confidentiality: Personal data must be protected and respected.

Dealing with ethical issues
Informed consent – sign a form that tells them what is expected
Deception – full debrief to explain true aims.
Protection from harm – Debrief and follow up.
Privacy and confidentiality – keep details anonymous (give numbers or use initials).

Sampling
Target Population
The large group of people the researcher wishes to study.
Sample
The small group of people who represent the target population and who are studied.
Representative
The sample of participants is made up of people who have the same characteristics and abilities as the target population.
Generalised
The results from the sample can be said to apply to the target population.

Dealing with issues;
Participant variables= use random allocation; use of chance or systematic method to allocate participants to conditions.
Order effects = use **counterbalancing**;
Order in which participants complete conditions is evened out e.g. half complete condition in one or whilst other half complete opposite

Research procedures – these all reduce the chance of extraneous variables and make research more reliable.
Instructions to participants;
Giving the same information about the study to all participants.
Standardised procedures;
Using the exact same methods and procedures for participants in a study
Randomisation;
Using chance to control effects of bias when designing a study e.g. picking words for a list in a memory study.

Sampling methods

| Random | Opportunity | Systematic | Stratified |
|---|---|--|--|
| Each person has equal chance of being selected, | Selecting people available at time e.g. who is present in the shopping mall | Selecting every nth person from a list of target population | Selecting participants from sub groups |
| + no bias - Takes time | + Quick and easy - Researcher bias - Less representative | + avoids researcher bias - Sample may be unrepresentative | + most representative - Very time consuming |

Observations

Researcher watches or listens to participants and gathers data.

Types of observations

Natural: record behaviour where it normally occur.

Or

Controlled: researcher manipulates aspects of the environment

Covert: Participants not aware behaviour is being recorded

Or

Overt: Told in advance

Participant: Researcher is involved

Or

Non-participant: Researcher remains separate

Behavioural categories: Target behaviours are selected and broken down into observable categories e.g. using mobile phone.

Inter-observer reliability: Two observers record data at same time with same mark sheet, results are compared.

- + When participants not aware higher ecological validity
- + controlled observations easier to replicate
- Ethical issues of consent if observing in a public place
- Observer Bias – researchers can be subjective
- When ppts know they are being watched behaviour may change

Interviews

Face to face, real-time contact. Can also be phone.

Structured: pre-planned list of questions to ask.

Un-structured: Some questions prepared before, new questions can be created depending on interviewee response.

Semi-structured: some questions pre-planned but follow-up can emerge.

(-) Structured interviews prevent the opportunity for more depth to be obtained from follow up questions.

Evaluation

Strengths: (+) produce a lot of information

(+) Insight gained into thoughts and feeling –high in validity

Weaknesses: (-) Data can be difficult to analyse (-) subjective

(-) People can feel uncomfortable talking face to face.

Questionnaires – prepared list of questions that can be answered in writing, over the phone, internet etc.

Open questions- tend to produce qualitative data.
More detailed responses

Closed questions – fixed range of answers e.g. rating scale or yes/no.

(+) gather information from many people (+) closed questions easy to analyse

(-) leading questions cause issues with validity

(-) social desirability bias

Case studies: An in-depth investigation of an individual, group, event or institution.

Longitudinal – carried out over a long period of time so can see how behaviour changes. Can also be retrospective meaning they look back and collect historic data.

+ Research lacks specific aims so researcher more open-minded

+ Best way to study rare behaviours

- Focus on one individual or event so cant be generalised

- Can be subjective

Quantitative data – information that can be counted usually in form of numbers
Evaluation
+ Easy to analyse and draw conclusions
- Lacks depth

Qualitative data – information expressed in words
Evaluation
+ more depth and detail
- Hard to analyse and summarise

Descriptive stats

Range: Spread of data. Arrange in order and subtract lowest from highest score

Mean: mathematical average
Add up all scores and divide by the number of scores

Median: Middle value.
Data put in order from lowest to highest

Mode: Most common score

Evaluation

(+) easy to calculate
(-) Can be distorted by extreme scores

(+) Uses all of data so most sensitive measure
(-) distorted by extreme values

(+) Not effected by extreme scores
(-) less sensitive than the mean to variation in values

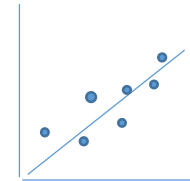
(+) very easy to calculate
(-) can be unrepresentative

Correlations

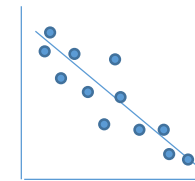
Show a relationship between two variables. Shows link or association but NOT cause and effect.

Co-variables are quantitative data – continuous numerical data.

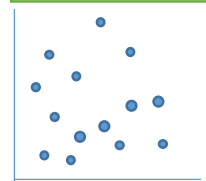
Positive: as one variable increases so does the other



Negative: as one variable increases the other decreases



Zero: There is no relationship between the two variables



Displaying quantitative data

Scatter diagrams

Display correlation one co-variable is place on X axis one is place on the Y axis. A dot is placed where they meet.

Frequency diagrams

Histogram: continuous categories/data, no spaces between bars.

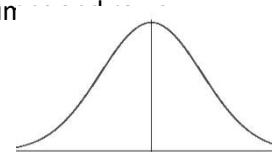
Bar chart: bars can be in any order data is not continuous e.g. favourite colour.

Frequency table

Recording the number of times something occurs allows systematic way of organising data in column

Normal distribution

Symmetrical spread of data forms a bell shape with mean, median and mode at peak.



Decimals - any number written with a point. Position represents value, left on point is whole number.

Fractions – reduced to simplest form

Ratios – a way to express fractions e.g. 8:2>4:1

Percentages – fraction out of 100

Standard form – way to represent very long or short numbers

Significant figures-

Learning mat – social influence

Obedience

Compliance with an order/request of someone we perceived to hold authority

Conformity

Conformity is changing our behaviour or thoughts as a result of group pressure. Factors that affect conformity can be social or dispositional

| Social | Dispositional |
|--|--|
| Group size – bigger group size increases conformity | Personality – high internal locus of control less conform |
| Anonymity – writing answers down anonymous and conformity lowers | Expertise – more knowledgeable people conform less; expertise also less effected by task difficulty. |
| Task difficulty – If the line were more similar it made task harder and conformity increased | |

Milgram's Agency Theory

Individuals act as an agent for someone else. They believe they are not responsible for actions. In one of two states agentic or autonomous. Autonomous behave with own free choice. Agentic shift: occurs when someone moves from making own free choices to following order of someone in authority. Position in social hierarchy can mean certain people have more authority. Social hierarchy is progressive e.g. Children obey parents, parents obey laws, etc.

Adorno's Authoritarian Personality

A person who is very obedient to those in authority. Look down on people of lower status. They hold rigid stereotypes known as cognitive style. Originate in childhood through parenting style. Stricter parents. Adorno created F-scale to test if a person has authoritarian personality.

Milgram study

Aim: to investigate if Germans are different in terms of obedience
Method: 40 male volunteers
Teacher instructed by experimenter to give a shock if 'learner' answered a question incorrectly.
Conclusion: obedience best explained in terms of situational factors and not disposition.
(+) supported by other research (Sheridan an King)
(-) lack of realism
(-) ethical issues – harm

Deindividuation

A person loses their sense of individuality when in a group. Anonymity is key feature of a crowd. Can lead to antisocial behaviour. Normal behaviour is ruled by social norms, when we can't be identified we lose these restraints and behave impulsively and antisocially. Zimbardo studied this and found that when participants' identities taken away they were more likely to inflict electric shock onto a 'learner'. Deindividuation not always antisocial – loss of personal identity can result in the individual adopting group identity. Research into deindividuation has real world application – managing crowds at sports events by using cameras to increase self-awareness.

Bystander behaviour – the presence of others reduces the likelihood that help will be offered in an emergency situation.
Diffusion of responsibility – people individually feel less responsible

Piliavin

Aim: To investigate if the appearance of a victim affects help given in an emergency
Method: Male confederate collapsed on subway, confederate either appeared drunk or disabled (with cane). 103 trials.
Results: Disabled victim given help on 95% of trials compared to 50% helped when drunk. Help didn't differ if crowded or empty carriage.
Conclusion: Characteristics of victim affects help given. Number of onlookers doesn't affect help in natural setting.
(+) high realism – participants not aware there was a study taking place
(-) Urban sample so may be more used to emergencies
(+) Qualitative data was collected which gave explanations for why people help or not.

Social loafing

When working in a group people put in less effort. Latane et al found participants made less noise when in a group of 6 than when tested alone. Depends on task – creative tasks e.g. brainstorming people individually produced more. Culture – collectivist cultures like Chinese people put in same effort even if amount of effort can't be identified, but not same with individualist cultures.

Personality and morality are both dispositional factors that affect how people behave when in a group or alone.

Asch study
Aim: to investigate group pressure in an unambiguous situation.
Method: 123 American males
Two cards: standard line and 3 comparison lines. Confederates asked which of 3 lines matched standard line all gave same incorrect answer, ppt was also asked responses recorded.
Results: 75% of participants conformed at least once.
Conclusion: People are influenced by group pressure.

(-) child of the times
(-) artificial task
(-) cultural differences can't be generalised
(+) lab experiment so controlled variables

Evaluation

Social and dispositional factors that affect bystander behaviour

Presence of others
The more people the less likely someone will help.

Cost of helping
Includes danger to self or embarrassment
Also cost of not helping e.g. guilt or blame

Similarity to victim
Help is more likely if victim is similar to self e.g. football fans helping same team fans

Expertise
People with specialist skills more likely to help in emergencies e.g. registered nurses helping workman (Cramer et al.)